Professional Development of Vocational Teachers in Language-Sensitive Content Teaching
–
A Study Visit Abroad as Design-Based Research Intervention for Vocational Teachers Working in School-to-Work Transition Phases

Der Rechts- und Wirtschaftswissenschaftlichen Fakultät /
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Preface

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» The greatest sight to see of all is the
world – so take a look at it.«

Kurt Tucholsky (1890-1935),
German writer and journalist

» I am not the same having seen the moon shine on
the other side of the world.«

Mary Ann Radmacher, consultant, author, artist and
professional speaker

****

A change of perspectives describes one of the most challenging and exciting motivations of the present thesis. This is not understood as a one-time change and sticking to the chosen perspective, but rather a constant balancing act between the primary scientific perspective and one aiming at understanding and developing useful recommendations for the practice.

The present thesis “Professional Development of Vocational Teachers in Language-Sensitive Content Teaching – A Study Visit Abroad as Design-Based Research (DBR) Intervention for Vocational Teachers Working in School-to-Work Transition Phases” has been the result from my scientific work at the chair of Business Education and Human Resource Development at Paderborn University and the University of Erlangen-Nuremberg as well as my project work at the EU Service Center for Business and Vocational Education and Training at Münster District Administration. It deals with the issue of how and why specific vocational teacher competences can be developed by means of a transnational study visit abroad, which are necessary to teach in a language-sensitive way. The aim is to support vocational teachers working at the school-to-work transition to enhance their teaching of linguistically heterogeneous young adults.

The **changing requirements of teachers´ work in vocational education and training institutions** are the starting point of this investigation. In particular, programs located in the school-to-work transition involve learners who are increasingly heterogenous in terms of linguistic proficiency and diversity. Vocational teachers reach their limitations as they are often not able to absorb this need for a broader language promotion due to their specialist background. Which competences do they need and how can these be developed to be (better) able to meet this need?

The **motivation** of this thesis is thus to take a look at the world as it is the greatest object of interest we have as stated by Tucholsky. The *world* here describes our context, professional development of teachers within vocational education and training in the context of European VET challenges. For me, this points to the heart of qualitative social research in contrast to quantitative science – observing carefully the real world, doing anything we can to understand

the phenomena we look at, and generating potential, new theories from this. The focus on language sensitivity as a central element of each lesson´s quality including the teachers´ own sensitivity in their use of language stem from my personal academic and working background. I know the complexity of language, however appreciate as well what it can accomplish if used in an appropriate way. After both economic and linguistic studies, I worked in business education science and European mobility projects in the context of vocational education and training and the school-to-work transition. Thus, I have experienced that, so far, a sensitization of teachers working with learners in this area is hardly successful or only in individual cases. The need for an integration of language promotion within content teaching is treated as a subject matter within vocational education and is also present due to individual trainings held in the institutions. However, it can be assumed that an actual awareness and actions for the practice are scarce, not to mention the international perspective which is neglected here. It is necessary to draw the attention to this issue and this thesis provides an exemplary solution from a transnational study visit.

The thesis is framed within the field of empirical educational research, or more precisely, development and design research. The research topic is diversified as it is derived from both the vocational education context and the field of linguistics. It can be clearly associated to the research field of business education and human resource development. Despite the fact that it deals with language-sensitive content teaching, the focus is always on the vocational or general subject teaching in the framework of school-to-work transition. With respect to the present further development opportunity for vocational teachers aiming at developing their competence for language-sensitive content teaching, vocational action competence of the learners is always the underlying objective.

This study shall serve as a first stage and incentive for designers as well as teachers in vocational training institutions to enable and engage in more international exchange. The subject matter of a comprehensive and long-term language sensitivity in the context of professional development in VET (school-to-work transition) should not be seen as a necessary evil. Instead, it should be considered a chance for a long-term improved learning and teaching environment.

How did the **research question** evolve? The result of the above leads to the question of “Which features does the transnational study visit have aiming at developing or enhancing the language-sensitive content teaching competence for German vocational teachers at the school-to-work transition?”. In design-based research, there is – among other aspects – a special and close relationship between the researcher and the research subject and object.

The **research object** is situated within a certain context – this context is highly important for the pre-study (literature and prior empirical experience analysis), for the development and implementation of the investigation and in particular for the evaluation. Everything has to be analyzed and evaluated with a careful consideration of the specific context. I.e., the findings of the study, the recommended actions for the educational practice and theoretical assumptions that are built as a consequence of the investigation, and are sensitive to this particular context.

The **research subjects** (German vocational teachers in vocational education and training institutions) act, think and behave in a context-sensitive manner, as well. Following the DBR Approach, the research subjects are seen as the co-participants of the researcher. Here, the research approach of involving both scientists and practitioners already manifests itself.

Concentrating on business and vocational education **with a special focus on linguistic components** *within* the superior aim of teaching vocational action competence results from the increased need for action. The number of learners in the education-related fields of activity at the school-to-work transition in German vocational training institutions have risen from time to time in the past years. In particular, a lack of language proficiency in the German language (official language) prevent learners from entering the job market or developing on a personal level. I wish for research findings in this area to contribute to more social participation for these. By representing one responsible part of the cause-effect chain, research findings shall and must support the personnel of vocational training institutions by assisting them with their daily challenges.

All in all, the thesis strives for addressing **vocational teachers** who directly deal with linguistically heterogenous learners. On the other hand, it addresses all **researchers and institutional developers** who deal with the advancement of professionals´ competences in vocational education and training in a more international, European manner. The transnational perspective includes taking a look at different framework conditions in view of language-sensitive content teaching in vocational education and training in Europe. The study visit abroad design leads to developing teachers´ language awareness.

I hope that readers addressed above as well as all others enjoy reading the thesis and that it will offer incentives for engaging in the (further) development and the exercise of their profession in today´s and future linguistically heterogenous working and life world.

On all accounts, this dissertation would not have been possible without the persistent and substantial support, and encouragement of individuals from both the academic and social sphere. This includes my doctoral supervisor and distinguished committee members as well as my family and friends.

I express my sincere gratitude and appreciation to my doctoral supervisor Professor Dr. Nicole Kimmelmann. She supervised me trustfully, supported me with encouraging and constructive feedback, helpful and applicable academic advice, and helped me persevere through my research project. She left me ample freedom, and then provided me with valuable orientation at the right time.

Further special gratitude is owed to Professor Dr. Karl Wilbers who readily and gladly agreed upon reading my thesis as second supervisor.

The dissertation is mainly the result of the cooperation and contribution of numerous experts from theory and practice in Germany, France and Sweden. In particular, I would like to thank the participants from the vocational schools in NRW for their willingness to take part in the professional development intervention in such an open and interested manner and as co-researchers and cooperation partners, as intended in the Design-Based Research Approach. Thank you for telling me your experiences in the interviews, deliver useful feedback and bringing up exciting, important or new questions or arguments. Tack så mycket, Åsa Broberg, Eva Eliasson and Katarina Lagercrantz from Stockholm University as well as merci beaucoup à Marilou Breda and her colleagues from Association Odyssée in Bordeaux for hosting my groups and myself and for the open talks and warm-hearted welcome and hospitality. You have been valuable in the cooperation process of the design-based research study, thank you for that.

Apart from that, I express my gratitude to Reinhold Lawerino and Antje Semmelmann who, on the one hand, contributed to shaping my way into the field of vocational education and training with European focus in the past years. On the other hand, they provided me with the opportunity to act independently within the framework of the project and thus implement my research project in the practice. I particularly thank Antje for the constructive feedback, inspiring remarks, and the joint discussion of ideas.

Furthermore, my thanks go to Dr. John Riach for his valuable and extremely helpful comments and suggestions with respect to the challenge in view of the translation of the German terminology of business education and vocational education and training into the English language.

Colleagues and friends have also generously contributed to the present results in that they assisted not only in answering content-related questions and as corrective helpers, but especially also personally and emotionally. Thanks to Franziska Blößl from our former chair, we had a short time working together but she has always been warm-hearted and interested in my research. Thanks to all my former colleagues from the Department of Business Education in Paderborn, especially Simone Volgmann. Moreover, I would like to point out in particular Dr. Sebastian Peitz and Dr. Britta Hoyer, thank you for your friendship, practical and encouraging advice and small diversions from the research pressure. My friend Britta and her colleagues from the chair have always included me during my individual work phases and the joint lunch breaks were an emotional and pleasant support for me, thank you for that.

Not least, but especially, I express my special thanks to my parents, Edeltraud and Ulrich Brummel, my brother Marius Brummel and my husband Sebastian Peitz – my family, who I owe my greatest love and gratitude and whom I dedicate this dissertation to.

My deepest gratitude to my parents for their caring support at a young age and until today with respect to everything that I have done. They taught me that there is nothing to be afraid of, gave me wings, and simultaneously dropped an anchor which I can always rely to. Thanks to them, I could develop freely, which is not something to be taken for granted and for which I am infinitely grateful. Thank you for always supporting me and playing the biggest role. I also thank Marius for always sticking together.

I express my deepest gratitude to Sebastian, for his willingness to listen – in good or bad times. With calmness, understanding and bulletproof optimism, he has often given me sound advice during the past years of research time, be it to become more able to take criticism or learn to be (a little more) patient. Thank you for each and every day with you – for a long time and hopefully, forever.

Nina-Madeleine Peitz, 2020

Deutscher Titel:

Weiterbildung von Berufsbildungspersonal im sprachsensiblen Fachunterricht – ein Studienbesuch im europäischen Ausland als designbasierte Maßnahme für deutsche Lehrende am Übergang Schule – Beruf

ZUSAMMENFASSUNG

Ausgangspunkt der vorliegenden Arbeit ist der Berufsalltag des Berufsbildungspersonals, welcher durch Globalisierung und Digitalisierung seit einiger Zeit zu einer herausfordernden Aufgabe geworden ist. Sprachliche Heterogenität unter den Lernenden, insbesondere Sprachschwierigkeiten in der Landessprache, existieren in allen (beruflichen) Fächern am Übergang Schule-Beruf. In diesem Teil des Bildungssystems bereitet das Berufsbildungspersonal Lernende, denen fachliche und oftmals sprachliche Qualifikationen fehlen, auf eine zukünftige Berufsausbildung vor. Lehrende sind hierbei in den meisten Fällen Fachexperten, die nun eine zusätzliche sprachliche Fähigkeit benötigen: die Kompetenz der Sprachsensibilität, um mit der Vielzahl an Problemen im Zusammenhang mit Sprachkenntnissen ihrer Lernenden im (beruflichen) Fachunterricht umzugehen.

Durch diese Diversität, Heterogenität und den daraus entstehenden Bedarf an sprachlicher Unterstützung ist die Notwendigkeit einer integrierten Sprachförderung am Übergang Schule-Beruf entstanden. Jüngst existieren in Deutschland Modelle eines sprachsensiblen Fachunterrichts für die berufliche Bildung in Anlehnung an das für den bilingualen Unterricht entwickelte Konzept des Content and Language Integrated Learning. Eine Kernkomponente dieses Konzepts des sprachsensiblen Fachunterrichtens ist die eigene Sprachsensibilität des Berufsbildungspersonals, die eine große Rolle beim Vermitteln von Fachinhalten in einer sprachlich diversen Lerngruppe spielt. Trotz einer Reihe entsprechender Weiterbildungsangebote im Praxis- oder universitären Bereich für Lehrende durch die Berufsbildungsinstitute scheint die (insbesondere langfristige und/oder praktikable) Umsetzung dieses Konzeptes noch nicht oder nur schwer realisierbar zu sein.

Neben der hohen bildungspolitischen Relevanz auf nationaler Ebene stehen auch auf internationaler Ebene Berufsbildungsinstitutionen vor ähnlichen Herausforderungen, nicht zuletzt durch das Eintreten der Vielzahl an jungen Geflüchteten in die Berufsbildungssysteme der jeweiligen Länder. Die europäische Dimension verbunden mit dem Mangel an konkreten alltagstauglichen Weiterbildungsangeboten für Lehrende in Deutschland, ihre eigene Sprachförderkompetenz auszubauen, stellen den Bedarf für einen über die Ländergrenzen hinausgehenden Lösungsansatz dar. Diese Arbeit unternimmt den Versuch, die beschriebene Forschungslücke zu schließen, und exemplarisch anhand zweier transnationaler Studienbesuche

im Rahmen des Design-Based Research-Ansatzes zu eruieren, wie eine Weiterbildungsmaßnahme dieser Art gestaltet sein könnte, damit die Kompetenz, sprachsensibel ein Fach unterrichten zu können, bei deutschen Lehrenden in der Berufsbildung gefördert wird. Damit wird vornehmlich aus der Lehrendenperspektive aufgezeigt, wie eine transnationale Weiterbildung für Lehrende am Übergang Schule – Beruf zur Förderung ihrer Sprachsensibilitätskompetenz beitragen kann, um sie in ihrem Arbeitsalltag zu entlasten.

Zielsetzung der vorliegenden Arbeit ist es daher, zu untersuchen, wie die Kompetenz der Sprachsensibilität bei deutschem Berufsbildungspersonal am Übergang Schule - Beruf im Rahmen einer transnationalen Weiterbildungsmaßnahme gefördert werden kann. Schwerpunkt bildet die Erforschung der Gestaltung, Umsetzung und Evaluation eines Studienbesuchs zum o.g. Thema im europäischen Ausland. Die Umsetzung der Weiterbildungsmaßnahme findet im Rahmen eines Modells statt, das ein didaktisches Design zu einem Studienbesuch präsentiert, das auf den sprachsensiblen Fachunterricht abzielt, der in verschiedenen europäischen Ländern unterschiedlich interpretiert wird. Der Studienbesuch hat insbesondere den Effekt, das Lehrende ihr eigenes Sprachbewusstsein (weiter-)entwickeln. Dadurch soll die Intervention a) eine Erfahrung zur Entwicklung des eigenen Sprachbewusstseins sein, und b) ihre Kompetenz entwickeln oder erweitern, sprachsensibel mit Lernenden umzugehen und zu unterrichten, indem Einblicke in die Arbeit mit sprachsensiblem Unterricht in anderen europäischen Ländern gegeben werden. Ein transnationaler Studienbesuch zu diesem Thema trägt dazu bei, den Bedarf nach einer Weiterbildungsmaßnahme zu decken.

Es wurde ein Forschungsmodell entwickelt, das zwei vollständige iterative Entwicklungszyklen enthält, mit einer Weiterbildungsintervention in Schweden und einer zweiten, überarbeiteten in Frankreich. Am Ende steht ein Konzept mit Gestaltungsempfehlungen für ein Weiterbildungskonzept, um die Sprachförderkompetenz von Lehrenden zu entwickeln. Es enthält übergeordnete, allgemeine Gestaltungsprinzipien, die für den spezifischen Kontext gültig sind, in dem sie entwickelt wurden.

Als geeignetes Forschungsparadigma wurde der Design-Based Research-Ansatz gewählt. Er bedient sich Methoden der qualitativen Sozialforschung. Die Eignung des Ansatzes zeigt sich einerseits durch sein praxisorientiertes Design, das die enge Zusammenarbeit mit Experten aus der Bildungspraxis erforderte. Andererseits ist es ein Entwicklungsprozess, der aus iterativen Zyklen des Testens, der Evaluation und Revision besteht.

Die Ergebnisse dieser Studie zeigen positive Effekte in Form eines europäischen Studienbesuchkonzeptes als Weiterbildungsmaßnahme zur Kompetenzentwicklung von Lehrenden zum sprachsensiblen Unterrichten im Fach (praktischer Output) und Gestaltungsempfehlungen in Bezug auf den spezifischen Kontext (theoretischer Output).

ABSTRACT

The initial motivation for this thesis is the daily work of professionals in vocational education and training (VET) which has become a highly challenging task due to globalization and digitalization. Language heterogeneity among learners, in particular language difficulties, are present in all (vocational) subjects of the school-to-work transition. In this part of the educational system, professionals prepare learners for a future vocational education and training who lack the specialist and often linguistic qualification. Professionals are characterized as subject matter experts who are, as a consequence, now required to obtain an additional linguistic skill: the competence of language awareness in order to deal with the multitude of and deficits in learners´ language proficiency during their subject content teaching.

Due to this diversity and the need for language support, there is a necessity for an integrated language promotion within school-to-work transition in VET. Recently, concepts of an integrated language promotion within (general or vocational) subject content teaching in VET have been developed in Germany. One of the key driving factors is that the professional´s own language awareness plays an important role in teaching subject matters within a linguistically diverse learning group. Despite the fact that several offers for further development have been provided to professionals, there is still a lack of practical long-term implementations of professional development measurements.

Besides the high relevance with regard to the educational policy national level, the VET systems on the European level face similar challenges, one reason being the entrance of a multitude of refugees into the VET systems of the various European countries. The international dimension combined with the lack of a concrete practical and effective professional development measures for teachers that aim for an increase of their language awareness and language promotion competence result in the need for a solution across national boundaries. This study presents an attempt to close the research gap and show how a transnational professional development intervention in the context of the design-based research approach can contribute to the development of German vocational teachers´ competence to teach in a language-sensitive way. From the teachers´ perspective, it is shown how a professional development measure can support them in their daily work.

Thus, the central aim of this present study is to investigate how teachers´ competence to teach contents in a language-sensitive way can be transnationally addressed within a professional development concept for German vocational teachers in the school-to-work transition system. The focus lies on the research on designing, implementing and evaluating a study visit in two

European countries in view of the above-mentioned issue. The implementation of the professional development intervention takes place via an innovative model of a study visit abroad based on the concept of language-sensitive content teaching which is interpreted differently in different European vocational education systems. In particular, the study visit addresses the professionals´ own language awareness. Thereby, the intervention a) is intended to be a language awareness development experience for the teachers and b) yields interesting insights into the issue of language-sensitive content teaching and how it is addressed in other European countries. Thus, a transnational study visit can match the need for a respective professional development intervention.

More specifically, a research model is built which includes two complete iterative development cycles with one professional development intervention in Sweden and a second, revised one, in France. In the end, a concept of recommendations for an innovative form of professional development in language-sensitive content teaching is obtained. It contains comprehensive, general, cross-sectoral design principles valid for the specific context it has been developed in.

The design-based research approach was chosen as the adequate research framework. It uses methods of qualitative social research. The adequacy is due to the intended practice-oriented design that requires the close collaboration with experts from practice and the process is characterized as developmental including iterative cycles of testing, evaluation and revision.

The results of this study show positive effects in the form of a study visit across borders as a professional development intervention about developing the competences associated with language-sensitive content teaching (practical-oriented innovative output) and design principles with regard to the specific context in school-to-work transition (theoretical output).

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Glossary

Vocational education and training terminology

English	German
Ability to act	Handlungsfähigkeit
Business Education	Wirtschaftspädagogik
Business and Vocational Education	Wirtschafts- und Berufspädagogik
Maturity required to start a vocational training	Ausbildungsreife
Principles of teaching, pedagogy	Didaktik
Professionals at vocational education institutions	Berufsbildungspersonal
School-to-work transition	Übergang Schule - Beruf
Social educational institution	sozialer Bildungsträger
Training maturity	Ausbildungsreife
Vocational action competence (the ability to act professionally)	berufliche Handlungskompetenz
Vocational education and training	Berufsbildung
Vocational education system	Berufsbildungssystem
Vocational training institution, VET institution	Berufsbildungsinstitution
Vocational training preparation	Ausbildungsvorbereitung

Language register terminology

English	German
Consistent language development	durchgängige Sprachbildung
Job-related / vocational language	Berufssprache
Language-sensitive content teaching	Sprachsensibler Fachunterricht
Language used for educational purposes	Bildungssprache
Language used for vocational education purposes	Berufsbildungssprache
Technical terminology, specialist language	Fachsprache

Miscellaneous:

English	German
States	Bundesländer
Federal Institute for Vocational Education and Training	Bundesinstitut für Berufsbildung
Federal Ministry of Labour and Social Affairs	Bundesministerium für Arbeit und Soziales
Federal Office for Migration and Refugees	Bundesministerium für Migration und Flüchtlinge
Standing Conference of the Ministers of Education and Cultural Affairs of the Länder in the Federal Republic of Germany	Kultusministerkonferenz

List of Abbreviations

ALA	Association for Language Awareness
APO-BK	*Ausbildungs- und Prüfungsordnung Berufskolleg in NRW* (training and examination regulations in vocational education and training institutions in NRW, Germany)
BAMF	*Bundesministerium für Migration und Flüchtlinge* (Federal Office for Migration and Refugees)
BiBB	*Bundesinstitut für Berufsbildung* (Federal Institute for Vocational Education and Training)
BICS	Basic interpersonal communicative skills
BMAS	*Bundesministerium für Arbeit und Soziales* (Federal Ministry for Labour and Social Affairs)
BMBF	*Bundesministerium für Bildung und Forschung* (Federal Ministry of Education and Research)
BSO	Schulordnung für die Berufsschulen in Bayern (School regulations for vocational education and training institutions in Bavaria, Germany)
CALP	Cognitive academic language proficiency
CASNAV	Academic Centre for Education of Newcomers and Travellers Children
C&E	Contact and exchange
cedefop	European Centre for the Development of Vocational Training
CFA	Les centres de formation d'apprentis (certified vocational organization for the preparation of trainee contracts for the 16- to 25-years old)
CLIL	Content and language integrated learning
CPC	Contact, preparation and consulting
CPD	Continuous professional development
DBIS	Databank Infosystem
DBR	Design-based research
DBRA	Design-based research approach
DBRC	Design Based Research Collective
EC	European Commission
EQF	European Qualification Framework
EU	European Union
FL	Foreign language
FEN	Foreign experts from networks
FPC	Foreign project collaborator

FSM	Foreign school management
FVT	Foreign vocational teachers
GVT	German vocational teachers
KMK	*Kultusministerkonferenz*
LA	Language Awareness
LAC	Language across the curriculum
LPC	Local project collaborator
LSCT	Language-sensitive content teaching
LSM	Local school management
NRW	North Rhine-Westphalia
OECD	Organisation for Economic Co-operation and Development
PAD	*Pädagogischer Austauschdienst*
PC	Project collaborator
PD	Professional development
PDI	Professional development intervention
PDM	Project development meeting
PPK	Principled practical knowledge
PVET	Professionals in vocational education and training
QCA	Qualitative content analysis
R2L	Reading to learn
SELO	Sections européennes et de langue orientale
SFI	Swedish for immigrants
SL	Second language
SPC	Scientific project coordinator (researcher and project coordinator in practice in one person)
STWT	School-to-work transition
SVA	Swedish as a second language (Svenska som andraspråk)
TLA	Teacher language awareness
TTnet	Training of Trainer Network
VET	Vocational education and training
VET/YL	Vocational Education & Training / Yrkeskunnande och lärande
VT	Vocational teachers
VTI	Vocational training institution
VTPS	Vocational training preparation system
w.r.t.	With respect to

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I Specification of the Problem and Structure of the Work

The present chapter is the starting point of this thesis. It is a presentation of the research need and questions, the orientation in view of scientific theory and the underlying understanding of professional development in vocational education and training with regard to language-sensitive content teaching. Part I.1 is thereby oriented on the line of argumentation of the thesis. On this basis, Chapter II introduces a theoretical foundation that is selected and used in the subsequent chapters to shed light on the nature of language-sensitive content teaching and language awareness in the context of professional development of in-service staff in the school-to-work transition in German and European vocational education and training institutions. Due to the scope and complexity of the subject matter, Chapter I additionally provides a limitation of the research object in view of the educational context, the type of professionals considered and language-sensitive content teaching as one kind of professional development (I.1.2). Part I.2 presents the objectives and research questions including the researcher´s position as well as the target readers of the study. This first chapter concludes by presenting the structure of this thesis (I.3).

1 Specification of the Problem

1.1 Need for Transnational Professional Development regarding Language-Sensitive Content Teaching in Learners´ School-to-Work Transition Phases

1.1.1 National and International Relevance of Language Promotion in Vocational Education and Training

Language is everywhere and influences everything. Due to its diverse nature and substantial consequences, the study of language has taken center stage in vocational education research. Educational policy must and does react on that more than ever in the present time of diversity, internationalization and changing environments of human and digital communication. In order

to survive in the lifeworld[1] and world of work, it is vital and as well a prerequisite for each individual to be able to read, write, and speak, and to have the expressive powers (cf. OECD, 2019a, 2019b). With respect to the world of work, there is additionally a specific language for each vocational field or even for each job that has to be mastered by the young adults who are currently within vocational education and training (VET). Language proficiency is the basis of occupational competence (Staring et al., 2017; European Communities, 2007; Ohm, 2013b, 2013a; Jahn, 1997) which in turn is the main objective and one of the minimum requirements of vocational education and training (cf. Bosch, 2017, p. 83; Frank, 2005). Language and communicative competences are crucial when it comes to vocational action competence (cf. Fleuchaus, 2004; Settelmeyer et al., 2017; Siemon et al., 2016; Kimmelmann, 2013a) both for school-to-work transition and vocational training phases (Sander, 2019). Efing and Häußler (2011) as well as Efing and Kiefer (2018) underline the societal ability to act and personal development to which young adults´ language competences contribute. Language involves aspects that are essential for vocational education and competence development (cf. Terrasi-Haufe & Börsel, 2017, p. 7) such as the language (system), communication, language education, vocational language, language promotion and development. These are the first complex aspects that vocational education and training systems are concerned with.

1.1.1.1 Language Diversity on a National and International Level

Differences in linguistic expressive skills and powers of young adults with German as a native language characterize the country as well as the linguistic diversities of those whose native language is not German. Language diversity here means the existing pool of different *first* languages (synonym: mother tongue, native language) of the individuals living in a country. It has to be noted that, apart from a country´s population whose first language is the country´s official language (synonym: lingua franca), there is a growing amount of people who learn the lingua franca as their second language. This is often the case through migration. In this thesis, the lingua franca (such as German in Germany) is always assumed as the basis for analysis and discussion.

The necessity of language promotion within all vocational teaching is not limited to the German educational system, but has a European dimension (cf. European Communities, 2007; YFI, 2018; Mandola, 2019; Jeon, 2019b). Concerning the European language diversity *within* a

[1] For a detailed look into the phenomenological origin of the lifeworld concept, see, e.g., Kraus (2006, based on Husserl), in view of today´s modern society, see, e.g., Reckwitz (2017), or Sloane (2001) for the relation to business and vocational education. According to Husserl (2012), lifeworld can basically be understood as the individual´s subjective perception of his total environment. The term is, however, much more complex and can only be sketched out at this point.

specific country, the situation in VET has reached its climax especially in 2015 and the years after, due to the multitude of young refugees having entered the VET systems. Following Kim, Ehrich and Ficorilli (2012, p. 42), "[o]ne of the greatest challenges immigrants face in respect to satisfying the lower level needs of attaining a job concerns their ability (or lack thereof) to speak the target language […], that is, the language of their host country. Without [the target language] skills, immigrants face significant barriers to economic and social success."

1.1.1.2 Increasing Communicative Requirements on the Job

Not only migration has changed the societies in Europe. At the same time, due to globalized economies and global networking (cf. Esser, 2017; Diettrich, 2017), the general ability to communicate is becoming more and more important in the vocational context, whether due to changing job requirements in times of mobility and an overall fast-moving nature (cf. OECD, 2019a, 2019b; BMAS, 2017) or the common use of digital technologies on the job (cf. Börner, Kehl, & Nierling, 2017; Hammermann & Stettes, 2016). This is also termed "dissolution" of work and life (cf. Jacobsen, 2010, p. 220; first in Voß, 1998). The entire matter becomes increasingly central due to "general qualification upskilling" (Baethge, 2014, p. 21), signifying a further increase of cognitive parts within employment or professional activity (OECD, 2019a, p. 32). Following Steuber (2011, p. 302), this concerns "product requirements, marketing and production processes as well as machines and devices becoming increasingly complex". As a consequence, this leads to a growing importance of reading competences in particular (ibid.). The growing significance of communicative skills is also connected with the occurrence of digitalization, which brings us back to one of the primary questions. How can young adults be prepared and trained by professionals in VET to be able to act and communicate in the above-described world? Moreover, Kimmelmann (2013b) comes to the conclusion that even for the performance of simple work tasks, an adequate level of linguistic competence is necessary at least in some areas.

The phenomena bring along higher requirements for (vocational) schools and for vocational education and training (Becker, 2019). One example of the predominant challenges as a consequence of digitalization and globalization is the overburdening of schools and their personnel in view of the increasing heterogeneity (cf. Diettrich, 2017; Koehler, 2016; Becker, 2019; Weiß, 2019). It is referred to as exceeded limits of what the personnel of educational institutions can take. All in all, it is obvious that this topic is nationally and internationally of high educational policy relevance.

1.1.1.3 Linguistic Difficulties and the Personal and Vocational Implications

One of the largest challenges for teachers and learners is characterized by the differences in the levels of learners´ language skills. A multitude of learners shows language difficulties, i.e., deficits which are understood as reading, speaking or writing difficulties. Difficulties primarily mean that the language level is insufficient for the purpose of achieving professional qualifications, for being proficient in the language used for educational purposes (Kimmelmann, 2010a).

Language proficiency is related to migrated learners´ psychological, economic, and social well-being (Kim et al., 2012) and an essential prerequisite of their long-term integration (Euler & Severing, 2016, p. 38). Simultaneously, positive effects on individuals´ identity, personal and school-related success have been found with respect to native language learners (cf. Kimmelmann & Peitz, 2018). Linguistic difficulties can demonstrably lead to the non-achievement of professional or technical qualifications within the phase of vocational education (cf., e.g., Michalak, Lemke, & Goeke, 2015; Gehrig, Kimmelmann, & Voigt, 2014) or social exclusion (Oksaar, 2003). The effects thereof can possibly be serious for the future (professional) life of the young adults – here understood in the sense of starting or successfully completing a vocational training within a school and/or company (Chapter II.1) (Beierling & Nuglisch, 2018).

Language diversities, here in the form of language levels that are insufficient to pass the exams in both general and/or vocational subject courses, represent a risk for learners to achieve the qualifications they need to start a vocational training or enter a higher educational course. Linguistic skills and expressive powers denote one of the formal criteria of the maturity required to start a vocational training (Jahn & Brünner, 2012; Frommberger, 2010). The term *maturity* is highly controversial among experts (cf. Deeken & Butz, 2010; Eberhard, 2006). Making young learners ´fit´ for a vocational education and training position or for the job market is the most important aim of the school-to-work transition system[2] (cf. Ratschinski & Steuber, 2011). Learners are considered as having reached the required maturity to start a vocational training when they fulfil the following criteria (cf. Frommberger, 2010; Schober, 2006):

- *educational basic skills* such as reading, writing texts, dealing with media, basic knowledge of economics and mathematics

[2] A detailed discussion of definitions and intentions of the school-to-work transition system as understood in this thesis can be found in Chapter II.1.1.

- *psychological performance characteristics* such as language proficiency in the form of being able to understand a formulated set of facts in oral or written form or mathematical thinking (assuming that the learner has the linguistic competence to analyze problem settings)
- *physical characteristics* such as the learner´s age-appropriate level of development or health requirements
- *psychological characteristics* of one´s working behavior and personality such as etiquette / way of behaving, reliability, self-organization and self-reliance or the ability to communicate
- *vocational choice maturity* such as self-evaluation competence and information literacy.

Almost all indicators of the maturity to start a vocational training deal with linguistic skills (cf. Reetz & Kulhmeier, 2013; Eberhard, 2006) (see above in underlined form)[3]. The required competences that learners should obtain can be categorized into personal, technical/vocational and further overarching skills such as linguistic skills (cf. Wilbers, 2019).

1.1.1.4 Integrated Language Promotion as Education-Policy Requirement for Vocational Education

Educational policy within a state and its society (hereafter referred to as macro level) strives for ensuring that there are sufficient professionals on the labor market in terms of quantity and quality (Duden, 2016). With respect to integrated language promotion within subject content lessons in educational institutions and companies (which shall be defined as the meso level) as well as individuals (hereafter referred to as the aggregated micro level), there is a big research desideratum (Downes, Nairz-Wirth, & Rusinaitė, 2017, p.7).:

> "International evidence indicates that school systems need to change in order to tackle early school leaving and improve social inclusion in education and society. Policy-makers and school actors require practical tools to assist them in this process, made all the more urgent by the EU2020 headline target to reduce early school leaving."

The statement particularly involves the call for systematic analyses and the development of language measures and actions. The integration of language-sensitivity in VET is lately also

[3] A detailed discussion on the systematization of the linguistic requirements in jobs, and the relation between language and job can be found, e.g., in Ziegler (2016).

called for by the German Kultusministerkonferenz[4] (KMK) in view of future success in vocational training and the job. Using this initial situation in a productive and rather positive way, the question arises as to how the issue of learners´ official language difficulties within vocational education and training can best be reduced.

Langue-sensitive content teaching is one solution to contribute to reducing the lack of language proficiency of learners. By doing this, the concept can be classified as part of the measurements taken to enhance the learning situation of learners with special needs or having fewer opportunities (cf. Euler & Severing, 2014). Language development comes across as an inherent part of inclusion (Rödel & Simon, 2019). Thus, language-sensitive content teaching is one key element of the current debate about inclusion within VET. One of the major challenges involved by the demand for more participation and inclusion is represented by the dimension of job-related language promotion (Neises, 2018, p. 58). Non-native speakers are one of the identified groups which "are at risk of marginalization, exclusion and underachievement" (Ramberg & Watkins, 2020, p. 91). The individualization is, for instance, represented by a language-sensitive design of teaching material is a necessary consequence of this challenge of heterogeneity (cf. Troeder & Sturm, 2018, p. 104). Teachers in VET have to be prepared for carrying out inclusive vocational education which can concern different aspects (cf. Zoyke, 2014). Kimmelmann & Peitz (2018) and Peitz & Kimmelmann (2018) showed this exemplarily by developing, testing and assessing language-sensitive teaching material with teachers from different vocational training institutions in Germany.

1.1.2 Role of Vocational Teachers in View of Language Promotion

With regard to promoting language skills in VET, who is responsible? In line with Wilbers´ (2019, p. 136) question of "*Linguistic competence as the task of vocational education. In your opinion, who should be responsible for this in school?"*, different actors can be responsible for finding solutions which will then in turn imply diverse activities. Taking up the question above, at the meso level in Germany, institutions are responsible, since they are the respective planning, organization and regulating authorities. This thesis focuses on the micro level, i.e., professionals in VET teaching learners enrolled at vocational training institutions. These are here understood in the sense of vocational teachers of different general or vocational subjects. The study sets teachers to be key players for promoting the linguistic competence within vocational education at the institutional level (Chapter II.3). It is in particular the vocational subject content

[4] Standing Conference of the Ministers of Education and Cultural Affairs of the Länder in the Federal Republic of Germany.

teachers in vocational school life who are educated and trained from the vocational subject-didactic perspective (Berliner, 1992), but who lack concrete solutions for supporting and promoting their learners´ language development (cf. Bak & O'Maley, 2015; Müller et al., 2014). Connecting the initial situation above (language diversity of young adults) and professionals facing this persistent challenge, several issues manifest themselves directly in the lessons: mutual misunderstandings between learners and teachers, learners´ difficulties in teaching processes or an overload on the professionals´ side as stated in interviews with vocational teachers (cf. Kimmelmann & Peitz, 2018b; Peitz & Kimmelmann, 2018).

In addition to the general complexity and evolvement by which the role of vocational teachers is characterized (cf. Bak & O'Maley, 2015; Moodie & Wheelahan, 2012), the competence of language-sensitive content teaching has extended the role (Pavón Vázquez & Ellison, 2013, p. 69). Moreover, teachers´ attitudes have a significant impact on the successful dealing with linguistic diversity and difficulties in the mainstream subject lessons (cf. Walker et al., 2004).

How shall the development of the fulfilment of this new role and additional competences be designed and institutionally arranged, if teachers are to be the actors responsible here? Jahn et al. (2016, p. 6) justifiably wonder about whether professionals in vocational education and training (can) even recognize and take the manifold expectations and how they might reconstruct these in their own role model.

Until now, there is an insufficient offer of practical measures. On the other hand, it seems as if there is awareness of the issue (language-sensitive content teaching): According to the author´s experiences in a research project (cf. Peitz & Kimmelmann, 2018), vocational teachers have faced and become conscious of language-sensitive content teaching. Nevertheless, the extent of awareness varies as well between the VET institutions. While it is or has been on the agenda in many VET schools, others have skipped the issue labelled as not important enough to deal with it for longer than a short time. Today´s shortcomings with respect to supporting teachers with professional development in terms of the ever increasing demands described above are surprising considering the fact that the OECD demanded support already fifteen years ago. Teachers´ changing role was described as follows (OECD, 2005, p. 7):

> "The demands on schools and teachers are becoming more complex. Society now expects schools to deal effectively with different languages and student backgrounds, to be sensitive to culture and gender issues, to promote tolerance and social cohesion, to respond effectively to disadvantaged students and students with learning or behavioural problems, to use new technologies, and to keep pace with rapidly developing fields of knowledge and approaches to student assessment. Teachers need to be capable of preparing students for a society and an economy in which they will be expected to be self-directed learners, able and motivated to keep learning over a lifetime."

Research on VET needs to make attempts to comprehend the situation of a teacher that teaches and works with linguistically diverse learners. What are their required competences in the changing world of VET? Without doubt, their attitude is of vital importance with regard to the learners. How is the new, expanded role of teachers designed, and which skills should teachers have in their daily life in order to *fulfil* this role?

1.1.3 Reasons for the Necessary Further Development of Vocational Teachers

Teachers have to be trained for the challenging and complex professional reality (Frommberger & Lange, 2018; Fiolić & Fiolić, 2019) and the "new environment" characterized by diversity (Fine-Davis & Faas, 2014, p. 1319) in order to apply an integrated language promotion in the specific content teaching lessons. In particular, teachers need to further develop their ability to recognize language-related problems of migrated young adults and to be able to adequately support them (Autorengruppe Bildungsberichterstattung, 2016, p. 1). Eberhardt (2016, p. 43) claims for developing teachers´ competences towards promoting learners´ language. Reflection about their attitude and raising their awareness for linguistic or cultural barriers and diversity in the classroom can help them to increase their competences and increase teachers´ ability to fulfil the extended role (cf. OECD, 2019a). Professional development with respect to language-sensitive content teaching contributes to enhancing their competences. The approach of language-sensitive content teaching is here understood in the sense of a package including specific measures and strategies in oral or written classroom interaction with regard to (vocational) subjects. Across the whole spectrum of skills and subjects involved, the linguistic competence can be taught and learned. Language-sensitive content teaching has been taking up on the general linguistic skills linked to other skills (professional/technical and personal competences). Language-sensitivity defines the attempt to systematically approach the idea of incorporating elements of language promotion into all subject contents. Linguistic skills are taught and learned where they are needed, i.e. with a special emphasis on the relevant vocational context (cf. Efing, 2013). Studies over the past ten years (cf. an overview from Siemon, Kimmelmann, & Ziegler, 2016, as well as exemplarily Peitz & Kimmelmann, 2018; Baethge, 2014; Efing, 2013, 2014; Gehrig, Kimmelmann, & Voigt, 2014; Sogl, Reichel, & Geiger, 2013; Kimmelmann, 2012; Black & Yasukawa, 2011; Mehisto, Marsh, & Frigols, 2008) claim that the interconnection of linguistic and vocational learning processes is highly important. As put by Marsh in The Guardian Weekly (2005, p. 1), this interconnection is like "[a]dding language without taking it away". Chapter II.2 will explain and discuss the interconnection and related concepts in more detail.

In VET, there is a significant need to provide professionals of all subjects with support mechanisms for their teaching (cf. Jeon, 2019, p. 69). As emphasized by Diettrich (2017, p. 15, 320-321), both the qualification and professionalization of teachers in VET cannot be separated from the developments in the vocational education and training and employment system, however, as well not from societal trends and the megatrends (internationalization, globalization, digitalization, demographic change or migration of skilled workers). Hence, teaching involves not only conveying technical content that is important for the students´ future jobs but also interpersonal and linguistic aspects. In many respects, vocational teachers are now required to play their new role, i.e., to teach in a language-sensitive way, without having been educated or qualified for it (Jeon, 2019, p. 67). In general or vocational subject lessons, the reality of this lack of training means that teachers often feel overburdened and insecure how to deal with language-related problems in their lessons (cf. Bylinski, 2014; Fiolić & Fiolić, 2019). As argued by Diettrich (2017, p. 320), teachers, who are at the center of the action, are sometimes perceived as being rather left alone. In most of the cases, the official language is the most severe problem. “Many teachers are involved and commit themselves to it, but they reach their limits [..]. Integrated language promotion in subject lessons means a lot of work. For this, teachers just need additional competences”, was a statement by a teacher working in one of the German welcoming classes having been established for refugees (Kröning, 2017, p. 3). She furthermore claimed that “the transition represents a great difficulty when it is expected that students make progress without special support or promotion” (ibid., p.4). Creating effective and practical support mechanisms (professionalization) will also contribute to a reduction or avoidance of teachers´ insecurities or significant burdens such as health issues (psychological component). Studies prove that a large part of teachers in Germany perceive their occupational requirements as burdensome (cf., e.g., König & Dalbert, 2004; Schmitz, 2000), most of the times explained by the change of the teacher role (Spanhel & Hüber, 1995). In Germany, language promotion in VET has recently become one the major fields of action in vocational training institutions (cf. Wilbers, 2018). Since December 2019, language-sensitive content teaching (LSCT) has also officially become a field of action in vocational training institutions according to the resolution of the KMK (2019), thereby underlining its educational policy relevance. In addition, the activities and provisions by state authorities in view of LSCT in VET justify the present study. Since the resolution was published after the two interventions of the present study took place, they furthermore serve as a confirmation of the relevance and efforts conducted in this subject matter.

In order to be able to teach subjects in a language-sensitive way, professionals require additional training. Teaching contents in a language-sensitive manner *and*, simultaneously, a focus on promoting vocational action competence concerns all teachers in vocational education and

training. Subject teachers have to gain an additional language awareness related to their subjects. Moreover, language teachers need to open their perspective towards the vocational content in order to illustrate and train language competences with respect to the subjects (cf. Kimmelmann, 2012). Furthermore, Kimmelmann (2013) argues in favor of vocational principles of teaching which per se are suitable for diversity rather than developing specific measures.

Recently, there have been various first attempts to include language-sensitive content teaching into teacher education at universities. For all other professionals, this challenge can be faced, for instance, via professional development (Kimmelmann, 2017). It can be defined "as activities that develop an individual's skills, knowledge, expertise and other characteristics as a teacher." (OECD, 2009, p. 49). Chapter II.4 deals with the theoretical framework of professional development within VET, thereby pointing to the current implementation and the resulting research need.

Figure 1 provides an overview of the relation and partial quantities of the most important terms in the author´s line of argument.

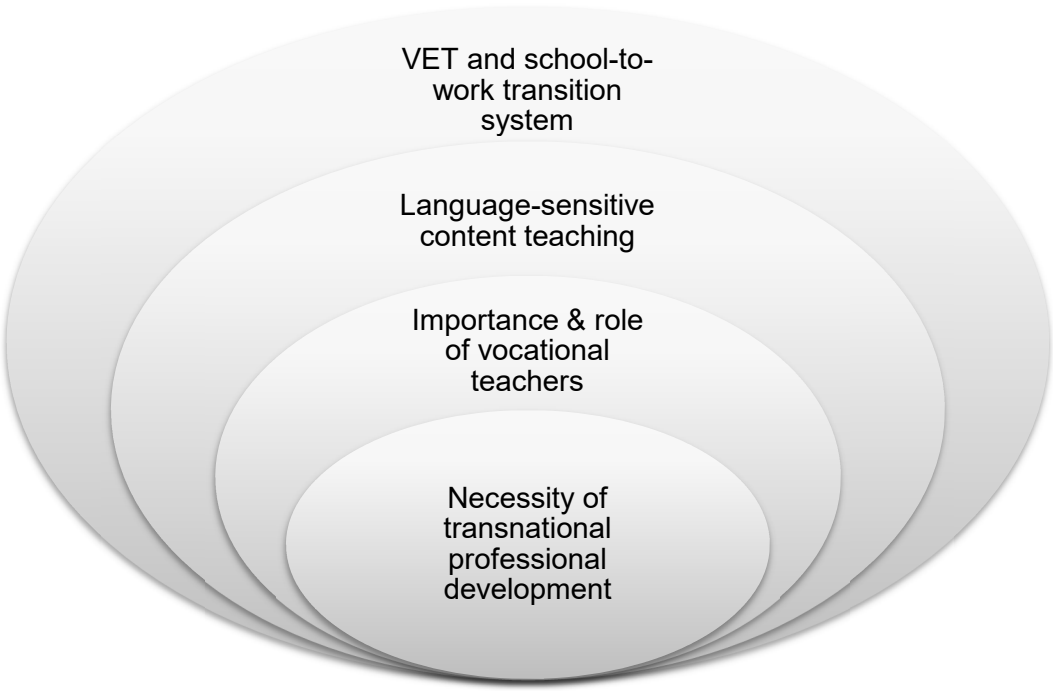


Figure 1 - Relation of key components regarding problem setting and relevance of this thesis (own diagram)

The smallest circle (necessity of transnational professional development) is the motivation, origin and connecting factor for the present thesis. By drawing on this necessity, a design-

based intervention will be developed. Each circle represents a specific research field of interest. As illustrated in Figure 1, the necessity of transnational professional development is part of the field of importance and the role of vocational teachers (second smallest circle). Both are related to the field of language-sensitive content teaching, as it is claimed to permeate all areas of teaching within vocational education. All of these areas refer to the VET context with the focus on school-to-work transition (biggest circle).

One of the most important aspects is the need to react to the extended requirements placed on teachers today (type of professional development). It is essential to discuss the new role of teachers as a consequence of societal changes. Teachers working in the school-to-work transition struggle with multiple issues. This struggle involves not only negative factors, but also includes positive aspects of hard work, i.e., the transition system leads to the access to the labor market for many young adults (cf. Ryan, 2001). The school-to-work transition within VET is a substantial sector. It is worth increasing the investments into the personnel of VET institutions so that young adults being enrolled in transitional studies can profit the best way possible (indirect, very important effect). These young adults are characterized as native speakers with linguistic, cognitive or other deficits as well as non-native speakers with primarily linguistic difficulties, i.e., newly-arrived refugees and migrant students (cf. cedefop, 2020b, p. 2).

The above-mentioned challenges and the high potential of LSCT are the study´s justification and result in a great desire to address and develop a) a thorough understanding of the nature of language-sensitive content teaching from the professionals´ personal perspective and b) new approaches of support for professionals in the development of language-sensitive skills. The study is additionally justified by the discrepancy between high linguistic heterogeneity of learner groups and lack of knowledge and/or understanding of vocational teachers in the field of language and communication at the school-to-work transition. As argued by Moodie and Wheelahan (2012, p. 324), the more disadvantaged learners are, the higher qualified teachers have to be.

1.1.4 Existing Professional Development Programs

There is insufficient support for professional development of vocational teachers of all subjects in view of internationalization (cf. Tran & Le, 2017a, 2017b), inclusion (cf. European Commission, 2017, p. 12-13), multicultural settings (cf. OECD, 2019b), language diversity (cf. OECD, 2019b, p. 4; Cho et al., 2012; Commins & Miramontes, 2006) and language-sensitive content teaching (cf. Kimmelmann, 2017, p. 60). Existing approaches of continuous professional development are scarce (cf. Lo, 2019; Burns & Shadoian-Gersing, 2010). They neither

address both research object (language-sensitive content teaching) and research subject (professionals in VET) nor present measures that can be integrated into the practice. This might be rooted in an excessively large degree of theory of these activities such as one-time theoretical lectures offered to professionals in VET. Unfortunately, many of the results of didactic research are hardly implemented in everyday school life, which obviously means that a systematic theory-practice transfer does not succeed (so far).

Furthermore, although educational policies and science provide a series of suggestions, these are not followed up on by the respective actors and peter out in the worst case without having led to any concrete measure. In other cases, if a measure has been initiated, it is frequently restricted to the individual school level or national level.

In a briefing note, the European Centre for the Development of Vocational Training (cedefop, 2016, p. 1) summarizes the current situation of the development for VET teachers and trainers as follows:

> "Committed and competent teachers and trainers are crucial to ensuring the quality and labour market relevance of learning, both in VET schools/centres and in companies, and whether in classrooms, in workshops, in labs and simulated learning environments, or at the workplace.
> In the coming years, VET teachers and trainers will be required to help shape quick and flexible responses to emerging needs, related both to the integration of thousands of refugees and migrants into the labour market and to the need to develop basic, digital and entrepreneurial skills."

The agency thereby boils down the need to develop an innovative approach of teacher professionalization[5]. They address the current and future need for professional development of teachers and trainers to be an international (European) need (1), which is influenced by social changes and globalization (2), and the consequences for teaching resulting thereof (*need to develop basic, digital and entrepreneurial skills*) (3) for whom teachers and trainers are responsible (Chapter II.3) (4) and have to be trained for (5) (cf. also Nielsen, 2010; Burns & Shadoian-Gersing, 2010). The fifth aspect here is described appropriately by the statement that "[p]roviding teachers and trainers with access to quality professional development and support is essential to ensuring that both their technical competences and pedagogical skills are up to the highest standards" (cedefop, 2016, p. 1). In the present thesis, specialist competences are understood as language-sensitive content teaching, where content teaching means teaching subject/vocational/technical contents. The quotation motivates the need to improve and enhance the professional development offers for VET teachers. In addition, it demon-

[5] Whether or not a new approach in (educational) science is defined as an innovation, will be discussed in Chapter IV.2.1.1.1.

strates the necessity to expand from a national towards a transnational focus. Empirical evidence on internationally oriented professional development is not available (Misra, 2011), due to the fact that 'VET is nationally focused like no other form of education' (Shaw et al., 2016, p. 94).

In a similar fashion, other European vocational education and training systems face the same challenges (Burns & Shadoian-Gersing, 2010; Misra, 2011; Szelei et al., 2019) and will have to address the issues of language promotion in vocational content teaching for different learner groups as well (OECD, 2019a). As a consequence, these countries might provide their own answers to questions of how to promote language development within VET contexts. It can be assumed that different European countries have their own interpretation and practice of LSCT, which results in a multitude of different examples of how language promotion finds entrance into vocational content teaching (cf. Jeon, 2019; for Sweden, see cf. Jaspers, 2018; Karlsson et al., 2019; Kuczera & Jeon, 2019b; Reath Warren, 2017; Torpsten, 2018; for France, cf. Adami, 2015, 2020; for United Kingdom, cf. Casey et al., 2006; Coyle et al., 2010; Roberts et al., 2005, or with respect to multingualism and translanguaging approaches, cf. Foster & Bolton, 2018; Nickson, 2012; Simpson, 2016; Simpson & Bradley, 2017; for Portugal with a special focus on the Tourism sector, cf. Almeida, 2017; for the Netherlands, cf. Denman et al., 2013). These, of course, depend on the framework conditions of the countries´ educational landscapes. Thus, an extended view on the issue in the form of an exchange of experience is reasonable and more than overdue.

1.1.5 Transnational Approach as a Solution – Presenting the Research Idea

Chapter IV presents the author´s idea of a transnational study visit in view of language-sensitive content teaching as a professional development intervention for teachers in the field of learners´ school-to-work transition. The development, objectives and challenges of the idea are introduced.

Hence, regarding the future questions of vocational education and training, these can be discussed and dealt with internationally. According to Esser (2017, p. 5), this international networking in VET can be a gain for everyone involved, despite the fact that the VET systems differ from country to country.

In conclusion, so far, (1) professional development in VET has failed to include a more transnational view (cf. Cornelius & Stevenson, 2019) and (2) impulses for the practice of language-sensitive content teaching are missing, as was emphasized by the difficulties of vocational teachers described in the beginning. In the author´s opinion, impulses for the practice mean,

and this is the core of the issue, a comprehensive discussion about language-sensitive content teaching on a didactic, organizational and personal level. All three elements influence the (non-)achievement of a functioning language-sensitive content teaching. These two existing shortcomings, as they might be denoted, need to be improved, in particular regarding the new role of teachers today which requires a broader perspective. What do teachers need in their daily work in order to fulfil their new role? What do teachers need to be provided with in order to deal with linguistically-diverse students within content teaching? What do they learn and think (teacher language awareness, cf. Andrews, 2008) in situations where they search for solutions and try to interpret the students´ statements, behavior, conditions, contexts? These aspects represent only some impulses for reflection.

More individual design opportunities have to be created (Beierling & Nuglisch, 2018, p. 138). In the claim for a promotion that can freely be designed with respect to its intensity and type (ibid.), teachers have to be given the opportunity to develop their competences to be able to provide an integrated language support by learning about language. In order to approach the area of investigation and to obtain a broader view on the topic within a European context, a transnational study visit for the purpose of exchanging experience shall be included (Chapter IV). Professional development with respect to “in-service dimension of how VET practitioners stay qualified, has received little attention in comparative analysis” (Parsons et al., 2009, p. 92). De Rooij (2005) refers to a weak culture regarding the continuous professional development of VET teachers and trainers in Europe. Not only can an exchange between vocational education personnel on such a current topic have synergy effects (learning from each other and from themselves) but this could as well foster a future joint concept of combining language promotion within vocational school education plans on a European basis. The introduction of “systematic approaches to, and opportunities for, initial and continuous professional development of VET teachers, trainers and mentors in both school- and work-based settings” (Riga Conclusions, 2015) is seen as one of five major EU priorities for vocational education and training. The author claims that this can involve a transnational framework for action.

Apart from the call for a European perspective on more support for teachers in VET, a second need for research in the field of professional development concerns a systematic analysis and documentation of concrete approaches of LSCT. This research desideratum, being taken up by this thesis, is pointed out by Siemon et al. (2016, p.26[6]) as follows:

> “For several years, work-related language promotion has been researching by means of small-scale tests and study programs at universities in the context of vocational education and training. This research aims at the training and further development of teachers. So far, the concrete approaches and processes and the resulting impact

[6] Original German quotation translated by the author.

> structure has not been investigated systematically. Moreover, a documentation in this field does not exist. Here, in the future it is up to participating scientists to systematically analyze the experiences with promotion approaches and connect these empirically to learning in vocational education."

From a more general level, ensuring and/or improving the quality of vocational education and training throughout Europe is one of the key drivers for developing practical mechanisms. This thesis will contribute to achieving this goal by developing an approach to enhance their language-sensitive content teaching competence.

In light of the extent and complexity of the issue, a limitation of the topic of interest must be undertaken to do justice to a precise and thorough investigation. The limitations are focused with respect to the following three areas:

- Limitation of the object of investigation: language-sensitive content teaching in the field of language development and promotion
- Limitation of the context: school-to-work transition system within VET
- Limitation of the research subject: general or vocational subject teachers in school-to-work transition systems as professionals within VET (to distinguish from language teachers).

The limitations were determined in line with the methodological approach of the empirical investigation which is based on design-based research (Chapter III). Design-based research aims at a fundamental understanding of how, when and why interventions within educational settings (learning and teaching) can be designed while putting particular importance on a close cooperation between science and practice (cf. Bakker, 2018; Barab & Squire, 2004; Euler, 2017; Fishman et al., 2013; Gravemeijer, 1998; Gravemeijer & Cobb, 2013; Van den Akker et al., 2006). Its peculiarity is that interventions shall improve by carrying out various research cycles which scientific models, theories and empirical findings are associated with. In the present case, these specifically involve the context, the research subject (practice) and the object of investigation (scientific models/theories/functioning of the study visit concept).

The above-mentioned limitations ensure profundity of the study by not considering a too wide perspective. They are described in the following and illustrate, at the same time, the anticipation of how the limitations are understood in this thesis.

1.2 Limitation of the Educational Context, Research Object and Subject

1.2.1 Limitation towards Learners´ School-to-Work Transition within Vocational Education and Training

In the German National Report on Education from 2006, the school-to-work transition (STWT) system is defined as follows (Konsortium Bildungsberichterstattung, 2006, p. 79):

School-to-work transition in Germany
"(Further) educational opportunities lying below a qualified vocational training or not leading to a recognized apprenticeship, but aiming at an improvement of young adults´ individual competences in order to start a training or job, and partly enabling to catch up on a general school-leaving certificate."

This definition describes adequately how the STWT is understood in the present study. Furthermore, it determines the restriction of the educational sector the study is located in. A proper analysis on the essential aspects associated with the STWT will be conducted within the theoretical framework in Chapter II.

The study will thus focus on German teachers working in transitional programs, primarily justified by the specific features of the learners they work with in these programs. Professionals working with learning groups within the school-to-work transition system mainly face the challenges pointed out in Chapter I.1.1. Learners´ significant heterogeneity in learning groups is an essential feature of the STWT programs (cf. Steuber, 2014). Thus, the need for language-sensitive content teaching is particularly high in these educational programs.

Remark: School-to-work transition has been defined in the German educational context. In other European countries, the support of learners who fail to complete necessary qualifications in order to enter the next possible educational stage (mostly referring to entering a specific schooling institution) is organized differently. Thus, within the transnational composition of the study, it is referred to as vocational education and training and defined as the <u>educational programs who serve as transitional phase in which learners can catch up on professional / general and basic / language skills</u>. Pavlova, Lee and Maclean (2017, p. 1) define them more generally as "[t]ransitions from school to achieving a productive livelihood".

Note as well that vocational training institutions, vocational schools and schools are referred to as synonyms if not otherwise indicated. When speaking of schools, it is always related to vocational schools and it is additionally referred to the school-to-work transition system. Thus, synonyms are justified to be used here (cf. Table 1):

Table 1 - Overview of involved countries and states in theory and empiricism

Country	Regional representative	Part of the Thesis	Notes
Germany	Bavaria (Land)	Theory	./.
	North Rhine-Westphalia (Land)	Theory, Empiricism	Vocational teacher participants
France	Bordeaux (New Aquitaine, Gironde)	(Theory,) Empiricism	Destination of study visit intervention
Sweden	Stockholm metropolitan area (Stockholms län)	(Theory,) Empiricism	
Other European	./.	Theory	./.

Source: own research

STWT programs can be designed very differently both among diverse countries and regionally, if we focus, e.g., on Germany. In order to ensure an appropriate profundity, this research study takes into account two major states in Germany, i.e. Bavaria (theoretical analysis) and North Rhine-Westphalia (NRW), serving as exemplary and representative states (see Table 1) . Due to the author´s location and network to VET in NRW, the design-based investigation took place in cooperation with vocational teachers in NRW. Nevertheless, both Bavaria and NRW are subject to the theoretical discussion (Chapter II) as they are two major German states with regard to population, and diverging educational policy systems whose specific features have to be carefully considered. Additionally, they provide interesting model projects.

Although the focus of the present thesis lies on school-to-work transition systems, the findings can often be transferred to other educational programs following the transition system. As vocational teachers and researchers have revealed, there is a widespread need to improve language and communication skills of a multitude of young adults between school and their future working positions (or even later). If teachers in vocational training institutions generally developed and acted according to language awareness and had the competences to support language and communication learning of all students, this could contribute to an increase in the overall educational quality.

The terminology of vocational education and training can be country-specific. In order to apply adequate synonyms in English if using German, French or Swedish vocabulary, the present terminology is based on:

- existing terms in Anglo-American language used in business education

- on the terminology established by the Federal Institute for Vocational Education and Training (BiBB, 2020; cf. also Batzel & Börgmann, 2017).
- if otherwise not possible, on translations by the author in accordance with native speakers and experts in business and economics. In the case of translation, they are marked accordingly ("…").

1.2.2 Limitation towards Language-Sensitive Content Teaching

The present thesis limits the examination of the broad field of language development and language promotion in VET to the consideration of language-sensitive content teaching (LSCT). It is one concept to improve learners´ learning process on the one hand and to support teachers in their teaching on the other hand. As defined by Leisen (2011), this concept consists of a conscious language handling with teaching and learning subjects. Here, language represents a teaching principle and driver for a successful content teaching. In contrast to other concepts, LSCT is not considered as a remedial education (cf. Duchini, 2017; Jimenez et al., 2016; Sampson, 2018) within special education. Instead, it is regarded as general or vocational subject content teaching where the development or improvement of language is taught and learned in connection with contents. Language here refers to the language used for educational purposes that is further specified by language types such as the language of everyday life, professional/technical language, language of education in lessons, symbolic and mathematical language or metaphorical language (cf. Leisen, 2011). More precisely, there is an additional language register with a special focus on the language required for the particular profession, called language used for vocational education purposes (following the terminology by Kimmelmann, 2009). In international literature, extensive research is carried out on "English for specific purposes" concerning the use of language in the field of profession and occupation (cf. Coxhead et al., 2020, 2017). Language-sensitive content teaching provides that this language for specific purposes is taught and learned at the respective point in the lesson where it is needed (oriented towards the learners´ needs), i.e., with a special emphasis on the relevant vocational context (cf. Efing, 2013a, 2013b). The LSCT concept is studied in more detail in Chapter II.2.

Language-sensitive content teaching is desired to be consistent and continuous in all subjects and for all teachers – here with a restricted perspective on school-to-work transition programs.

1.2.3 Limitation towards Professionals in Vocational Education and Training

The institutional / organizational role and the role of educational policy will be dealt with in two forms: The purpose and goal of this study is directed towards decision-makers and designers in vocational training institutions and educational policy (these individuals are among the addressees of the findings of this thesis). Second, whether or not and to which degree the expected learning outcomes of the teachers can be transferred into their domestic working places at vocational training institutions (VTI) and the didactic design yields a sustainable and practical approach, will also depend on the institutional / organizational conditions of the German VTI and their institutional developers. For instance, school managements are required to permit their employees to participate in a transnational professional development intervention (PDI) and support the teachers in the financing (e.g., by applying for available European funding programs among others). An interest in the results of such a participation and the support for transforming the participant into this specific school´s multiplier are further beneficial conditions for practicality and sustainability which the didactic design cannot account for on its own.

However, the institutional / organizational role with respect to language-sensitive content teaching and dealing with heterogeneous learner groups will not be dealt with in detail. Instead, the behavior, actions and the professional development of teachers working in the school-to-work transition system, in the following also referred to as professionals, are the research subject of this investigation. This restriction does not imply that changes are only necessary in view of teacher professional development. Quite the converse might be true and this, in turn, is reflected in the findings of the study relating to the institutional / organizational requirements which are exemplarily mentioned above. The interplay of different levels (macro, meso, micro) and their respective contribution to a change of practice of the comprehensive embedding of LSCT into teacher education and teacher professional development lead to the successful development and implementation of teachers´ additional efforts and activities.

Changes in educational policy with regard to professional development of in-service teachers foster the possibility that approaches in professional development are implemented. This is particularly important since the teachers must not be held responsible for any shortage within institutional practice. For instance, if teachers learn new skills regarding how to teach contents in a language-sensitive way by learning about team teaching for the purpose of LSCT in the study visit in Sweden, and if team teaching is not part of the teaching practice (not implemented, permitted, embedded in the annual didactic planning) within German vocational institutions, then teachers cannot use their new skills. Their competence has been developed, yet it cannot be implemented sustainably.

Cedefop (2016) subsumed three types of teachers to the group of VET institutional staff which is adapted for the present study as reference point. Figure 2 illustrates these three teacher groups which are aggregated to the research subject of this study:

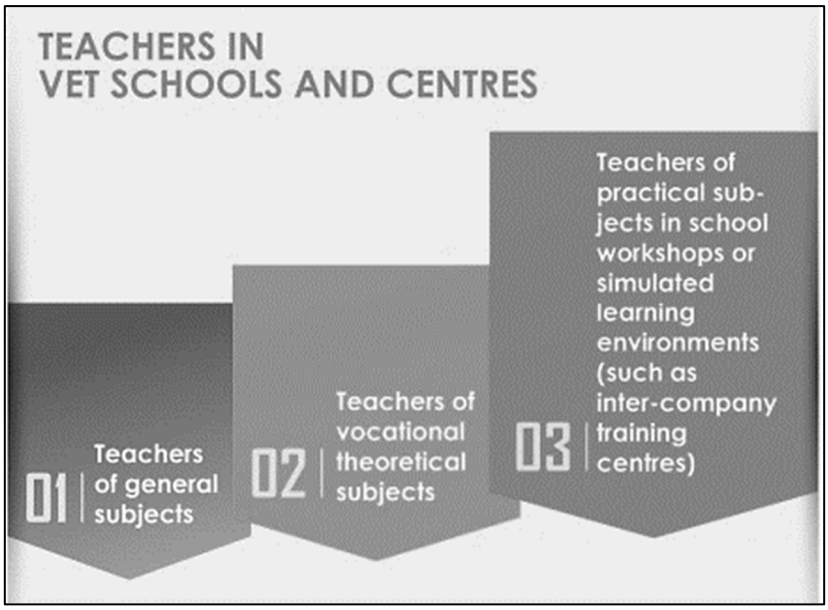


Figure 2 - Three categories of teachers identified in initial vocational education and training (cedefop, 2016, p. 1)

In Germany, e.g., teachers of general subjects and of vocational theoretical subjects constitute the group of VTI courses which have to have a university degree (Hensen & Hippach-Schneider, 2016, p. 7-9). On the other hand (see Figure 2, third column), there are practical work teachers. These teachers are only present in VTI which offer dual training programs. The positions and roles of teachers in VET differ in European countries (for Sweden, cf., e.g. Caena, 2013, p. 59) which has implications on the theory and practice of language-sensitive content teaching.

In European vocational education and training, teachers must face the (linguistic) challenges that accompany the above-mentioned learner individuals. Here, the bond between teachers and students is important in a psychological way: successfully learning a language is often related to the bond to the professional who is teaching (cf. Lee & Schallert, 2008; Chaudron, 1988; Richert, 2005; with respect to general research about language and relationship, cf. Linke & Schröter, 2017), as the author´s own experiences during class visits and discussions with teachers revealed as well.

All these types of teachers are considered in this investigation. It shall be emphasized that – due to the great difficulty of collecting data from the students´ perspective of this target group

– the investigation will exclusively focus on the teacher perspective. Although trainers in training companies are just as obliged to engage in language promotion, they are not part of this investigation in order to limit the scope of the work. In this vein, teachers in vocational institutions are central to this view. Thereby, there is an additional restriction to the institutional perspective: school-based education is the focus here, whereas the sector of company training (dual training, internships in companies, organizations, institutions during vocational education) or similar sectors are neglected. The field of vocational teachers is very large, hence there is a lot to unveil, analyze and demonstrate. In addition, as vocational teachers are highly individual in their personal, professional, linguistic characteristics as may also be the schools where they work, a limitation is justified.

Having mentioned the used terms and determined their synonyms as we understand and apply them in the following procedure, Table 2 provides a short overview to conclude:

Table 2 - Terms and synonyms used in the study

It is always referred to …	Precise description of the relevant term	…if the following synonyms are used in the			
	Educational courses of the school-to-work transition system in vocational education and training		Vocational education and training (VET)		
	Teachers working in the school-to-work transition system of vocational education and training		Vocational teachers, Teachers, teacher participants	Staff of vocational training institutions	Professionals
	Learners enrolled in school-to-work transition courses of vocational education and training (mainly non-native speakers, but also native speakers)		Learners, students	The student target group	Young adults in VET

Source: own research

In the subsequent course of this thesis, for the sake of linguistic abbreviation, for convenience and readability, as well as for the diverse design of other countries, the school-to-work transition phases can be regarded as vocational education and training (VET). It should be noted that STWT is the sub-concept specific for Germany, and hence not comparable on a European level. In addition, language-sensitive content teaching is relevant for other sub-areas in VET, as well.

1.3 Specification of the Problem: A Summarized Representation

The problem setting as well as the need for research resulting from the problem setting including relevant influence factors are now related to the research questions. Hence, in light of the current implementation of teacher training (in language-sensitive content teaching) and its shortcomings, the interdependence can be illustrated as follows (Figure 3):

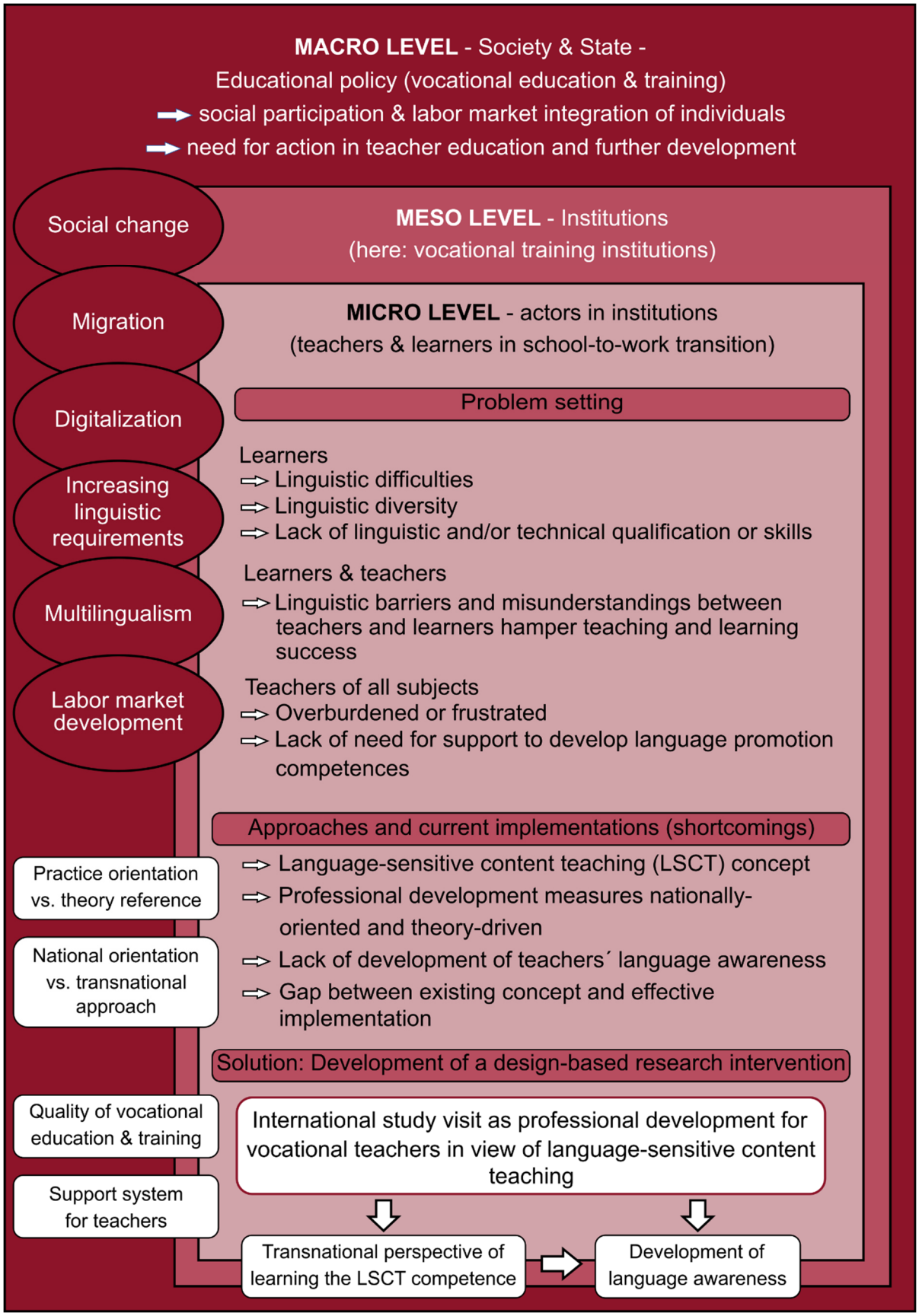


Figure 3 - Problem setting, research need and solution idea interdependence (own diagram)

As shown in Figure 3, the essential question deals with how, when and why an exchange of experience program on a European level can contribute to understanding the concept of language-sensitive content teaching and developing this competence from the vocational teachers´ perspective. The intervention that was developed, planned, designed, conducted, evaluated, and redesigned, is called study visit. For the present understanding and purpose of the research study, it is defined as follows:

Study visit
A study visit is here understood as a multi-day program abroad for German vocational teachers fostering the exchange of experiences about and learning new insights into consistent language development at the school-to-work. It therefore includes typical elements of study visits which are defined in Chapter II.4.2.2.1.

The new program can be classified as a professional development intervention for teachers in vocational education and training. “Abroad” involves two European countries selected for specific reasons (Sweden and France). Exchange is thereby meant in a figurative sense “exchanging ideas and information” and as well as the act of actually traveling to another country to do so, rather than a mutual visit.

2 Objective and Research Interest of the Work

2.1 Research Questions and Objectives

The key focus of the empirical investigation has been placed on the design, implementation (testing) and evaluation of further development interventions that are part of a small-scale design-based research project within qualitative social science. It includes a thorough pre-study and two cycles of interventions.

The idea has evolved from vocational training institutions´ needs for an alternative way of further development. As was shown by the initial situation above, only few studies exist in the literature dealing scientifically with the promotion or support of vocational teachers – regarding empirical studies, the literature findings are even scarcer. It seems as if scientists indeed unveil

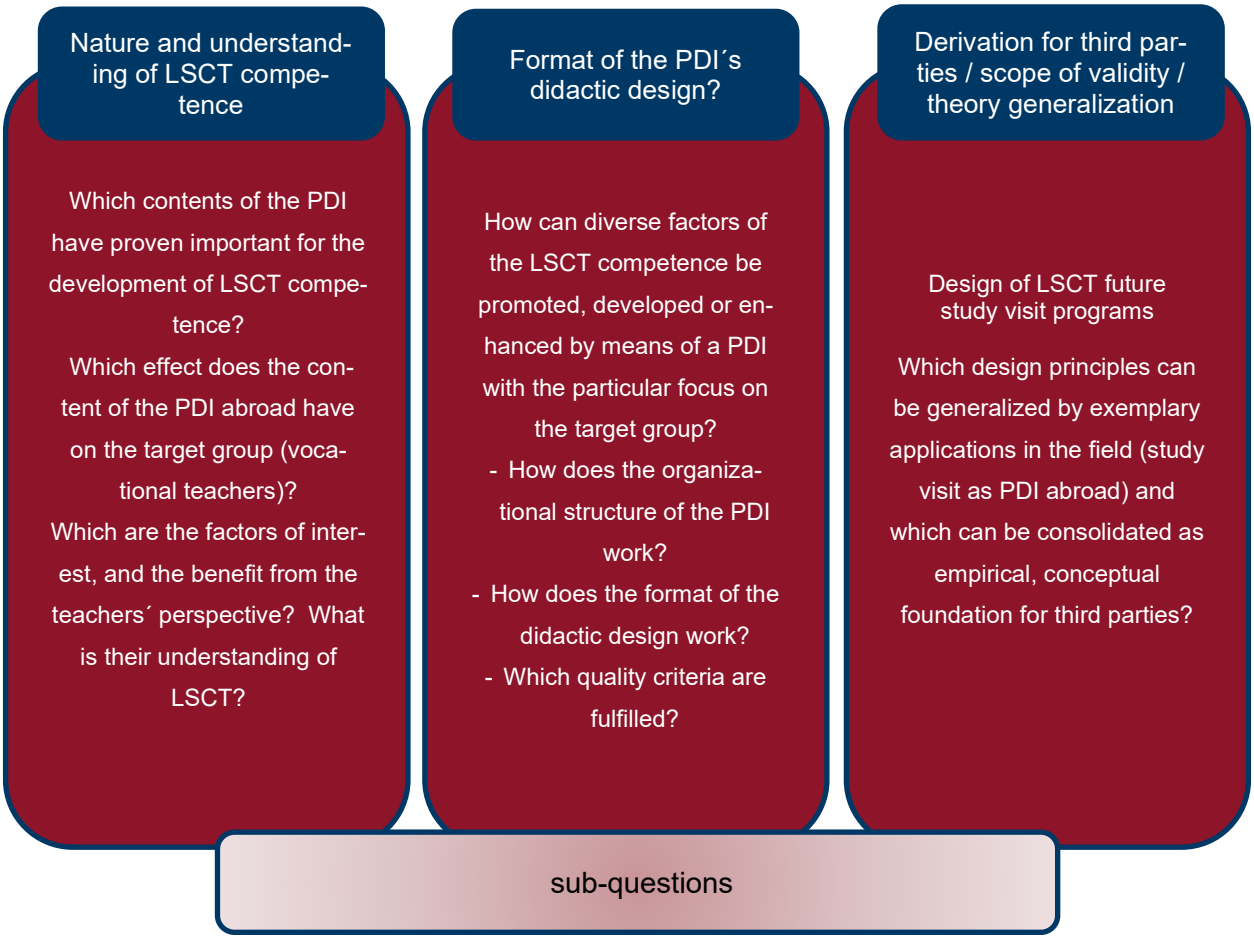
both the need for actions and also the importance of the relation between language development and content learning in vocational education and training. Nevertheless, there is a large and equally exciting research gap that needs to be filled regarding solutions including practicality and additional factors than only the questions about the design of, e.g., language-sensitive teaching material. Due to missing links between theory (scientists) and practice (actors from educational policy, schooling institutions, vocational teachers), the design-based research is an adequate approach. One of its major points of criticism with respect to educational research is characterized by the call for the necessity of a constant involvement of both science and practice (cooperation) that is often absent in educational research studies. Taking the design (how, when and why it works) to center stage rather than the effects only, is one principal factor of design-based research. The methodological access is thoroughly discussed in Chapter III.

Hence, by taking the above considerations into account, the study attempts to answer the following scientific key question:

Which features does the transnational study visit have that aims at developing or enhancing the language-sensitive content teaching competence for German vocational teachers at the school-to-work transition?

key question

From this key question, the following three sub-questions are derived:



Thus, the thesis will include the perspective of vocational teachers within the overall concept. Overall design principles in the form of important notes or recommendations shall be given to school (institutional) development and in view of institutional changes within vocational education. Often, studies exclusively focus on learners and institutional provisions are established. Teachers are located in an area where there is a complex tension since they wish to meet the requirements of both sides, i.e. learners and institutions as their employers. How do they perceive this? This question shall enable an access to the VTI professionals.

By doing this, the present work will contribute to raising the awareness to institutional levels about which actions vocational teachers take in order to tackle their challenges in teaching their subject matters to socio-culturally heterogeneous students while taking language into account. This work is furthermore developed to gain a greater understanding of dependencies between the theoretic design, the design outcome in practice and institutional and social conditions.

The thesis represents the documentation of a design-based research (DBR) process (cf. Jahn, 2014, p. 14). It allows the reader to understand the logic procedure of a project based on design research. From the DBR process perspective, the documentation should be designed according to two major elements which can be considered as quality criteria:

- The thesis will be designed in such a manner that further practitioners obtain impulses, incentives and ideas for their practice (in their specific context) (cf. Bakker, 2019; Jahn, 2014, p. 12)
- The range (of applicability) of the validity of the results[7] has to be pointed out clearly (cf. Euler, 2011, p. 539). This is important in order to support third parties in producing their own interpretations for their context and adjusting the intervention with respect to this (ibid.).

The quintessence of this thesis is to contribute to the awareness and enhanced knowledge or skills of vocational teachers in view of language-sensitive content teaching (LSCT) by exploring their experiences and broadening their perspective in a professional development intervention abroad.

For this purpose, a study visit abroad is carried out for and with German vocational teachers in Sweden and France. In order to be precise in the analysis and careful in the interpretation, this thesis primarily focuses on the German participants. The concept aims at initiating and encouraging them

- to talk about and discuss elements of LSCT (issues/challenges, beneficial factors)

  a) on a more transnational level in order to strengthen their knowledge and skills by comparing European approaches, and

  b) at a physically different location away from the usual daily job situation

- to experience their language awareness development by being in a situation where they are forced to communicate about terminology / their specialist field of expertise and language for vocational education purpose. This takes place in a language that is not their native language (teacher-learner identification factor).

[7] Validity of the results means whether the results are acceptable or reasonable (Cambridge Dictionary, 2020).

It is almost impossible to present vocational teachers with a fait accompli stating “students require more support with respect to language during their social science or mathematics lessons. It is called language-sensitive content teaching. You can participate in a technical lecture on this topic next month” and expect them to be willing and able to actually realize this form of teaching. There is far more to consider in this context, for example teacher attitude (Chapter II.3.3.1), specific teacher competences (Chapter II.3.3.2) or institutional conditions of the individual school (Chapter II.1.1.1 and Chapter IV.2-3) – as the vocational teacher states in the quotation above. During the author´s work in the QBi project[8] that dealt with qualification modules in German vocational training preparation programs in North Rhine-Westphalia (NRW), a series of very important lessons on teacher attitude and motivation and further competence features have been learnt (both will be addressed in Chapter II.3). These always play a decisive role in the functioning or non-functioning of language-sensitive content teaching. As emphasized by Titu et al. (2018, p. 393), the study of teachers´ attitudes towards culturally heterogeneous learners is an important task “in raising awareness of the need for more professional development for in-service teachers”. Moreover, regarding the school circumstances mentioned above, the regulations and culture within a vocational training institution can have a determining influence on the personnel´s attitude and of course on the development of further competence features such as knowledge and skills. They have the authority to promote or hamper their staff´s development in letting language development transpire, become known, trickle down along the institutional hierarchy.

The teacher´s quotation also emphasizes that the preparation, processing and selection of the appropriate teaching material (= the content of teaching) are challenges per se. In addition, if there are language barriers, or generally speaking, language diversity within a learning group, the teacher´s task can be highly challenging. In the quotation, the teacher sheds light on three essential prerequisites – influence factors – to be able to process the content for linguistically-diverse learning groups:

- The teacher´s attitude (personal)
- The teacher´s competences, here understood in the sense of knowledge and/or skills
- School circumstances.

The investigation in this thesis attempts to find an approach that takes all three factors listed above into account. By the present interventions, it will be shown that it is important to develop or strengthen vocational teachers´ attitude, to provide recommendations to institutions that can

[8] “QBi – Anschlüsse eröffnen, Entwicklungen ermöglichen. Qualifizierungsbausteine inklusiv in einer dualisierten Ausbildungsvorbereitung“ (06.2016-09.2018) (Inclusive Qualification Modules) (cf. Frehe-Halliwell & Kremer, 2018).

initiate the institutional circumstances necessary for developing teachers´ competences in LSCT, and definitely to increase these competences. The interventions can contribute to this.

In the course of the study, the spectrum of findings will consistently involve the desired outcome factors of the researcher (epistemological interest) and those of the German vocational teachers (practicality and usefulness for their daily working life in the form of increased knowledge and enhanced competence in LSCT by means of their cooperation).

2.2 Study´s Claim, Position of the Researcher and Generalization of the Findings

2.2.1 Study´s Claim

The overall aim of the present thesis is to gain knowledge about and to examine in a systematic way how an effective professional development intervention of professionals in VET about language-sensitive content teaching can be designed and characterized.

The theoretical framework as well as the consolidated findings precisely created by means of design-based intervention cycles are claimed to be productive and practical, as long as they are used in similar initial situations as in the present testing. There is no general applicability to other contexts without making adaptations. However, in order to achieve the highest possible transferability, the study provides a precise documentation of the research study.

On the other hand, there are a few aspects the study is not intended to explore. It is the author´s obligation to clearly indicate these:

- It is not the aim of the thesis to determine a concept of successful factors of LSCT that are generally applicable in teacher training or further development. The small-scope project yields an output that is characterized by high individuality and subjectivity.
- As also stated by Jahn (2012, p. 41), striving to discover universally applicable principles is not the scope or aim of qualitative social research, and definitely not the aim of the design-based research approach. The output is context-sensitive, involving theories derived from the findings which are interconnected and need to be interpreted in relation to the context factors. Measuring success and effects in educational science is complex and can and shall not be achieved by using the methodological access chosen in this study (DBR).

2.2.2 Position of the Researcher

The focus on vocational and economic education with a particular focus on linguistic components results from the author´s interest and expertise in education-related fields of activity of the school-to-work transition at vocational education institutions. In these, there is a large (in times of migratory flows and flight) number of young adults (269 991 students in 2018 compared to 722 684 who start a vocational training in the same year, cf. BMBF, 2019, p. 26). Furthermore, language difficulties in the German language prevail, thereby preventing the access to the job market or as well to personal development, and to realizing their individual potentials accordingly.

The decision to perform research in this topic and the access to this research field results from two major aspects: First, the author´s own academic background is interdisciplinary in that she studied both economics and linguistics. Second, she is a scientist in the field of business and vocational education training (research in VET institutions) as well as a practitioner in the field of mobility projects for learners in VET (with special educational needs) and vocational teachers. As a consequence, there is an inherent influence of both the scientist / practitioner role and the disciplines of business education and language science on the other hand into the author´s role as researcher which represents a beneficial prerequisite for this thesis. As will be pointed out in the chapter on design-based research, this ambiguous role and blurring of designing and researching will be a critical point as well. It is thus subject to a careful consideration during the entire research project.

The realization of the constant demand for a stronger relation to the practice in vocational education and the lack of implementation of many vocational-education theories which are linked to the author´s academic background represent the basis for investigating this question in the above-described research field. In addition, it justifies the selection of the design-based research approach as an adequate methodological access to apply in the research process.

The author´s perspective is a critical one as she points out needs of improvement according to literature findings and her own experiences in the field, but will use the findings positive-constructively and in a creative manner. By this means, new solutions are tested, new hypotheses are built and diverse dimensions of improvement for the support of teachers and school management are suggested. If the vocational education system will be subject to the author´s criticism, this has to be considered by the readers from the perspective that school policies are the result of the sum of individual policies from the overall educational system which in turn (can only slowly) react on societal and economic changes. Nevertheless, shortcomings have to be addressed openly in order to improve and ensure the quality in the long-term. Business and vocational education science as part of social science has to withstand this, as the author

has to withstand the critical reflection of her study – an evident and essential part of design-based research.

The author´s position is thus characterized as in between science and practice – the requirements of social science have to be met by applying an adequate scientific method in an adequate manner (knowing to apply a method) while the author also has to draw the correct conclusions from it. A second reason for the interface position is that she is both scientist and practitioner. As argued by Sloane (2017, p. 1), "[i]n DBR researchers interfere in daily life and participate in practitioners' working processes".

2.2.3 Generalization of the Findings

From the author´s perspective, there are a few recommendations with respect to dealing with the results. The empirical results have to be handled carefully in a design-based qualitative study. Social science involves the interpretation of individual cases (individual people) in specific contexts. The author has to be as objective as a scientist in this research area can be. However, it must be noted that her scientific knowledge, background information about the context, experiences from the practice field and interaction with participants of the study could influence the interpretation. This effect has to be kept as minimal as possible, but has to be noted. Chapter III will provide a thorough overview of the characteristic features and quality criteria of qualitative social science as well as on the interventionist role of the researcher in DBR among others. On the other hand, it is precisely the interface position the author takes in this study which also makes it possible to perform such a research that is closely linked to cooperating with practice partners. This close cooperation creates the researcher´s access to the research subject (teacher participants of the study). It also provides relevant knowledge that is necessary for designing and evaluating an intervention, for example by knowing and learning to know the context from a theoretical *and* practical perspective. The role of the author – also referred to as scientific project coordinator later on to take account of the duality of the perspective – cannot be separated from the respective project context.

2.3 Addressees of this Study

The thesis addresses a multitude of actors in business and vocational education. In line with the design-based research approach and its desired combination of theory and practice, it addresses both scientists and practitioners in the VET field. Hence, learning about today´s

expanded need for additional competences and advantages of the language-sensitive content teaching concept in the framework of teacher education (university) and training (professional development, e.g., on-the-job as is the case in this study) is stimulating and important for today´s VET teachers (and teacher students). They can thereby gain knowledge of the regional differences in the German education system using the examples of Bavaria and North-Rhine Westphalia as presented in the theoretical framework (Chapter II). Moreover, they gain exemplary insight into other European countries´ current implementation.

It is equally interesting for researchers working in this field since, to the best of the author´s knowledge, no such approach in this specific regard has yet been presented. As discussions with teachers revealed to the author, researchers are often seen as too theory-driven – although the theories are well-founded, they often cannot be implemented in practice. It might be exciting to read about the importance of including different features of the VET practice presented from in-service VET teachers´ perspectives. In addition, language-sensitive content teaching from a European perspective with the special focus on a study visit program to discuss and experience the topic with European colleagues is a new concept. It can provide researchers from VET and related education and business fields with stimuli to examine further aspects that they can derive from the findings of this thesis (also: take up the open points and further develop these). It is recommended for reading to all researchers focusing on school-to-work transition systems or the integration of young adults with special education needs in VET throughout Europe and how to create support for the personnel working in VET.

Finally, the thesis addresses decision-makers in institutional development. For instance, it directly addresses the management of VET institutions in order to show them beneficial factors for their personnel´s professionalization with regard to a transnational professional development program. School managements are invited to take this opportunity and strive towards a higher and more long-term investment in professional development measures by pointing to the need and presenting the intervention´s advantages from the institutional development perspective.

Which are the necessary factors that vocational teachers in school-to-work transition systems should be provided with or bring along in terms of LSCT of a heterogeneous learner group? This question shall be addressed for school managements of vocational training institutions (VTI). The empirical results of the two design-based research cycles can offer stimuli or simply inspire decision-makers of educational policy in VET to reflect on expanded or loosened provisions such as provide their personnel with time to adopt to changes and to deal with LSCT.

In conclusion, for all of the potential readers described above, the thesis will enhance the understanding of what the role of being a vocational teacher at the school-to-work transition means today.

The global impact of this research is manifested through its indirect reference to education, economics, labor market and society. Research findings in this field contribute to enabling social participation of learners and – this can also be seen as the key driver and also executive, implementing body to achieve this contribution – particularly to support professionals at vocational education institutions in their daily challenges.

Vocational teachers and school managements in vocational training institutions will be provided with practical suggestions for transnational professional development in the form of a study visit that is concretely aimed at developing teachers´ knowledge about LSCT, skills to apply LSCT techniques and language awareness associated with LSCT. Thus, from a practical point of view (*practical output*), this thesis shall contribute to offering a feasible and workable design for professional further development of in-service vocational teachers within school development.

The *theoretical output* is characterized by design principles with regard to the specific context of professional development in VET. This output recommends theoretical assumptions which predict that a PDI will develop teachers´ LSCT competences if specific conditions are fulfilled. This output might be of interest to researchers and practitioners.

On the other hand, this thesis is an appeal to all European educational policy makers to internationalize vocational teachers´ further development – in times of internationalization, teachers throughout Europe shall jointly find and discuss solutions for language-sensitive content teaching since they deal with comparable issues. This appeal is in line with claims formulated by the European Commission (EC, 2010, p. 5).

3 Structure and Way of Proceeding

3.1 General Structure

This design-based research study will proceed in the following manner: As illustrated in Figure 4, the structure is aligned with the principle elements required in a design-based research project. The chronological order of the chapters is not defined by a specific guideline, nevertheless was deliberately chosen by the author. Typical elements of a design-based research project include an introduction (Chapter I), the analysis of the context or the theoretical framework (Chapter II), the methodological process (Chapter III). Then, in line with Jahn (2014, p. 12), after the development of a first draft of the design, there has to be a profile of each cycle in which the design is tested and revised which is documented in such a way that the key elements of the design become clear. This involves showing how these are implemented, the functions and findings which evolved from it (cf. Collins, Joseph, & Bielaczyc, 2004).

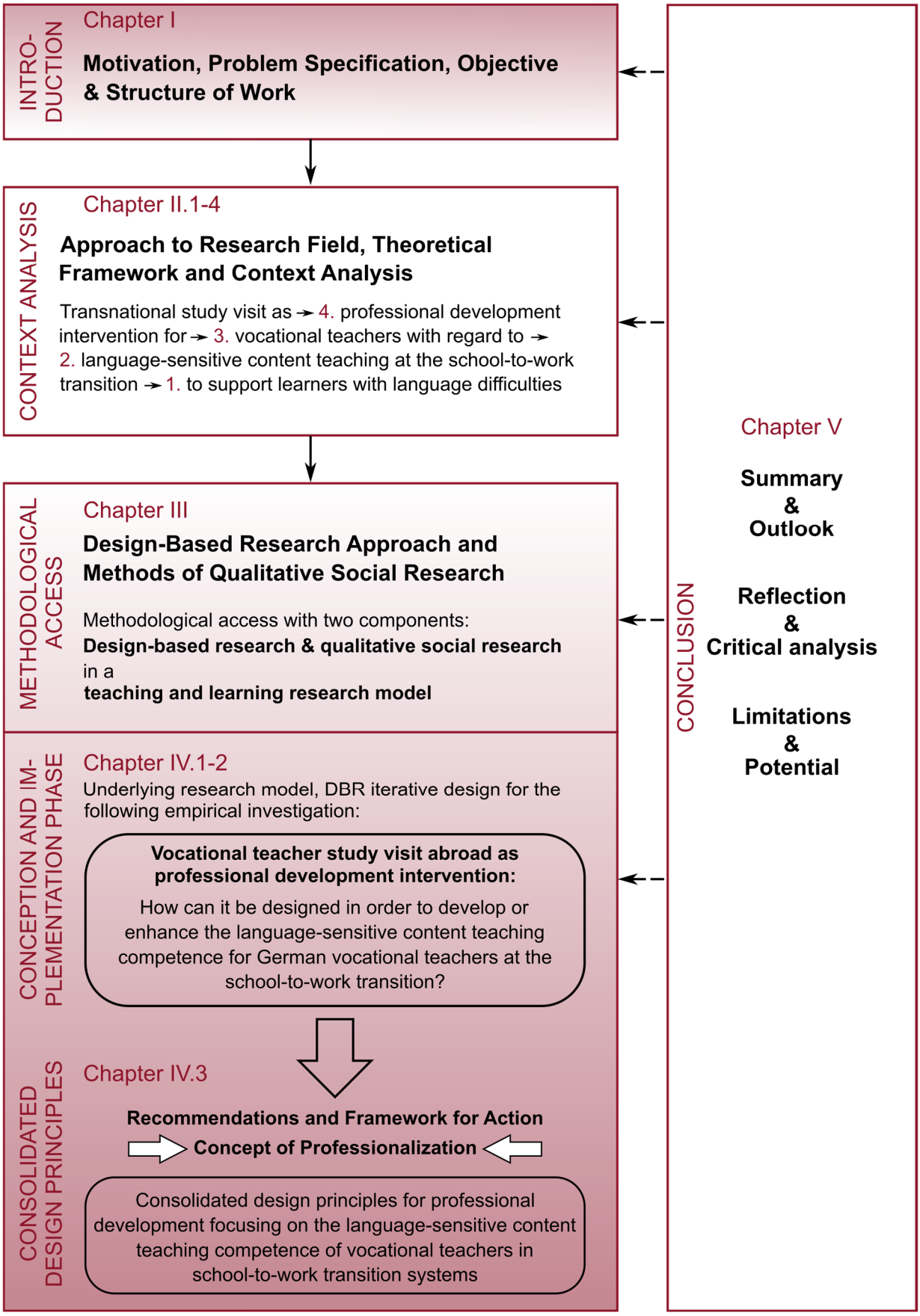


Figure 4 - Structure of the work (own diagram)

3.2 A Closer Look on the Structure and Way of Proceeding

Chapter II

The second chapter provides a theoretical introduction and content analysis serving as a fundament for the development of the concept (**Chapter II**). It is written along the logical structure of the line of thought and will lead the reader from back (problem) to front (idea to fill the research gap). The theoretical framework consists of a presentation of the current implementation of professional development for (vocational) teachers (**Chapter II.4),** the research subject (vocational teachers), their role and required competences with respect to language-sensitive content teaching (**Chapter II.3**). Furthermore, a literature overview of the concept of language-sensitive content teaching at the school-to-work transition (solution approach) is provided (**Chapter II.2**) which aims at supporting learners with language deficits (initial situation, problem setting) (**Chapter II.1**).

The understanding of the school-to-work transition system, teachers´ language-sensitivity, language-sensitive content teaching on different levels, competence models of business and vocational education and professional development for teachers (with a special focus on language-sensitivity) will be defined. It is thereby examined with a special emphasis on the German VET system, however, extended by also taking a broader look at the European perspective.

Apart from developing a concept with the didactic content which is assumed to be beneficial for the teachers´ LSCT competence development, it is important and necessary to generally determine how this competence is defined in this context. This means that expected learning outcomes will be formulated which can be oriented on and evaluated afterwards. The theory behind the respective learning outcomes can be found in Chapter II.2. The learning outcomes with regard to the specific competence parts associated with LSCT will be presented in Chapter II.3.2. The evaluation and statements about the effectiveness and sustainability of the promotion concept to be tested will be based on the definitions of the LSCT competences in these chapters.

The development of the study visit´s didactic design moreover <u>requires the consideration and analysis of the context conditions of each intervention</u>, i.e., the organizational, social, individual learning conditions of the persons involved in the context of the implementation.

Chapter II.4 starts by discussing the role and relevance of professional development for teachers within vocational education and training followed by the presentation of concrete professionalization concepts for vocational teachers. This part includes the current state of implementation in Germany, covering both the general teacher training in VET and teacher training

in the didactics of German as a second language. Such a classification is essential as professional development of in-service teachers is only one part of teacher training. Afterwards, existing international approaches are discussed. With regard to the aim of this study, the focus lies on professional development concepts with a transnational perspective and relating to language-sensitive content teaching. Chapter II.4 concludes with a short summary of the lack of transnational professionalization concepts aiming at the development of teachers´ LSCT competence.

Chapter III

In the third part, the two elements of the research model are deduced (**Chapter III**). The design-based research approach (used as the methodological access to the research field) is described and critically reflected with respect to its quality criteria, advantages and disadvantages (**Chapter III.1**). The second element is represented by the methodical procedure where techniques of qualitative social science are applied (**Chapter III.2**). Both are discussed in view of their justification for the present purposes (**Chapters III.1.6** and **III.2.4**). Depending on the context in which the concept for the promotion of the LSCT competence is tested and in which LSCT concepts are investigated, different data collection methods are applied (**Chapter III.2.2**). Qualitative methods such as guided interviews (**Chapter III.2.2.3**), participatory observation (**Chapter III.2.2.2**), written questionnaires (**Chapter III.2.2.4**) are combined and analyzed subsequently by means of qualitative content analysis (**Chapter III.2.3.1**). Evaluation procedures of qualitative social research are presented (**Chapter III.2.3.2**).

Chapter IV

The empirical design-based study is documented in the fourth chapter and aims at answering the research questions (**Chapter IV**). This involves all the research activities relevant for the development of the concept of promoting the competence of language-sensitive content teaching for teachers. The chapter is divided into three main parts presenting the underlying research model and the research process (**Chapter IV.1**), the developmental process of the research model (**Chapter IV.2**), and the formulation of consolidated design principles of the interventions of the cycles (**Chapter IV.3**).

The documentation in this empirical chapter is carried out in a way that is consistent with Chapter III, i.e., the scientific procedures of qualitative social science and oriented towards the design-based research process and structure.

The developmental process is, in turn, divided into the pre-study or conception phase (**Chapter IV.2.1**) and the implementation phase (**Chapter IV.2.2**). The conception phase involves a pre-study including problem specification, a process analysis, the development process of the first

prototype (didactic design of the transnational study visit) and finally, an evaluation of the conception phase´s quality criterion. Afterwards, the implementation phase consists of the iterative and responsive process of the research cycle of this thesis, i.e., the implementation, evaluation and revision of the intervention. It includes the first iteration of the research process with prototype one which took place in Sweden in November, 2018 (**Chapter IV.2.2.1**). It is followed by the second iteration of the research process with prototype two implemented and tested in France in May, 2019 (**Chapter IV.2.2.2**).

Testing the design (study visit program with the aim to develop teachers´ competence in LSCT) twice in a context with different conditions (Sweden versus France, cooperation partners from science versus practice) will identify possibilities of applying this design, problems which can occur and possible ways for modification. The research subject, i.e., teachers in VET, thereby remains the same as does the general context of professional development. By means of these factors, the study will as well investigate the scope of the assumptions which will be established in the theoretical framework (context analysis) in Chapter II.

The documentation of the two cycles is performed as follows: After describing the objectives of the respective intervention of each iteration, all relevant variables are explained in detail. The prototype is explained – thereby representing the design – followed by documenting the findings which result from testing and implementing the prototype within the scope of an intervention.

Each research cycle is completed in the documentation by showing the cycle findings, modifying the professionalization concept based on these findings and adjusting the concept to the changed and new conditions in the next context/intervention.

In order to answer the question about what language-sensitive content teaching means and how this competence can be promoted, design principles are generated for each prototype (=result of this study) which a) can be implemented in educational practice under the conditions state above and b) are an additional contribution to vocational education theory.

After two iterations and the establishment of two prototypes, recommendations for action are presented. **Chapter IV.3** thus concludes by formulating the consolidated design principles of the interventions. These are divided into three major areas according to the structure of the Nürnberg Model (see **Chapter III.1.4.2.3** for more details). Design principles are hence divided into expected competences, methods & activities as well as conditions of teaching and learning. They are linked to both a concrete practical output and contribute to enhancing the scientific state of research by providing theoretical outcomes.

Chapter V

The final chapter (**Chapter V**) starts with a brief summary of the key points in a “Lessons Learned” section including the methodological access and the research results (**Chapter V.1**). Connecting to the empirical-theoretical classification of the prior chapter, the research questions are addressed again. After that, the methodological access, the research results, and the limits of the research are critically reflected (**Chapter V.2**). The final chapter concludes by pointing to potential further research topics/fields being derived from this thesis´ results (**Chapter V.3**). Including research needs and future development perspectives completes this study.

II Theoretical Framework and Context Analysis of the Intervention

State of Research on Language-Sensitive Content Teaching and Professional Development within Learners´ School-to-Work Transition Phases from a National and European Perspective

The present chapter´s purpose is to introduce and review the context and concepts of the theoretical framework as illustrated in Figure 5. These are essential to understand the empirical investigation and to answer the research question. Knowing and understanding the context is vital to consider the appropriate research objects and subjects and for the interpretation of the results. Concepts that will be used during the subsequent chapters of this thesis are described and discussed, beginning with learners´ language difficulties in vocational education and training and language-sensitive content teaching as the research object and solution approach for these in Chapter II.1 - 2. Whereas Chapter II.1 covers the initial origin of the overall problem, Chapter II.2 forms the common basis for all following results. The group of vocational teachers (professionals in VET) as research subject, their role and required competences, is introduced in Chapter II.3. When dealing with professional development, the term competences needs to be utilized. The ability to teach subject contents in a language-sensitive way is an additional competence. In order to classify an approach that supports the development of this additional competence, it is important to discuss theories of initial or further development measures for professionals relating thereto. Consequently, the fundamental principles of teacher education and training (Bavaria and NRW as representatives for Germany vs. selected European examples) will be addressed in Chapter II.4. The idea of a new research project serving as contribution to solving the problem in educational practice is the fifth key element of the cause-effect chain. It will be introduced in Chapter IV.

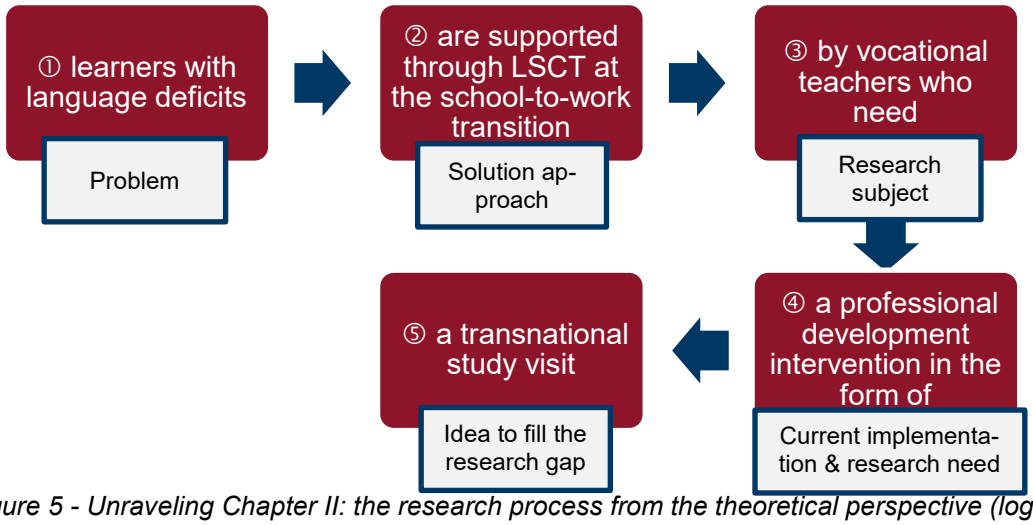


Figure 5 - Unraveling Chapter II: the research process from the theoretical perspective (logical chain of five key elements) (own diagram)

By analyzing the relevant specialist literature, the profound and content-related theoretical knowledge was established in order to develop and conceptualize the didactic design of the study visits. It represents a major part of the pre-study of the subsequent design-based intervention. Only by exploring the theories about language-sensitive content teaching and similar concepts and about professional development programs for teachers in view of these concepts, it became apparent that the development of research artifacts in this field is required. This can be explained by the fact that the examined concepts have been assessed to be only partly or incompletely adequate for the present research project.

The consulted literature of the context analysis of the intervention (Chapter II) is the result of a literature review of European literature primarily in English and German, and rarely in French, mainly of the period between the years 2000 and 2020. In contrast, general theories such as about teacher awareness (cf. Andrews, 2008; Knapp-Potthoff, 2008; Breidbach, Elsner, & Young, 2011), competence or didactic models (cf. Heimann, 1976a, Frey, 2004; Frey & Jung, 2011, Künzli, 2010, Wilbers, 2016, 2019), scientific publications in developmental science and design research (cf., e.g., Brown, 1992; Collins, 1992; Sloane, 1992; Van den Akker, 1999) have a longer and more profound history in literature.

Key research terms were vocational education (and training), VET, (teacher) professional development (intervention), vocational teacher training, teacher competence development, Europe/European combined with secondary search terms language-sensitive teaching, language awareness, content and language integrated learning. A third research would then add terms such as migrant, refugees or newly-arrived young adults as these are the learners who form the major share of our target group of learners with a lack of language ability in the official language.

The primary databases consulted for the literature research were Google, Google Scholar, the Databank Infosystem (DBIS) and the PrimoCentra catalogue provided by Paderborn University, ScienceDirect, Wiley Interscience, and Taylor and Francis Online. With the special focus on European VET development, the publications and resources provided by the cedefop agency have been consulted directly through their website (https://www.cedefop.europa.eu/en). They delivered useful information in the different country reports, projects and networks aiming at the improvement of educational policy quality in VET and created the theoretic basis for selecting an appropriate country for the implementation of the present professional development intervention. Further adequate, consulted literature resulted from references provided within scientific articles obtained from the databank search described above.

The result of the literature research led to the review of books (or specific book chapters), journal articles, reviews about articles, working papers, conference proceedings, information sheets/recommendations, statistical analyses (such as by the BMBF) and country VET reports.

For the specification of the design of the support concept, a detailed literature research was carried out, in order to identify the current state of research and practice in the fields of language promotion in specialist lessons in VET, professional development of vocational teachers and the particular features of the language-sensitive content teaching concept.

When taking a closer look at the compilation of literature consulted in this thesis, it is interesting to note that LSCT has only become the subject of intensive considerations in recent times. LSCT concepts have been studied in the literature for approximately ten years now. Research on similar and more specific concepts such as content and language integrated learning (CLIL) goes further back in history (cf. Marsh, 2002).

Especially in Germany, LSCT has been tested and discussed in exemplary model projects and theoretic lectures or symposia by experts of theory and practice. In other European countries, researchers and practitioners have developed their own concepts, but only little has been subject to empirical or design-based research studies. More precisely, there is a broad literature on language-sensitive content teaching related concepts on the one hand and teacher professional development theories on the other. However, empirical findings on teacher professional development abroad in order to enhance their language promotion competence in the context of teaching linguistically-diverse learners do not exist. The development of the didactic design to develop such a program is oriented towards similar theories.

The rather current nature of literature is particularly apparent when it comes to didactic approaches for and the integration of refugees in European VET systems which has shifted the improvement of language development of migrant students into the focus of educational policy again.

Overall, the scarcity of literature might be due to the issue´s complexity and lack of concepts that can be executed in real life settings. Moreover, there is no consensus about a recognized and accepted method stating how to prepare teachers for developing their new competence and on which this study relies on. It is rather a new compilation of existing theoretical and practical methods and concepts that are brought together to build the research object. This research object involves teacher language awareness, language simplification methods, language support strategies, a pool of language methods, a conscious handling of learners (individual, need-oriented) by teachers etc.

It is important to take into account that the specific context of school-to-work transition system influences the subsequent measurement (professional development program). The context that will be described in the following sub-chapters, is characterized by a variety of variables.

If the theoretical discussion involves language-sensitive content teaching in school-to-work transition phases and teachers´ professional development with respect to this, there are a few central terms. As emphasized by Przyborski and Wohlrab-Sahr (2014, p. 19-20), this is a determination of the phenomenon which has to be carried out precisely before dealing with the research question. The terms have to be defined since they are related to each other and important for the prior understanding of the design-based research study. Central terms of this thesis which are discussed in the following four subchapters are:

- Learners´ school-to-work transition
- First language, second language, foreign language learners
- Language competence as one of the general competences
- Language registers such as everyday language or the language used for vocational education purposes
- Concepts of integrated language teaching such as language-sensitive content teaching (LSCT)
- Teacher roles with respect to LSCT
- Teacher competences required for LSCT
- Language awareness as sub-aspect of LSCT competences
- Professional development of VET teachers
- Study visits as one type of professional development

1 Lack of Language Ability in Vocational Education as a Challenging Task for Teachers and Learners

> « And now, especially in our vocational college, with the older students, from the age of 15 or 16 up, I learn more and more, especially in the German lessons, for example, already in general, that there are difficulties in understanding particular terms. And due to this, it is of course the fact that it is claimed that specialist teachers have to be aware of language necessarily across the whole spectrum. And this gets lost more and more, as far as I notice with regard to others. And a second aspect is added in that we have more and more students who

> grew up at least bilingually or who do not have German as a first language. […] At least, specialist teachers should be sensitized with respect to language in order to be aware how important this is. On the one hand, that I pay attention to the ways that language functions in if I teach subject contents, but as well on the other hand to understand where exactly my students just need only a simple use of language, from the linguistic perspective, in order to re-follow the teaching content. This would compensate a lot.»
>
> *Teacher at vocational training institution, November 2018*

1.1 Classification of Learners´ School-to-Work Transition within Current Developments in Vocational Policy[9]

1.1.1 Aims and a Definition

Following Bünning et al. (2019, p. 9), both in national and international discussion, the problem of biographical transitions is one special focus of the current discussion on vocational education. The above quotation describes appropriately the situation teachers are usually confronted with in current school-to-work transition courses. A closer look is taken on this part of the vocational education system within VET, in particular due to the fact that this is where linguistic diversity of the learners is at a maximum, whereas professionals teaching here are in larger need of professional support than in other courses. Benholz, Frank and Niederhaus (2015, p. 345) denote it as a space of heterogeneity regarding learners´ orality, scribality, literacy and autonomies. By defining the school-to-work transition (STWT), a relation is established to the target group of learners which this educational branch consists of. One can then connect the target group to a high language diversity, one of their specific features.

In Chapter I.1.2.1, a first definition of school-to-work transition was given, in fact from the German educational system perspective. It was also highlighted that this system does not exist in the same form in other European countries, and that the countries vary in the organization (Ryan, 2001). Instead, specific courses are developed and offered, e.g., by state-funded projects (cf., e.g., Mandola, 2019; YFI, 2018), in order to create support mechanisms for young adults with substantial backlogs in professional, technical qualifications or who lack the level of language proficiency in the country´s official language to get a successful access to the VET

[9] The chapter is based among other things on the content of the contribution “Professional German Language Competences – Demands and Strategies of Promotion in Training Preparation Modules” (Kimmelmann & Peitz, 2018) and “Sprache als Ticket in das Ausbildungssystem? Die inklusive Gestaltung von Qualifizierungsbausteinen aus sprachlicher Perspektive” (Peitz & Kimmelmann, 2018).

system. Obviously, the main part of the efforts taken by educational policy, institutions and teachers at the meso level are directed towards migrant or refugee students (cf. Diehl et al., 2009; G.I.B., 2018; Grabinski, 2018).

Considering the aspects above and the definition of STWT deployed in Chapter I, this educational field is important as "a large number of adolescents are incapable of making the (immediate) transition from obligatory schooling to working life" (Brahm, 2017, p. 1, following Billett et al., 2010; Lang, 2010). From a European perspective, school-to-work transition is defined more broadly as "[t]he process of moving from education or training to employment, covering the period in which this change takes place" (cedefop, 2020a).

Both definitions refer to programs of vocational orientation (cf. Brüggemann & Rahn, 2013) provided by vocational training institutions with the purpose to make young adults ´fit´ for entering the job market. These are hence educational programs whose aim is to supply young adults:

- with the general and technical knowledge and
- basic skills (such as language and communication skills)

such that they are enabled to start a vocational training or related program such as a job-related higher education. For instance, in Germany, preparatory educational programs in vocational training institutions contribute to filling the gap between missing school qualification or basic skills on the one hand, and the enrolment into a certain vocational education program (such as school-based or dual training) on the other hand (cf. Frehe, 2016; Frehe & Kremer, 2016; Masdonati, 2010).[10]

The German VET system is a mixed system due to the cooperation between state, industry and social partners (cedefop, 2020b, p. 2; for more information, cf. Gessler & Herrera, 2015, p. 154-155). Apart from the dual training system and the full-time vocational education system, the school-to-work transition educational programs have established as the "third pillar of the vocational education and training system" (Schütte & Schlausch, 2011, p. 6; cf. also BQ-Portal, 2019; Frehe, 2016; Frehe & Kremer, 2016). It should be noted that there is a certain lack of conformity with regard to the terms due to conceptions and implementation differences in the German states. Region-specific terminology of STWT offers, e.g., vocational preparation programs in:

[10] For the correctness of this still broad definition in terms of Germany, the term ´education´ could be complemented by ´obligatory´, as compulsory schooling has an impact on the system.

- Bavaria, such as the preparatory prevocational school year (*Berufsgrundschuljahr / Berufsvorbereitungsjahr*) including vocational integration classes (*Berufsintegrationsklassen*) and intensive language courses for the newly-arrived refugees (cf. BSO, 2008; ISB, 2018, 2017; Klöver & Hochleitner, 2015),
- NRW, such as the *Ausbildungsvorbereitung* including International Classes (*Internationale Förderklassen*) for newly-arrived refugees (cf. APO-BK, 2018; Frehe & Kremer, 2016; Heinrichs, Reinke, & Feldmann, 2018; Simml, 2020).

With respect to the differences between the involved countries of the intervention (Sweden and France) and in view of a discussion of LSCT concepts in European countries, STWT is here defined as any educational course or program, extracurricular measures, the combination of courses and measures within VET that aim at supporting young adults in catching up on language and communication and related qualification shortages. This in particular concerns learners whose first language is not the official language of the country they live in (cf. Diehl et al., 2009; Grabinski, 2018; Steuber, 2014).

By this means, STWT can be linked to the field of integration and inclusion (cf. Aybek, 2008; Blossfeld u.a., 2016; Bürli et al., 2009; UNESCO, 2017b, 2017a). The aims of the STWT are consistent with the beliefs and concepts of inclusion (cf. Deutsche UNESCO-Kommission, 2009). The underlying broad understanding of inclusion in the present context is characterized by the demand for the structural and processual change in order to enable each individual to freely develop their potential, if possible, barrier-free, independent from their social, cultural or linguistic background, in the sense of “education for anyone” (ibid., p. 4). This also involves the focused work on difficulties and / or deficits (Booth et al., 2003; Kroworsch, 2014). As is claimed by the author, questions about inclusion will accompany the educational landscape for a very long time in the future. The specific target group will bring along specific questions.

For teachers´ work, this signifies proactively identifying linguistic barriers which arise for learners with respect to accessing learning opportunities by means of language-sensitive designs (Butler & Goschler, 2019; Leisen, 2011). It also includes detecting the necessary resources to overcome these barriers.

The school-to-work transition system is often subject to criticism (cf. Bünning et al. 2019). On the one hand, the system offers a lot freedom of design for institutional actors. On the other hand, as argued by Frehe and Kremer (2016, p. 1), it is an “area of tensions” characterized by an exclusive treating of young adults within an inclusive system. The assessment of the value or the system in general can be different, depending on the eye of the beholder. However,

there is a large number of young adults for whom it is an insurmountable obstacle to enter the VET system, for instance by finding a vocational training position or access to a VET school. Teachers and further actors in VET require individual promotion approaches for these students – to support them on their way to vocational action competence.

On all accounts, as argued by Masdonati (2010, p. 20, based on Ng & Feldman, 2007), for young adults, the STWT systems "is a substantial step for professional socialization and social integration". Despite the fact that, e.g., in Germany, after 2015 the numbers of young adults in STWT decreased (cf. BMBF, 2019), they are still high enough to initiate specific educational programs. This is particularly due to reasons of keeping pace with subsequent educational courses after the school-to-job transition phase, such as via the beginning of a vocational training (school-based or company-based training) and a successful long-term integration into the job market.

In particular due to the language diversity of learners in school-to-work transition, the target group is explained in view of their relation to the country´s official language in the following section.

1.1.2 Target Group

1.1.2.1 Characteristics

It is important to take the learner group which usually enters the VET transition system into account. According to the author´s experiences with the young adults in VET transition system and in line with the expertise of researchers and actors from the practice, the learning group in school-to-work transition systems is highly complex (cf. Baethge, 2012; Frehe, 2016; Steuber, 2014). Although a classification is difficult, they are subsumed as one learning group as they share one or more of the following features (BMBF, 2005, p. 12 et seqq.):

- Learning impairments (learning problems, (specific) learning disabilities)
- Behavioral disorders
- Affiliation to educationally-deprived areas
- Migration background
- Low educational background
- Tendency towards school fatigue and truancy

For the present thesis, it is in particular the linguistic heterogeneity which is linked to many of the features above. Linguistic difficulties need to be reduced in order to improve their chances for a future job qualification.

In Germany, as summarized by Baethge and Baethge-Kinsky (2012), the target group within vocational training preparatory programs is a group of adolescents representing a part of the society that is difficult to define and that further shows limited cognitive competences, is often without a school leaving certificate (75% in general respectively 84% regarding the group of migration students) and to a certain degree is not sufficiently well integrated socially (cf. Baethge, 2014, p. 23). Students within vocational preparatory programs[11] do not have a school-leaving qualification or were not successful in finding a vocational training position (cf. APO-BK, Anlage A, 2018 (NRW); BSO, § 2, 2008 (Bavaria)).

However, associated with, e.g., learning impairments, there are students in vocational education institutions completing their vocational training, but still showing difficulties with respect to language register[12] application required at their training companies or future work places (cf. Kimmelmann, 2013b). Following Efing (2012), it can be argued that, partly, the required linguistic competences are artificially raised rather than cover the actually required competences.

Considering a language-related classification, and linked to the question whether a migration background exists or not, the school-to-work transition system includes a target group of students which can be divided into the following subgroups:

1. Native speakers: learners whose first language is the country´s official language
2. Non-native speakers: learners who learn the country´s official language as second language

In contrast to native speakers, non-native speakers learn the official country´s language afterwards. With regard to non-native speakers, these can learn the official country´s language as second or foreign language (more details about the different language acquisition types can be found in Section 2.1).

Although having learnt the official country´s language as first language, native speakers in vocational education and training can have difficulties, for instance, lack professional or technical qualification or a sufficiently high degree of language proficiency of the language required to fulfil their job. Non-native speakers who lack language proficiency (of the official language)

[11] For example, vocational training institutions in NRW offer these to students having completed their compulsory full-time schooling (10 years).
[12] A discussion on the definition and variations in language registers is presented in Section 1.2.

involve learners with a background of migration. As the two terms migrants and refugees usually cause confusion with regard to their definition, they are described as follows:

- Migrant students are non-native speakers defined by the UN Refugee Agency as follows:

Migrants
“Migrants choose to move not because of a direct threat of persecution or death, but mainly to improve their lives by finding work, or in some cases for education, family reunion, or other reasons. Unlike refugees who cannot safely return home, migrants face no such impediment to return. If they choose to return home, they will continue to receive the protection of their government.” UNHCR (2016, p. 2)

Additionally, as one part of migrating groups (cf. Eichler, 2020), (newly-arrived) young refugees have recently entered vocational institutions as a transition between school and an integration into the European labor markets. Often, they are united in their lack of linguistic skills, i.e., in the lack of verbal or written expressiveness or insufficient knowledge of the country´s official language.

- Compared to the conception of being a migrant in a certain county, the UN Refugee Agency provides the following definition of refugees:

Refugees
“Refugees are persons fleeing armed conflict or persecution. There were 21.3 million of them worldwide at the end of 2015. Their situation is often so perilous and intolerable that they cross national borders to seek safety in nearby countries, and thus become internationally recognized as "refugees" with access to assistance from States, UNHCR, and other organizations. They are so recognized precisely because it is too dangerous for them to return home, and they need sanctuary elsewhere. These are people for whom denial of asylum has potentially deadly consequences.” UNHCR (2016, p. 1)

Critics claim that the division into native and non-native speakers is controversial both from a socio-linguistic and linguistic view (cf. Medgyes, 1992, p. 341). According to Medgyes, the reason is that efforts to provide a definition of “native competence or native-like proficiency” only brought about unsatisfying or unconvincing results (ibid. following Crystal 1985; Richards, Platt, and Weber 1985; Stern et al. 1983). The argumentation focuses a lot on the question about which rights both groups have and emphasizes that these are equal with respect to the use of the official country´s language.

Although the categorization into native vs. non-native speakers is criticized by linguists, it will be used for two reasons: First, a collective term (here: non-native speakers) is required to have a reference point when addressing both refugee and migrant students within the LSCT concept. Second, only relating the present study to non-native speakers would indeed be insufficient. If the concept of language-sensitive content teaching is comprehensively analyzed, it is necessary to take native speakers into account as well. Based on developmental meetings and interviews with teachers in this project and in the project before (prior study), it was often stated that – with the statement being limited to German learners in school-to-work transition phases – native students also lack language skills (cf. Peitz & Kimmelmann, 2018). An exemplary test in a German car workshop class within a vocational training preparation year in North Rhine-Westphalia revealed insufficient linguistic skills that were equally divided between the learning group´s native German and non-native students (cf. Wentker, 2017). As a contradiction to the argumentation by Medgyes, it was found that there is indeed a use of setting up two categories for the above-explained reasons.

The author understands the individuals listed above as one learning group of the STWT program. They can be native speakers or non-native speakers with a special focus on non-native speakers (second language learners) as these are the individuals with an increased need for additional support in language. They are understood as the target group of this study showing a specific need for promotion but also specific potential as emphasized by Benholz, Frank and Niederhaus (2015).

1.1.2.2 Newly-Arrived Young Adults – a Special Learner Group[13]

(Newly-arrived) refugees in Europe represent one part of the STWT target group, i.e., one part of the second language learners (Fischer & Frommberger, 2013; Heinrichs et al., 2016, 2018; Reinke et al., 2019). As was briefly reported above, flows of refugees including a high number of young adults below 25 years have been entering the VET systems of many European countries since 2015. They have the right to and require to get education in both the specific country´s official language (here: German) and vocational subjects. The aim is to prepare them to be quickly integrated into the job market.

This learner group is characterized by a high degree of heterogeneity in view of their migration history as well as their educational qualifications and life situations (Bethscheider & Settelmeyer, 2011, p. 188). More precisely, the different levels which have a particular impact

[13] Cf. the respective chapters in Brummel and Kimmelmann (2017, p. 7-12).

on acquiring and developing a language are school/learning biography, age, migration history, literacy, language biography as well as the qualitative and quantitative contact to local inhabitants (Gill, 2015, p. 9).

Within the past decade, the increasing number of refugees has led to diverse discussions about the further development of integration concepts (cf., e.g., UNESCO, 2018; Grabinski, 2018; Granato et al., 2016; Pfeffer-Hoffmann, Siegert, & Wassili, 2018; Rabl & Hautz, 2018). In Germany, e.g., apart from political controversy, debates also refer to necessary educational training measures and the relevant models of enrolment in schools for the refugees under the age of eighteen that must attend school (Schröder, 2014, p. 15). According to the Federal Office for Migration and Refugees (BAMF, 2018), about 74% of the asylum seekers having been registered in Germany since 2015 are under the age of 30, whereas 63.5% of them are even under the age of 25. The distribution by age is similar to the one recorded in 2015 (71% < 30 years old, 56% < 25 years old).

Considering for instance the relative distribution of first-time asylum seeker applications in Europe in 2015 by country, Germany accounted for 33% (442,000) and a share of 12% of all asylum seekers related to Sweden (Pew Research Center 2016, p. 17). France, on the contrary, had fewer applicants. Asylum seekers with destination France represented only 5% (ibid.). However, for these approx. 71,000 asylum seekers, a multitude of actions have been developed by educational policy (see, e.g., the OECD report 2018, OECD, 2018b). Knowledge of this unequal distribution is important, in particular with regard to subsequent interpretations of the quantity, structure and design of education-policy measurements for refugee and migrant students recorded in these countries.

The figures of the European perspective show a clear justification for policy actions regarding young migrants and their educational integration. Among all asylum seekers of all European countries in 2015, approximately 82% of refugees arrived under 35 years of age (compared to approx. 30% that were under the age of 18) (Pew Research Center, 2016, p. 23).

The “refugee crisis” (TheGuardian, 2018) has raised attention to the debate about integration, language development integrated within VET and the support of (vocational) teachers. According to the current political trends, the period is not over and educational systems should be prepared for recurring increases of migration and flight by offering appropriate measures. This is also supported by researchers stating that, nowadays, many European countries are countries of immigration, e.g., Germany (cf. Autorengruppe Bildungsberichterstattung, 2016; Blossfeld u.a., 2016; Euler & Severing, 2016; Kimmelmann, 2009), France (cf. Schnapper et al., 2016), Italy (cf. Bulli & Soare, 2018), the Netherlands (cf. Doomernik, 2016), Sweden (cf.

Westin & Dingu-Kyrklund, 2016) or Spain (cf. Aparicio & Tornos, 2016) . This means, vocational education and training systems, in particular with respect to teacher professional development, in any of these European countries should include cultural and linguistic diversity into their usual, daily discourse (cf. Acquah et al., 2016; Szelei et al., 2019).

1.2 Heterogeneity of Language and Communication Proficiency

Generally, in vocational education and training, diversity is a vital element in view of the planning and activities regarding the principles of teaching and learning (Kimmelmann, 2013, p. 1). Diversity exists in a variety of types. For instance, it can be of cultural or linguistic nature. Diversity has to be considered with regard to planning and implementing the teaching practice, which is realized, e.g., in the process of developing didactic models (cf. ibid.; Wilbers, 2019; Kirchhöfer & Wilbers, 2019).

Nowadays, professionals in VET are faced with an often highly heterogeneous group of learners. Already in 1976, the educationalist Schulz stated with regard to the socio-cultural conditions of learning groups in schools that “by combining most diverse students into one target group (class), a new socio-cultural situation developed”[14] (p. 36). His statement aptly describes today´s situation, to a higher extent than almost forty-five years ago. He delivers a definition of today´s current state within a learning group of the school-to-work transition programs. Apart from socio-cultural factors, there is language diversity (including language difficulties with respect to the teaching language (country´s official language)) and diversity in the cognitive skills. The latter diversity can be a result from difficulties in language proficiency or vice versa.

As a prerequisite of a classification of the term language, it is necessary to classify language with respect to the considered individual. The benchmark within the discussion about language-sensitive content teaching in this study is the official language of a country. The official language is considered the same for any individual living in that particular country.

However, the official language of a country can be one person´s first language (also referred to as mother tongue) and another person´s second or foreign language and vice versa. Knowing the difference is vital for all subsequent considerations. In the following figure, the native versus non-native speaker term from the previous section is taken up and linked to the type of language acquisition (cf. Table 3):

[14] Original German quotation translated by the author.

Table 3 - Language learners classified according to first, second or foreign language acquisition

Language learners for whom the country´s official language is…		
…first language	…second language	…foreign language
native speakers	non-native speakers	

Source: own research

Non-native speakers of a certain language learn this language as second or foreign language (cf. Table 3). There is vast literature worldwide (Scheible & Rother, 2017) about second (cf., e.g., Ellis, 1989; Gass, 2013; O'malley, O'Malley, Chamot, & O'Malley, 1990) and foreign (Ringbom, 1987; Taka, 2008) acquisition language research (conception, influence factors and promotion). For the present understanding of language diversity within STWT, it is important to distinguish between the definition of the two concepts: Regarding second language (SL) and foreign language (FL) learning, here, language-sensitive content teaching is an approach that aims at second language learning. Hence, a majority of the learners of the present STWT target group will learn the country´s official language (German or Swedish/French respectively) which is not their first language, but which is required for their daily use and life. As pointed out by Gamper et al. (2017, p. 6), in contrast the foreign language acquisition, the second language concept involves that the country´s official language characterizes and influences the linguistic environment of the learners. Moreover, the second language is the primary means of communication in most of their areas of life, in particular in school and vocational education, as well as serves as an instrument of societal, legal and political participation in the respective country (Gamper et al., 2017). The second language is thereby not necessarily defined by the language that is learnt secondly. The decisive factor is, in comparison with the foreign language acquisition, a significantly higher importance of the language in the learners´ life. In addition, the mode of acquisition is different, since for second language learners, apart from being taught in a school, the second language will be learnt uncontrolled, e.g., in daily life. From the official country´s perspective, foreign language acquisition of the official language takes place abroad (such as German language acquisition in a French school), which means under the guidance of a teacher in class. A language which is not an individual´s first language and in addition, is not the official language in the country he or she[15] lives in, will then be defined as a foreign language. Note that, from the refugees´ or migrant learners´ perspective, the present concept can therefore be classified into the SL learning. For instance, a student from Syria has learned

[15] The personal pronouns *he* and *she* are mentioned in alphabetical order of their first letters and do not imply any valuation.

Syriac as a first language, and will learn German as a SL, when living and going to school or working in Germany.

English as a second language (ESL) – or as well English for Speakers of Other Languages (ESOL) (cf. Foster & Bolton, 2018; Nickson, 2012; Simpson, 2016) – has a long tradition in research (cf., e.g., Nunan, 1999). The scientific discussion about ESL language acquisition type involves the efforts made about the role of subject content teachers who can contribute to supporting second language learners across the entire curriculum during their specific subjects (e.g., Levine et al., 2014; Meskill, 2005).

Hence, with respect to the present target group, there are first and second language learners, whereas foreign language learners do not belong to this group.

As language diversity is seen as the central element for a successful teaching process across all subjects, two principle aspects are striking, leading to major implications in the behavior of and associated with the role of today´s teachers in VET:

1. Multitude of language problems:

   There is an increasing number of learners within vocational education and training who are not proficient in the language used for educational purposes or the language used for vocational education purposes. This is valid for non-native speakers, but as well for native speakers who, for instance, have come from educationally deprived backgrounds. These language difficulties can appear on various levels, ranging from problems with reading or writing their own texts over misinterpretations of language-specific idioms up to non-understanding of compete tasks.

2. Heterogeneity of first languages:

   Linguistic heterogeneity is high, i.e., learning groups are characterized by learners having different first languages. In turn, the official language of the country (here, e.g., German, French, Swedish) represents a second language to many of the young adults.

   The heterogeneity of first languages leads to common situations of multilingualism.

Multilingualism as current condition and opportunity
Multilingualism generally implies the existence *and use* of more than one language. It is defined differently with respect to different levels[16]. Multilingualism both includes bilingual (two languages) and polyglot (more than two languages) individuals (Cambridge Dictionary, 2020). On the individual level, multilingualism signifies a person´s ability to speak and understand more than one language.

Regarding a culture, society, state, family, or social group (such as the group of learners and teacher within a classroom), multilingualism describes the existence, validity and the common use of more than one language in parallel by the individuals involved (Eichinger, 1994). Riehl (2006) additionally divides this level into territorial and institutional multilingualism, where for the present study, the institutional level is of importance. The institution-related conception of multilingualism matches the idea of language-sensitive content teaching, thereby representing one component of it. Chapter II.2 will explain how it can be used in order to promote learners´ ability of the country´s official language (language of communication) by taking into account and using learners´ first languages.

On the one hand, the school-to-work transition program functions as protective shield and support system for young adults with special educational needs. On the other hand, there is the immanent part of low language and communication levels in school-to-work transition programs that should be the first goal to improve, however which is simply difficult to control (Bünning et al., 2019; Fischer & Frommberger, 2013; Kimmelmann, 2013e).

The challenges of teachers dealing with learners´ difficulty with regard to learning the language used for (vocational) educational purpose are subject matter of the following section.

[16] For a more detailed look into the wide-ranging research field of multilingualism, see, e.g., also Edwards (2002), Pavlova et al. (2017) on the interrelation of emotions and multilingualism, or Strobbe et al. (2017) in view of an empirical study on multilingualism in school.

1.3 Challenges of Dealing with Learners´ Language Difficulties

> « Each teacher now faces the challenge to integrate into their own pedagogical activities an awareness of the language difficulties of learners and to cushion or eliminate these as far as possible through appropriate support measures. At the same time, space is to be created in the context of subject-specific teaching in order to be able to further develop deficient language skills. The premise here is a smooth interlocking of language promotion and teaching.[17] »
>
> *Kimmelmann, 2015, p. 157-158*

The highly individual features of the target group have already been pointed out. As a subsequent step in the research line, it is important to determine the precise factors of the challenge resulting from the language deficits. As was emphasized briefly in Chapter I.1.1.2, professionals in vocational training institutions are key players responsible for (or being naturally forced to) dealing with these during their daily work.[18]

The challenges of dealing with learners´ language difficulties have briefly been mentioned above and teachers are confronted with these by a variety of factors. Teachers at the STWT face a situation of multilingualism and, at the same time, the language levels in the language of communicate are often low. For the teachers, it signifies that their teaching lessons are characterized by a high level of required flexibility and individual treatment (cf., e.g., Bak & O'Maley, 2015; OECD, 2005), low levels of teaching progress (cf. Frehe, 2016), sometimes high levels of frustration and helplessness how to continue (cf. Peitz, 2018; Peitz & Kimmelmann, 2018; Schroedler & Grommes, 2019, p. 236). These factors render both the planning and implementation of teaching lessons including dealing with the learners difficult. There can as well be a spillover effect onto teachers´ personal lives.

Hence, due to their key function, STWT and related educational fields, i.e., institutional decision-makers, are claimed to specifically meet the need for new concepts, which support, disburden, sensitize teachers – also in the long-term. This will involve a structural and fast access to the learners and is expected to enhance the teaching and learning processes.

Promoting language and subject contents simultaneously is one solution to the problem. For this reason, in recent years, concepts of this type have been evolving as one promising approach to reduce language difficulties in a comprehensive, encompassing manner by indirectly

[17] Original German quotation translated by the author.
[18] Note again that the school perspective of VET is exclusively taken, whereas the company perspective is neglected.

and continuously promoting the country´s official language skills during vocational or general subject teaching.

In order to understand the concept and know how to use it reasonably for improvements of the challenges described above, it is necessary to explore the different types of existing language promotion concepts, their regional and international variations and levels of institutional development that this concept can be classified into.

2 The Concept of Language-Sensitive Content Teaching as a Method to Deal with Language Difficulties in Vocational Teaching

> « Language-sensitive content teaching is […] a didactic requirement whose implementation benefits all learners.[19] »
>
> *Schule-BW, 2019, p. 1*

The concept of language-sensitive content teaching is, in this study, understood as a comprehensive bundle of specific strategies in (oral or written) teaching interaction with regard to (general or vocational) subjects, provided for teachers in order to support and improve the teaching progress. The superior aim is to lead learners towards the development of vocational action competence (cf. Chapter I.2-3). Without obtaining language and communicative competences and the proficiency in the language used for vocational education purposes, learners cannot develop their vocational action competence. Hence, these three terms will be introduced theoretically in order to understand the core of what language-sensitive content teaching aims at on the learners´ side. The language used for vocational education purposes will be classified in terms of the existing diverse language registers.

It is important to know about the principles of the LSCT concept, since the competences to be developed by teachers in VET are built upon and refer to this concept. The additional competences to be developed by teachers aim at their conscious and sensitive treatment of their learners´ linguistic heterogeneity. Both the cultural and the professional heterogeneity of the learners are considered as well by taking heterogeneity into account (cf. Leisen, 2013). The LSCT concept provides a variety of suggestions on how to teach learners in a sensitive way

[19] Original German quotation translated by the author.

on their way from everyday language to the language used for (vocational) education purpose by always focusing on learners´ vocational action competence. This also implies that there is no gain in pursuing the learners´ linguistic perfection such as referring to grammar.

Professional or technical activities always involve language parts, whereas language is the instrument one uses to learn professional or technical knowledge. Concepts dealing with the connection of language and content as a didactic method in teaching exist in many educational contexts. In the following, language-sensitive content teaching is explained in the way it is understood in this thesis. Moreover, related terms and concepts are described and discussed including the international, European, status quo. Teacher language awareness as one key element of the language-sensitive content teaching competence profile will be discussed in detail as it will as well be a central part of the present design-based intervention.

2.1 The Importance of Language Proficiency for Vocational Training and Future Job as Justification for the LSCT Concept

> « [A]n internship only works if social competence is present. If you break this down', everything can be traced back to language! »
>
> *Educational course director at vocational training institution in May, 2017 (Peitz & Kimmelmann, 2018, p. 45)*

As literature findings tell (Kimmelmann & Smiatek, 2013; Kimmelmann, 2013c; Marsh, 2002) and exemplary experiences in the practice have proven (Kimmelmann & Peitz, 2018b; Peitz & Kimmelmann, 2018), a more consistent language promotion in VET was already necessary years ago. Recently, it has become all the more important as the consequence of the entering of a multitude of refugees into the European VET systems, and today enables both native speaker students and students with a migration background (non-native speakers) to profit from it. “Consistent” means that language promotion is integrated and implemented in all teaching and learning situations possible, on a long-term basis (Gogolin et al., 2011).

Language or language competence is, without doubt, a highly significant factor for professional success (Kimmelmann, 2017; Siemon et al., 2016). Professional learning and acting is unthinkable without language (Bethscheider et al., 2010, p. 5). It applies both to the acquisition of specialist knowledge, routines and conventions of technical action in further education measures and to later action in the job (ibid.). The relevance was pointed out by major com-

parative educational studies such as PISA in 2018 (OECD, 2019c, 2019d). The above statement of the educational course director directly points to the core of the issue: A learner's success at the school-to-work transition, which is primarily about "getting fit" and "catching up on deficits" for integration into the training system, depends largely on his or her linguistic and communication skills in the specific professional sector (cf. Siemon et al., 2016). Language proficiency is closely connected to the distribution of social opportunities and resources (cf. Lenz, 2009). For instance, in the German transition system, the ability to adequately use the German language in a professional context is crucial for a future successful integration into the labor market (Steuber, 2017, p. 253).

As shown by Efing (2012, p. 8), trainers estimate that the proportion of communicative activities in daily work is between 30 and 40 percent. In view of the increasing service orientation in the German economy and consequently its high communicative and social structures and - as teachers in projects have confirmed (cf. Peitz & Kimmelmann, 2018) - the influence of communication via the Internet, social media and other technologies, which are predominant even in everyday working life, it can be assumed that the relevance of linguistic-communicative competences will continue to increase (Efing, 2014a). The development or expansion of the corresponding language skills is therefore an indispensable part of the training maturity. In addition, there is a risk of dropping out of school if learners cannot follow lessons due to their insufficient language skills (Michalak et al., 2015). Here, linguistic deficits often manifest themselves through a high degree of (linguistic) passivity of the learners in class, based on a lack of expression or fear of making linguistic mistakes (cf. Müller, 2009).

The two educationists and German philologists Efing and Kiefer (2018, p. 6-7) describe the function of language in view of young adults´ vocational action competence as follows:

> “Language and communication do not only have a supporting function for professional actions, but often represent professional tasks themselves in various forms. Whether the report of a nurse on the medication administered to the patient in the morning handover discussion or the filling in of transport documents and accompanying papers for the dispatch of goods: Vocational action competence depends on the fact that in education and training reflective, receptive and productive learning processes are set in motion through language and communication and that ultimately a repertoire of forms and strategies is available in order to fulfil these tasks appropriately, effectively and responsibly, independent of the place of learning.“

As a consequence, vocational education and training requires specific language competences which exceed the language proficiency of many learners at the school-to-work transition. The above-mentioned teaching of vocational action competences is one the most important determinants within the framework conditions of training plans established by the KMK (2007, p. 9). Following Siemon et al. (2016, p. 7), under the conditions of a modern understanding of teach-

ing and learning based on the principles of action orientation and the individualization of learning processes in vocational education and training, language competence is gaining in importance. In this way, the learning situation and the problems contained therein are usually already conveyed linguistically (ibid.). Learners will only be able to achieve objectives for action relevant for the subsequent learning process if they can completely reconstruct the learning situation or problem. Moreover, with the aim of detecting action alternatives, the recourse to specialized sources of information is always based on language (ibid.). However, as emphasized by Ohm, Kuhn and Funk (2007, p. 134) and Balkenhol (2016), learners shall learn autonomously to solve complex tasks, beyond the reproduction of specialist know-how. Finally, articulation and reflection as phases which complete a learning action are not possible without learners´ communicative competence (Siemon et al., 2016).

This language proficiency does not only involve technical vocabulary, but also coping with intellectually demanding linguistic-cognitive operations, for which a correspondingly precise, explicit and economic linguistic register is required (Bethscheider et al., 2010, p. 5). This requires the proficiency of the language used for (vocational) education purposes – in contrast to everyday language. The term has become established in the German-speaking professional discussion. For instance, learners will then be able to apply their linguistic competences to (their own) different texts in a logical way (Nodari, 2002). It cannot be expected that learners have these competences in the beginning of their vocational education and training phase. This includes the assumption that these competences will unlikely be learned autonomously in the course of training. Instead, there is a significant need to specifically promote these, in particular with respect to learners at the school-to-work transition. Communicative competence is a recruitment criterion for taking up vocational training or employment (Siemon et al., 2016, p. 8). As argued by Pätzold (2010, p. 161), in particular as a consequence of the changing working conditions (see above), e.g., due to the digitalization, language proficiency does not only represent an access requirement, but also a stabilizer for the participation in vocational work and training.

Obviously, in connection with the promotion of language competences in vocational education and training and thus, with language-sensitive content teaching, the terms language competence, communicative competence, and different language registers such as the language used for vocational education purposes are highly relevant and will be discussed in the following section.

2.2 Important Terms and the Derivation of the Concept

2.2.1 Important Terms

2.2.1.1 Language Competence and Communicative Competence

Language competence and communicative competence are terms that are not often used uniformly (Siemon et al., 2016). In the beginning, competence – and qualification as a further term frequently applied in different contexts – is defined irrespective of the consideration in business education or vocational education and training. Connected to this, a discussion of the definitions and use of both language (or linguistic) competence and communicative competence will be conducted. As vocational education and training is in the focus, a classification of the above-mentioned terms with (vocational) action competence is carried out.

Competence is a highly complex term. It has led to many debates for years (cf. Gillen, 2013, 2015). Competences are acquired, developed, described, collected, standardized, measured[20], diagnosed, managed (cf. Linten & Prüstel, 2015, p. 2) and probably much more. Its terminological and historical development has thus to be explained, classified with respect to the research discipline of business and vocational education and training, and finally applied to the specific focus of this study, the concept of language-sensitive content teaching from the teachers´ perspective. Linten and Prüstel (2015, p. 2) state that there is an increasing popularity of the term competence including its variety of neologisms. The Literature Search at the Federal Institute for Vocational Education and Training (BiBB, 2020a) records 2430 findings if searching for the term competence in the years between 2010 and 2020. This means that approximately each seventh literature finding from the whole book inventory published in these ten years in the literature databank includes the term competence or a related term (compositum) as key word in the abstract. In contrast, qualification was recorded only 1642 times.

Qualification
Qualification is “an ability, characteristic, or experience that makes you suitable for a particular job or activity” or, more generally, “knowledge, skill, or some other characteristic that gives a person the ability or the right to do or have something”. Cambridge Dictionary (2020)

[20] With regard to the debate on a definition and measurement of competences in the German VET, Frosch (2012) offers a classification of the considerations about competences and the state of research within VET in order to identify shortages and challenges.

Whereas in former times, qualifications have been mainly used in the discourse of educational policy, competences are the prevailing term today (cf. Linten & Prüstel, 2015).

The following questions are associated with it:

1. What does the term competence mean from its word origin?
2. How can competences be defined in a) educational science and b) in business and vocational education and training?

When comparing the dictionary entries and respective definitions, there is no visible difference in the meaning between qualification and competence. This might be one cause of the "inflationary use" of competences, qualifications or skills as synonyms in many publications despite the fact that the meaning is imprecise (cf. Linten & Prüstel, 2015).

In particular without taking the term "qualification" or "education" into account, the term competence was introduced already in the seventies of the 20th century (Seeber & Nickolaus, 2010, p. 249). It stems from the use of the term by the linguist Chomsky (1988a, 1988b) who discussed the basic differentiation between the competence of language and the performance of language. (Language) competence would mean the individual´s concrete knowledge about and skills of their language, whereas (language) performance described the actual use of language within a particular situation. Chomsky´s view was often criticized, for instance due to the missing integration of the social context (cf. Siemon et al., 2016c).

However, referring to this functional dimension of the term competence, Wilbers (2019) characterizes competence as an individual´s disposition that enables them to construct situations in an autonomous, successful, responsible manner. This can be associated with competences being located in a deep structure which is not observable (ibid., p. 61), whereas performances can be visible or observable.

In contrast to language competence, Hymes (1976) presents the concept of communicative competence. The term is usually used as a further synonym of language competence (cf., e.g., Nodari, 2002) and is considered the prevailing paradigm in language teaching (Siemon et al., 2016, p. 9). The communicative competence contains four elements (ibid.):

1) The grammatical competence describes the ability to use knowledge of lexicon and grammar (i.e., phonology, morphology, syntax, semantics) to produce and understand literal meanings of statements (Canale & Swain, 1980, p. 29).
2) The sociolinguistic competence describes the ability to apply social rules of language use such as the fit and adequacy of language production and reception (Hymes, 1976).

3) The discourse competence describes the ability to generate target language production by combining meanings and grammatical forms (Canale, 1983, p. 9).

4) The strategic competence describes the ability to increase the effectiveness of communication and avert the threat of communication failure (Canale, 1983, p. 14).

Efing (2012, p. 7) provides an analytical differentiation between linguistic and communicative competences which emphasizes the difference. Linguistic or language competence is here understood from a formal point view.

> "Linguistic competence can also be described as language system competence and language standard competence; these relate in particular to phonology (phonetics), morphology (inflection and word formation), semantics (word meaning), syntax (sentence structure). The (non-) compliance with the requirements of the language system and the language norm can be judged as an outsider without knowledge of the context and the communication situation (with dichotomous evaluations).
>
> Communicative competence can also be described as language use competence, one focuses on the application of linguistic abilities, the acting with language in a concrete context - and thus inevitably on communication partners, situation and goal. In this constellation, language moves into focus in its function as a means of (non-linguistic) end realization."

In particular due to fact that qualification and competence are often used as synonyms, this leads to the necessity of taking a closer look at both. As emphasized by Sloane and Dilger (2005, p. 5), qualification and competence indicate the result of educational processes. Qualifications are interpreted consciously as the required job-related behavior (cf., e.g., Sloane et al., 2004, p. 207 et seqq.). In contrast, competences are understood as an individual´s skills required for coping with specific tasks (Sloane & Dilger, 2005). Within VET, the curricula and training regulations determine skills and knowledge (together: outcomes) to be acquired, with the focus on a concrete occupational profile (ibid.).

Hence, all the work within institutional development is designed according to the determination of the competences to be taught (= the outcome). This leads to the link between the orientation on competences and the guiding principles of action competence (KMK, 2018a).

An approach to a definition which matches the present study´s context is carried out by starting with the word origin and concluding with the concrete VET context of the term competence. In its original meaning, "competentia" comes from the Latin words as the "ability to judge and speak" (IPMA, 2006, p. 9). In the English use of language, before defining the term, it has to be noted that, unlike in German, there can be a difference between *competence* and *competency*. This difference does not appear in dictionaries, has its roots in the relation to either

personal behavior or the performance of a person. This study follows McConnell (2001) and her suggestions of differentiation in the field of education: *Competence* can be referred to as a person´s individual capacity to perform their job functions[21]. *Functional or professional competence* is, for instance, characterized as the "basic skills and behaviour that are needed to do a job successfully" (Cambridge Dictionary, 2020), and therefore rather role-based. *Competency* might refer to a person´s actual performance in a particular situation (Teodorescu, 2006), for instance job-related. It should be noted that dictionaries not differing between these two terms might result in confusion.

The European VET discussion identifies the term competences as the basis of the classification into the European Qualification Framework (EQF) (European Commission, 2008). Eight levels of learning outcomes are determined, each with reference to specific knowledge, skills, responsibility and autonomy of the learner. Competence is here understood as taking over responsibility and autonomy.

In the English-speaking world, there is a discussion about whether to use competence or competency. In addition, the term competence is oriented to specific requirements of the working place (Linten & Prüstel, 2015). By doing this, competences are to be adapted to the specific job requirements. Moreover, the French-speaking world of VET attaches, e.g., great importance towards competences in view of the development of human capital rather than on personal competences.

To sum up, in order to avoid unnecessary confusion, in this study, *competence* is the exclusive term used referring to both actions and behavior of an individual. The complex term involves different definitions depending on the position and the context. The differences mainly lie in the compilations of components.

1) Competences in the education policy discourse:

According to the Austrian psychologist Weinert (2001, p. 27-28), competence is defined as "the cognitive abilities and skills available in or learnable by individuals to solve particular problems, and the associated motivational, volitional and social willingness and ability to use problem-solving in variable situations successfully and responsibly". This is the interpretation on which the educational policy discourse is based on (cf. also Oser et al., 2009).

[21] Capacity is defined as "someone´s ability to do a particular thing" (Cambridge Dictionary, 2020).

2) Competence in the understanding of business and vocational education:

With respect to vocational education science and the principles of teaching and learning, the introduction of competences took place in the nineties (cf. Wilbers, 2019). Basically, VET defines competence in Weinert´s tradition, however with a stronger focus on the target field in which it is applied. This is associated with the (vocational) action competence.

Action competence
Action competence within VET is understood as “the willingness and ability of the individual to behave appropriately in professional, social and private situations and to behave in an individually and socially responsible manner. It unfolds in the dimensions of professional competence, self-competence and social competence.“ KMK (2018a, p. 15)

Self-competence is a typical term within VET which can be used to describe a person´s ability to do things in a proper way.

Thus, competence is understood in this study as an individual´s willingness (motivation, attitude), knowledge and skills which are required to solve particular situations by behaving in both a functionally and socially proper way, and which unfold in different dimensions.

Wilbers (2019) adopts a slightly different classification, and characterizes these dimensions as professional competence, personal competence (summarizing self- and social competence) and competences across-the-board. The across-the-board competence involves 1) individuals´ digital competence, 2) learning competence and 3) the language competence. The aggregate of competence dimensions represents the foundation of action competence. This definition is applicable for both teacher and learner competence.

As pointed out by Kimmelmann (2013c), language competence can be modeled in different competence models thereby distinguishing between dimensions. With respect to diverse dimensions, different linguistic actions can be distinguished (cf. Jude & Klieme, 2007). Individuals are either productive or receptive. On the one hand, the reception of language can be auditory (hearing) or written (reading). On the other hand, the production of speech can be auditory (speaking) or written (writing). Hence, the use of language can be either auditive or in written form.

Language competence models adopt the four different linguistic actions (hearing, reading, speaking, writing). Researchers such as Nodari (2002) and further educational organizations

such as the German KMK (2004) usually expand the models. Educational standards are based on these different competence parts. For instance, the educational standards in the subject German for the intermediate school leaving certificate suggests the following explanation of the competence in the field of reading (e.g., dealing with texts and media). This means that learners would obtain basic procedures for understanding texts, which promotes interest and enjoyment in reading and contributes to the development of empathy and the understanding of other individuals.

To conclude, on the basis of the above-mentioned linguistic actions, language competence can generally be defined as follows:

Language competence
Language competence refers to the knowledge and skills that enable an individual to receive (read, listen) and produce (write, speak) language. If necessary, further partial competences are added. Wilbers (2019, p. 139)

As highlighted above, dimensions of language competence can furthermore be distinguished in view of different levels. The best-known example is represented by the six levels in the Common European Framework of Reference for Languages (Counsil of Europe, 2001). The levels range from A1 up to C2 thereby indicating three broad levels of language competence: A points to basic users, B indicates independent users and C finally describes proficient users (ibid.). For reasons of comparison, this framework serves as a useful tool and facilitates internationalization.

In order to further specify language competence in a specific vocational education and training course, registers must be differentiated (Efing, 2014b).

2.2.1.2 The Language Used for Vocational Education Purposes as one of Diverse Language Registers

Since “language”[22] is a term which a multitude of meanings and conceptions are associated with, a definition of the related registers used in the present thesis is vital. In linguistics, the

[22] Note that, in the following chapters, if referred to the term *language*, the language used for (vocational) education purposes is addressed. This utilization of the term is carried out for simplification purposes.

specific way of using language is called register (Agha, 2004; Efing, 2014b), since language is used in different areas, e.g., in everyday private contacts as well as in business dealings with customers (Wilbers, 2019).

Registers are functionally bound to recurrent communication situations whose framework conditions (place, time, circumstances, communication partners, institutional purposes, medium) require - specific (their own) or only typical (high-frequency) - expectable, conventionalized forms of language action (Efing, 2014b, p. 417).

Following Maas (2009, p. 23), a traditional three-tier system of registers contains the intimate (family), the informal public and the formal register. This model provides a reference model for a cumulative development of language competences, but is not activity-based. Instead, it provides only a rough frame for the description of linguistic varieties and must be extended accordingly for use in an activity context. The degree of abstraction of the linguistic varieties increases with each register level (cf. Steuber, 2014, p. 127).

In particular, the language used for educational purposes is characterized by a high level of abstraction. There is an increasing dominance of this register in view of professional actions and competence development.

With the aim of comparing and classifying the different registers, Figure 6 illustrates the two major areas of language register, everyday language and the language used for educational purposes (cf. Leisen, 2013, 2020).

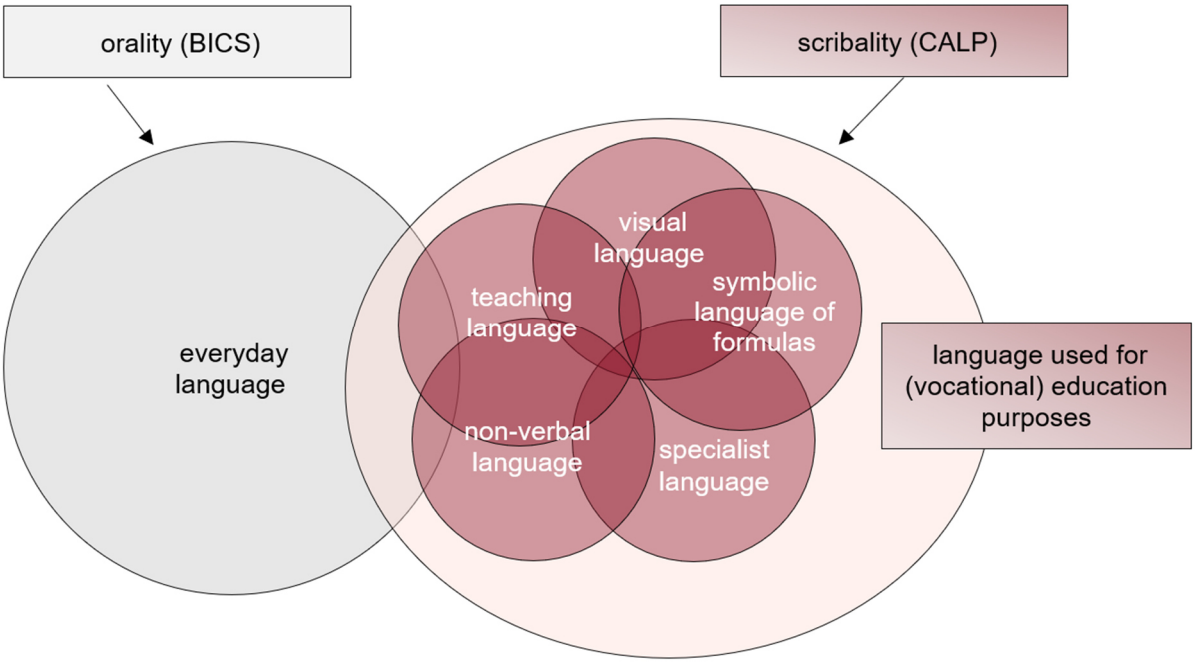


Figure 6 - Everyday language and language used for education purposes based on Leisen (2013, 2020) and Cummins (2000)

Generally, orality is compared to scribality. The basic interpersonal communicative skills (BICS) of oral communication are distinguished from cognitive academic language proficiency (CALP) (Cummins, 1984, 2000). The distinction was introduced by Cummins in 1979, already with the aim of pointing to “timelines and challenges that second language learners encounter as they attempt to catch up to their peers in academic aspects of the school language” (Cummins, 2008, p. 71). Whereas the BICS involve the fluency within conversations, CALP refers to learners being able to “understand and express, in both oral and written modes, concepts and ideas that are relevant to success in school” (ibid.).

In <u>everyday language</u> use, information is passed on informatively, mostly orally and through dialogue. Following Michalak et al. (2015, p. 48 et seqq.), everyday language is typically emotional, shaped by subjective evaluations and rich in images. The language use shows strong and direct situational references. It is characterized by individuals communicating in their daily lives (outside the educational context) (Wilbers, 2019). For learners´ school education, the <u>language used for education purposes</u> is essential.

The primary conflict is demonstrated by the fact that an increasing number of students is not proficient in the language used for educational purposes (cf. Gogolin & Duarte, 2016; Gogolin, Gomolla, & Lange, 2011).

Language used for education purposes
This formal language register is reflected in both oral and written communication. According to Ortner (2009, p. 2232), the primary function of the language used for educational purposes is to mediate between science or specific fields on the one hand and everyday life on the other hand. Compared to individuals´ colloquial language (language used for everyday life), the language used for educational purposes comprises a high degree of scribality as well as vocabulary. This vocabulary contains terminology, i.e. specialized words necessary for and important during one´s vocational training (Habermas, 1978). As defined by Habermas (1978, p. 40), the language used for educational purposes is a register that provides a basic orientation knowledge by means of education. In contrast to the common acquisition of individuals´ first language (mother tongue), the language used for educational purposes is indispensably connected to learning within school/institutional environments.

The language used for education purposes is characterized by a multitde of passive phrases, substantiated verbs, descriptions of functions and actions or as well non-linguistic means such as drawings, diagrams, tables and formulas (Grundmann, 2007, p. 92-93). This entire scope of texts and images (Grundmann, 2008) has to be comprehended by learners in vocational education and training (Ohm et al., 2007). As claimed by Grundmann (2008, p. 3), the linguistic requirements regarding this scope of texts and images are higher for learners than, e.g., literary texts due to its density of information. Moreover, learners have to be able to permanently switch between abstract and specific linguistic expressions or comments due to different language registers such as symbolic language of formulas, teaching language or visual language (Leisen, 2011). Finally, the specific linguistic requirements can vary depending on the respective occupational group or educational level of the learners (Kimmelmann, 2013c).

As argued by Kimmelmann (2017, p. 60), the language used for *vocational* education purposes register is oriented towards the written language as to grammar in the style of the language used for educational purposes following (Gogolin, 2009, p. 60-61). Moreover, apart from basic linguistic skills, this register requires young adults´ language competences in terms of logic, sociology and strategy which have to be promoted in order to develop vocational action competences in the field of linguistic-communicative skills as well (cf. Nodari, 2002).

Language used for vocational education purposes
In connection with vocational education, the language used for vocational education purposes is applied. The term was first introduced in the German literature by Kimmelmann (2010a). The neologism particularly considers the job-related terminology component described above.

As illustrated in Figure 6, the language used for vocational education purposes evolves from the interaction between learners´ everyday language, teaching language such as in textbooks or on the blackboard (cf. Kato, 2014; Leisen, 2011) and specialist language (Janich, 2012) and has the function of introducing specialist knowledge into meaningful everyday interpretations. Specialist language can be defined as follows (Möhn & Pelka, 1984, p. 26):

> "Variant of the overall language that serves to recognise and conceptually define subject-specific objects and to communicate about them, thus taking into account the specific communicative needs in the subject in general. Specialist language is primarily bound to specialists, but it can also be used by people interested in the subject. Depending on the number of subjects that can be distinguished more or less exactly, the variant 'technical language' is realised in numerous more or less exactly definable forms."

With respect to the vocational field, Lindberg (2003, p. 44-45) applies the term „vocational language - naming objects and processes, orally assessing the results, the way of talking about the job, the defining of problems and the solving of them etc. - is necessary as a part of sharing the knowing with others."

The specific registers of language (Figure 6) such as visual language (photos, graphics, illustrations etc.), symbolic language or specialist language specify the language used for vocational education purposes (Kato, 2014). If being proficient in the language used for (vocational) education purposes, the learner will be able to linguistically comprehend both difficult and cognitively demanding contexts and process information (Leisen, 2020). Due to this, the language used for (vocational) education purposes is indispensably connected to school learning, i.e., subject content learning on the one hand and language learning on the other hand, which are mutually dependent (ibid.).

Kimmelmann (2010a) has emphasized the distinction of the language register in vocational education contexts and the everyday communication and points to context-related or subject-related ways of thinking and reasoning as well as to types of text that are particularly relevant in vocational training (Ohm, 2013a; Siemon et al., 2016). This approach helps to explain linguistic-communicative deficits, which are also apparent in native speakers´ levels of language use (Siemon et al., 2016). Simultaneously, considering the language used for

vocational education purposes, the complexity of language skills in vocational education and training is made clear, e.g., by specifying it on the basis of language routines which exist in this field (ibid.).

As highlighted by Wilbers (2019) who distinguishes furthermore the language for professional use, the language for professional use can be either a language of the professional everyday life or of the vocational education. In the case of professional everyday life, it is characterized by its reference to the concrete professional job-related practice and serves as a communication which is typical for the specific profession in the professional everyday life. In contrast, the language used for vocational education purposes aims at the communication in job-related situations within the vocational education context. The latter language register is more compact, cognitively demanding, low in context and related to the specific subject (ibid.).

One of the prevailing aims of the STWT programs is thus to contribute to learners´ language competence promotion with special regard on the language used for vocational education purposes.

Language promotion
Language promotion is here defined as the adequate acquisition of the language used for educational purposes (Leisen, 2020). In the context of this study, language promotion is furthermore seen as linked to the acquisition of the language used for vocational educational purposes (cf. Kimmelmann, 2010a). If both content learning and language learning are combined within teaching, then language promotion can be considered as the path from everyday language via the teaching language to the language used for (vocational) education purposes (Leisen, 2020).

Hence, the existing and visible heterogeneity of learners at the school-to-work transition is complex and multi-faceted: Language and communication heterogeneity is characterized by different causes and origins, as well as different features during teaching lessons. As stated by Schmölzer-Eibinger et al. (2013, p. 18): “For some, language competence is an asset, for others it is a hurdle.”

Considering these conditions, teachers face the challenging task to teach learners the language used for educational purposes. Becoming proficient in this language register is identified as action competence, as the proficiency of the language will enable learners to have the skills necessary for vocational (and further) actions (cf. Ohm, 2013a).

2.2.2 Approaches towards the Promotion of Language Competence in Vocational Education and Training

There are already various approaches and strategies in the vocational education and training system to address the difficulties of learners in the field of vocational education and training described above. Experiences with such language support concepts gain additional new relevance in terms of schooling for underage refugees (cf. ISB, 2018; ISB, 2017; Franzke, 2019; Grabinski, 2018; Kuczera & Jeon, 2019a; Reinke et al., 2019; Riedl, 2017; Brummel & Kimmelmann, 2017). As was outlined in the introductory part of this study, European vocational education and training systems provide their own answers to questions of how to promote language development within VET contexts. Different European countries have their own interpretation and practice of integrated language promotion, which results in a multitude of different examples of how language promotion finds entrance into vocational content teaching (cf. Jeon, 2019). As commented by Blömeke (2006, p. 412), “[a] look beyond the borders of one's own country shows that education systems as a whole and in detail can be designed differently”.

2.2.2.1 General Features of Language-Promotion Approaches

In general, the promotion of linguistic competence can occur in different ways. The traditional procedure for the promotion of linguistic competence is language teaching. In Germany, for instance, this takes place either as German lessons or as foreign language teaching. Countries in which English is the official country´s language, usually provide English lessons or English foreign language teaching. In addition to the classic language teaching, there is integrated teaching and learning of subject content and language.

Thus, depending on the selected language learning model, three different types of competence development are possible (Wilbers, 2019, p. 140):

1. Subject content learning: pure subject content teaching or job-related instruction focusing on professional competence and specialist language
2. Language learning: general, specialist language or vocational language teaching focusing on language competence (common language, specialist language or vocational language)

3. Integrated subject content and language learning: integrated subject content and language teaching with a stronger focus on either the content learning or language learning aiming at professional and language competences (vocational language and specialist language).

For this study, the third type of competence development is relevant. Due to the learners' difficulties outlined above (Chapter II.1), preference is given to language support concepts that are directly integrated into professional learning contexts. The concepts work in such a way that they respond to linguistic difficulties of the learners during competence development. By doing this, they support a parallel development process (Siemon et al., 2016, p. 25).

The concept of integrated content and language teaching has evolved from the tradition of second / foreign language research. With respect to other disciplines than business and vocational education, there is a longer tradition of dealing with language deficits or job-related language support in approaches of second and foreign language learning (Kimmelmann, 2013b, p. 7). It is not possible to simply transfer these existing approaches to the vocational education and training field since the special features of the vocational education and training system and their implications have to be taken into account (cf. Ziegler & Gschwendtner, 2010).

For language support in vocational schools, different constellations of language support can be distinguished depending on the language learning model (see three types above), the target group (first, second or foreign language learners) or the language learning situation as well as the school subject or school type (Wilbers, 2019).

It is necessary to delineate the different terms used in the literature from each other to have a clear understanding of what will be subject of the empirical part of the thesis. Moreover, it is essential to introduce the term language-sensitive content teaching in view of its derivation from the scientific tradition of diverse disciplines and approaches.

The following Table 4 provides an overview of the different forms of how language promotion within vocational education and training can be realized in Germany (c.f. Wilbers, 2019, p. 140):

Table 4 - Forms of implementation of integrated language promotion in (vocational) education and training (own representation based on Wilbers, 2019, p. 140)

	Integrated language and content learning with focus on **content teaching**	**Integrated language and content learning** with focus on **language teaching**	**Language teaching**
second language acquisition	• Language-sensitive job-related teaching for migrants and refugees (1)	• Job-related language promotion for migrants and refugees (2)	• Language teaching for migrants and refugees, such as literacy (3)
first language acquisition / second language acquisition	• Language-sensitive job-related teaching in VET schools (4) • Language-sensitive teaching in other vocational institutions excluding migrant or refugee classes (5)	• Integrated language teaching, e.g., integrated learning field teaching (6)	• General language teaching as first language acquisition (7) • Specialist or job-related language teaching as first / second language acquisition (8)
foreign language acquisition	• Job-related teaching in schools abroad (9)	• Subject content-integrated language teaching, e.g., learning field teaching in schools abroad (10)	• Language teaching in schools abroad (11)

Source: own research

The forms (1), (4) and (5) are the ones this study primarily refers to. For this reason, only these are discussed in detail in the following.

Role models and international points of reference (Siemon et al., 2016, p. 25) can be found in approaches such as “language across the curriculum” (e.g., Coelho, 1982), “content and language integrated learning” (CLIL) (e.g., Coyle, 2007; Marsh, 2002) or “language-related content learning” (e.g., Crandall, 1994). The aim is a connection between language promotion and subject content teaching that is characterized as fluent and inconspicuous (Siemon et al., 2016, p. 25). To achieve this, didactic approaches stemming from both the foreign language learning and second language learning (e.g. German or English as a second language) are transferred into vocational education contexts (ibid.).

2.2.2.2 European Approaches

Table 5 provides a systematic overview of exemplary terms and concepts of integrated language and content learning from an international perspective:

Table 5 - Overview of examples of LSCT concepts and interpretations

Integrated second / foreign language and content learning	**Development of country´s official language for first or second language learners**		
	Germany	*France*	*Sweden*
Language across the curriculum e.g., Coelho, 1982; Lin, 2016; Vollmer, 2009 CLIL – Content and Language Integrated Learning e.g., Ball, Kelly, & Clegg, 2015; Cenoz, 2015; Dalton-Puffer, 2011; Lorenzo, Casal, & Moore, 2009; Coyle, Hood, & Marsh, 2010; Darn, 2006; collection by de Zarobe & Cataln, 2009 Content-based language instruction e.g., Crandall & Tucker, 1990 Language-related content learning / content-centered language learning e.g., Crandall, 1994 Integrated language and content teaching e.g., Swain, 2001	***General education:*** Sprachsensibler Fachunterricht Leisen, 2011, 2013; Butler & Goschler, 2019; Michalak et al., 2015 Durchgängige Sprachbildung, Integriertes Fremdsprachen- und Sachfachlernen Gogolin & Lange, 2011 ********** ***VET relation (project-related):*** *National* *Integriertes Fach- und Sprachlernen*, (Niederhaus et al., 2015) *Berufsbezogene Sprachförderung* (e.g., Deeke, 2011; Niederhaus, 2007) *Bavaria* *Berufssprache Deutsch, Berufsdeutsch* (e.g., Sogl et al., 2013; w.r.t. nutrition and housekeeping, Miesera & Sander, 2015) SpraSiBeQ *(German on the Job)*, (Kimmelmann et al., 2014; Kimmelmann & Dippold-Schenk, 2015; Passage GmbH, 2014) *NRW* Inclusive Qualification Modules (QBi), *Sprachsensible Gestaltung von Lehr-/ Lernarrangements* (Frehe-Halliwell & Kremer, 2018; Peitz & Kimmelmann, 2018) *Hambourg* Projects by the Mercator Institute for Literacy and Language Education (*Sprachförderung und Deutsch als Zweitsprache*) (Baumann & Becker-Mrotzek, 2014; Efing, 2013b; Mercator-Institut, 2019; Woerfel & Giesau, 2018)	*HOPE – French national program for vocational training and French language training in a professional context to cater for 1500 refugees* (e.g., Mandola, 2019) *Les formations linguistiques à visée professionnelle* (Adami, 2015, 2020b, 2020a) *SELO* (Bertaux, 2008) French as Second Language integrated in the individual courses of VET institutions	Vocational training with integrated language learning for immigrants (*Yrkesutbildning med integrerad språkutbildning för invandrare*) (YFI, 2018) *Language Introduction Program* (Kuczera & Jeon, 2019b) *Swedish for Immigrants or Swedish as a Second Language combined with VET courses* (Jeon, 2019) (w.r.t translanguaging, e.g., Torpsten, 2018; Jaspers, 2018; Karlsson et al., 2019; w.r.t multilingualism, e.g., Reath Warren, 2017)

Source: own research

2.2.2.2.1 Content and Language Integrated Learning and Related Concepts

The most and increasingly popular approach in this field is represented by Content and Language Integrated Learning (CLIL), "an umbrella term adopted by the European Network of Administrators, Researchers and Practitioners (EUROCLIC) in the mid-1990s" (Coyle, 2007, p. 545), within the European context with the aim of describing and designing good practice in diverse school environments involving teaching and learning processes being realized in an additional, i.e., second or foreign, language (Coyle et al., 2010, p. 3). De Zarobe & Cataln (2009) published an entire collection of articles about evidence of CLIL from research in Europe. Following Marsh (2002, p. 58), CLIL defines "any activity in which a foreign language is used as a tool in the learning of a non-language subject in which both language and the subject have a joint curricular role". Thus, the approach can be characterized as dual-focused, and furthermore, this form of subject content education is not completely new. Instead, as emphasized by Coyle et al. (2010, p. 1), Content and Language Integrated Learning "is an innovative fusion of both" content and language. It is characterized, e.g., by the fact that both participating languages in class coexist in a constructive-synergetic way (Haataja, 2007). This is called translanguaging, an expansion of the language concept working as an integrated communication system allowing multilingual speakers to use their first language as a means of communication (cf., e.g., García & Wei, 2013; Lewis et al., 2012; Nikula & Moore, 2019). There are several similarities to further educational practices to which CLIL is closely linked such as practices of bilingual education and immersions which are operated in many different European countries and contexts (Coyle et al., 2010). In contrast, practices such as content-based language teaching (e.g., English as an Additional Language) share theoretical aspects, however other fundamental differences lead to the fact that CLIL cannot be understood as a synonym (Coyle et al., 2010). The content-driven feature is one of these fundamental differences where the approach exceeds the mere language learning and is also distinguished from language-teaching approaches (ibid.). As stated by Eurodice (2006, p. 8), "the non-language subject is not taught *in* a foreign language but *with* and *through* a foreign language"[23].

Therefore, learners of CLIL are enabled to apply another language (than their first language) in diverse contexts thereby expanding their intercultural and language skills while they learn the subject content relevant in their respective curricula (Lasagabaster & López Beloqui, 2015). Apart from the promotion of linguistic and general subject-related educational objectives, "it was considered important to prepare students for life in an internationalized society by providing them with resources for the labor market (socio-economic objective), as well as to instill

[23] Note that this is also valid for second languages, as foreign and second language use and learning differ only from the fact that second languages is a type of language that is as well used in the social environment of the speaker.

values of respect and tolerance towards other cultures (socio-cultural objective)“ (ibid., p. 43). As moreover stated in Dalton-Puffer (2011), research studies on second language acquisition find several beneficial factors to apply CLIL, arguing that CLIL programs generate naturalistic language learning settings, expand the time of dealing with the second or foreign language and, apart from language learning as a teaching objective, offer a concrete aim of language use during content learning.

The terminology around CLIL is “a complex terrain” (Haataja, 2007, p. 5). There exist many different characteristics. The same applies to related approaches in different (European) countries. Different variations of CLIL can be distinguished (Haataja, 2007). CLIL with a primary focus on subject contents strives to achieve the subject content objectives, which is why the teaching is carried out by a subject content teacher rather than a language teacher. As pointed out by Wilbers (2019, p. 153), there is a dominance of subject content competence expectations in the assessment. As a further variation, there is CLIL with a language focus. This stems from the CLIL´s origin in the disciplinary context of foreign language learning (see above). In Germany, e.g., CLIL with language focus concerns general education subjects that are associated with language promotion such as Biology which is taught in English or French. By doing this, both the learners and teachers use two different languages (here: English and the official language of the country). As indicated, e.g., by Böschen (2018), the traditional teaching of, e.g., German as a second language (SL) differs from CLIL construction in view of the didactics.

Without a precise reference to vocational education and training, the concept and “policy” (Vollmer, 2009, p. 178) language across the curriculum (LAC) originated from Great Britain and pursues the objective that “language education in school does not only take place in specific language subjects such as mother tongue education, foreign language education, second language education etc., but also in each and every other subject, in each and every activity in school, across the whole curriculum”. Hence, it concerns all target groups of speakers but with a clear focus on subject content (cf. also Coelho, 1982; Lin, 2016).

Content-based language instruction (Crandall & Tucker, 1990) is a quite similar concept applied in the United States. It has a reference to general education as well, by particularly emphasizing its usefulness and objectives for second language learners. As defined by Crandall and Tucker (1990, p. 83), “[c]ontent-based language instruction is an integrated approach to language instruction drawing topics, texts, and tasks from content or subject-matter classes but focusing on the cognitive, academic language skills required to participate effectively in content instruction. It is of growing interest to teachers of both English as a Second Language and other second languages”. It is interesting that already in 1990, Crandall and Tucker (1990,

p. 5) point to the necessity and implementation attempts of teacher teams of both subject content and language teachers in view of the integrated concept.

Further related programs of CLIL in the United States are, e.g., content-centered language learning or content-centered instruction (e.g., Crandall, 1994). Here, the focus of the integrated approach is on the language acquisition rather than content learning.

The Canadian linguist Swain (2001, p. 44) presents the term integrated language and content teaching discussing “the use of tasks which, using content-material, encourage students to focus on language form”. Hence, the focus is as well rather on language acquisition and the emphasis lies on second language learners of French.

To conclude, while CLIL concepts (cf. Table 5, left column) often refer to foreign language or bilingual language learning, the concepts such as language-sensitive content teaching or similar concepts in Germany, France or Sweden primarily often have the concrete reference to second language acquisition. This means, the official country´s language (= second language for a multitude of learners in VET) is in the focus of the concepts.

2.2.2.2.2 LSCT in the German General and Vocational Education System

The approaches and concepts used in Germany are related to the CLIL. As was emphasized above, they primarily differ in the language learning model, the target group (first, second or foreign language learners) or language learning situation as well as school subject or school type (cf. Table 4).

Leisen (2013) was instrumental in shaping the recent discussion in Germany about language education in all subjects with the guiding concept of LSCT (Vollmer & Thürmann, 2013). Examples of integrated language promotion in general education are: *Sprachsensibler Fachunterricht* (Leisen, 2011, 2013; Butler & Goschler, 2019; Michalak et al., 2015; for language promotion in Biology for second language learners, see, e.g. Klare & Wassermann, 2010), and *Durchgängige Sprachbildung, Integriertes Fremdsprachen- und Sachfachlernen* (Gogolin & Lange, 2011).

The language-sensitive content teaching in vocational education and training is related to CLIL, i.e. an adaption of the CLIL approach, with primary focus on subject content learning. It uses the methods of LSCT concepts from general education (see above). With respect to the target group, it can be applied to promote the language competences of both first and second language learners.

In contrast to the objectives of general education, in vocational education and training, the particular importance for language-sensitive principles of teaching is shown by its characteristic of being a core element of vocational action competence (cf. Hensen & Hippach-Schneider, 2016a). Following the KMK (2007) and Sloane and Dilger (2005), the development of vocational action competence represents the focus of vocational education. Teachers face the challenge that they are expected to additionally promote language skills, apart from teaching (vocational) subjects (Kimmelmann, 2010c). On the other hand, language teachers in VET are required to gain knowledge about action settings involving occupation-related specialist know-how, which they analyze in view of the linguistic requirements for the learners which come along with these job-related situations of action. LSCT as “didactic requirement” (Schule-BW, 2019) enables general or vocational subject teaching under consideration of the language in which these subjects are taught (here: German). As a second step, it facilitates reducing difficulties in the learning process of subject content teaching which are caused by or are related to a lack of language.

The aim is therefore to support learners at the school-to-work transition in the successful transfer from being proficient in everyday language to the vocational education language.

With respect to the implementation of LSCT or similar approaches in VET, there are national programs such as *Integriertes Fach- und Sprachlernen* (Niederhaus et al., 2015) and also state-related projects. Bavaria, e.g., engages in *Berufssprache Deutsch, Berufsdeutsch* (e.g., Sogl et al., 2013; w.r.t. nutrition and housekeeping, Miesera & Sander, 2015), or the project *SpraSiBeQ (German on the Job)* (Kimmelmann et al., 2014; Kimmelmann & Dippold-Schenk, 2015; Passage GmbH, 2014). The integrated teaching of language and subject in the classroom is a teaching principle that is firmly established in the curricula of vocational schools in Bavaria (Settelmeyer et al., 2019, p. 43). The basis for this is the conceptual script *Berufssprache Deutsch*. In NRW, the project *Inclusive Qualification Modules (*QBi*)* (Frehe-Halliwell & Kremer, 2018) dealt with the language-sensitive design of teaching and learning arrangements (Peitz & Kimmelmann, 2018). In view of curricula in NRW, in the annexes of the new core curricula for the formal teacher training phase in schools, there is an extra area dealing with language-sensitive content teaching, e.g., regarding cognitive processes of dealing with technical knowledge, the formation of concepts and the assessment and evaluation of technical facts and problems (MSW, 2016, p. 4; Oleschko, 2017). Moreover, the reference framework for School Quality NRW also contains information on language-sensitive content teaching

(QUA-LiS NRW, 2020[24]). In the content area 'teaching and learning' in the dimension of educational language and LSCT, this is specified and anchored with criteria and informative statements (ibid.).

Furthermore, Hambourg worked on diverse projects initiated by the Mercator Institute for Literacy and Language Education (*Sprachförderung und Deutsch als Zweitsprache*) of which many aim at the vocational education fields (Baumann & Becker-Mrotzek, 2014; Efing, 2013b; Mercator-Institut, 2019; Woerfel & Giesau, 2018). All of the above programs focus on integrated language and content teaching and learning with the focus on (vocational) content learning and the specific attention to the second language learner target group.

As could be seen above, there exist a multitude of different terms for varying concepts about language. The literature analysis of empirical LSCT studies in other European countries has revealed a scarce state of research. Nevertheless, similar concepts or concepts designed to solve the issues of language development are presented as follows. Exceedingly few refer to VET, the majority of the findings stem from the second-language research or general educational research, rather than from specific business and vocational education. If so, they often focus on foreign language development (CLIL), and disregard practical implementation considerations. Also, there is a scarce provision of literature focusing directly on vocational school staff, but primarily on the learners themselves. The difficulty or even impossibility of analyzing the target group of learners in school-to-work transition is a fact that the author learned during her research. The reason is the same as the one that produced the research need in the first place: Students were not able to adequately communicate (in written or oral form) their learning problems (Peitz & Kimmelmann, 2018). Self-assessment and reflection sheets that were tested on learner groups showed that they either did not understand at all what they were asked or they assessed themselves generally as positive even if they had well-known difficulties in language or specialist know-how. Teachers are often the best opportunity for assessing their students´ skills and know-how. To conclude, the scant studies on LSCT that exist focus on students, not on teachers, surprisingly.

As the interpretation and implementation of the LSCT concept is embedded into the framework of institutional (school) development[25], both are dependent on each European country´s educational policy with a special focus on vocational education and training. This condition-related dependencies are formulated by the educationist Sadler (1861-1943) already in the beginning of the twentieth century in his research work (quoted in Phillips, 1992, p. 15): “[I]n studying

[24]https://www.schulentwicklung.nrw.de/cms/sprachsensibler-fachunterricht/sprachsensibler-fachunterricht/sprachsensibler-fachunterricht.html.
[25] For a more detailed look on school design and development as well as teaching quality, see, e.g., Fend (2008) or Rolff (2016).

foreign systems of education […] the things outside the schools matter even more than the things inside the schools […]".

A detailed analysis of these foreign European education system´s features is beyond the scope of this study. However, it is important to recognize that differing influence factors exist. In addition, from a respective literature review (on the different features and interpretations of LSCT in European countries) and experiences in the field (exchange on projects about similar LSCT concepts during a European conference) it can be concluded that the countries develop and implement their own concept interpretations of LSCT.

2.2.2.2.3 LSCT in the Swedish VET system

Sweden contains a state-regulated school-based model that embeds initial vocational training and education in the general comprehensive education system (Persson Thunqvist & Hallqvist, 2015, p. 5). Regarding the Swedish language acquisition as one of the VET key competences, the national and regional curricula and standards ("2011 Curriculum") include for the upper secondary schools that Swedish "has the status of cross-curricular objective" (Skolverket, 2016, p. 5). It implies that understanding and being aware of the Swedish language should be promoted by means of teaching across the whole spectrum of subjects within VET schools (ibid.). The diploma objectives also highlight language development in the respective courses.

Sweden carries out several VET-related instruments with the aim of take full advantage of the potential of migrants (Jeon, 2019; Kuczera & Jeon, 2019b). These involve "Vocational Packages in the upper-secondary transitional programmes and adult education programmes" (Jeon, 2019, p. 19) such as "Swedish language training specific to the vocational field" (cedefop, 2016b, p. 4). These integrated language and content programs focus in particular and mainly on (newly-arrived) refugees and migrants. Thus, the approach is located in the area of second language acquisition (target group) and effectively combines language and vocational training with a dual focus.

With respect to exclusive language learning for second language learners, there is, e.g., the Language Introduction Program in transitional programs (Jeon, 2019, p. 66). Apart from the Language Introduction Program, there are further so-called introductory programs such as Individual Alternative, program-oriented options and Vocational Introduction (ibid.). These are individualized programs which involve language training, basic skills or upper secondary vocational education and general subjects, each of them slightly differing in their focus. As furthermore outlined by Jeon (2019), the courses Swedish for Immigrants (SFI) and Swedish as

a Second Language (SVA) enable non-native speakers to acquire both basic (SFI) and advanced (SVA) Swedish language proficiency. SFI is connected to vocational adult education in diverse jobs which can also include apprenticeships (Kuczera & Jeon, 2019b). In some municipalities, SFI is also matched with appropriate professions (OECD, 2016).

Regarding integrated language and content learning with a focus on vocational subject contents, the Swedish system provides some projects for second language learners of the Swedish language. In the municipality of Stockholm, for instance, such a project was initiated (YFI, 2018). Its aim is the integration and language promotion of refugees with a strong and successful connection of vocational practice and language development. It is called "Yrkesutbildning med integrerad språkutbildning för invandrare – YFI" (Vocational training with integrated language learning for immigrants). The concept particularly consists of the team work of both language and subject content teachers, also directly during team teaching in the lessons. Experiences from the project will be part of the contents of the design-based study (Chapter IV).

In view of the didactic-methodical procedures, in Sweden, multilingualism (Warren, 2017) and translanguaging (Torpsten, 2018) are of high priority. The VET courses allow for maximizing non-native speakers´ multilingual characteristics by, e.g., "multilingual study guide" and first language instruction (Jeon, 2019, p. 64). These support non-native speakers to achieve the subject content´s learning objectives of the VET school´s curriculum. On the other hand, applying the translanguaging approach involves learners contextualizing scientific contents "through prior experience" (ibid.).

2.2.2.2.4 LSCT in the French VET system

The French VET system is politically controlled (Gessler & Herrera, 2015, p. 153). France has embedded similar approaches into the vocational education system (cf. Adami, 2015[26]). There is no particular school-to-work transition system in France such as in Germany. On the contrary, similar to Sweden, educational programs in vocational institutions prepare second language learners for higher education (on their way to a future job) via French as a second language courses combined with vocational subjects (Adami, 2020b; Lochmann et al., 2019). A concept based on CLIL was, for instance, the SELO experimental approach initiated already in 1992 (Bertaux, 2008). "Sections européennes et de langue orientale" was one variation of LSCT where teachers were trained for by means of a one-year module training consisting of

[26] As stated by Adami in a discussion with the author, framework conditions for language acquisition for migrants have changed between the publication of his article in 2015 and today (a current discussion including new developments is being prepared for publication).

"classes and workshops on basic CLIL theory, the pedagogical approach, lesson-planning, subject-specific vocabulary, the language of classroom management, selecting support material, and promoting the intercultural dimension" (Bertaux, 2008, p. 238). Completing the program results in obtaining a national certificate. Nevertheless, this approach is focused on foreign language teaching / acquisition.

Similar to Germany and Sweden, France engages in initiatives for the integration of refugees such as the project "Job to Stay" in Bordeaux. With regard to direct support of the French language within work-based settings, vocational institutions work together with organizations such as *Academic Centre for Education of Newcomers and Travellers Children* (CASNAV) (aida, 2019). CASNAV tests non-native speakers with insufficient language levels where the test results represent a support mechanism for teachers trying to match the students with the adequate educational course. On the other hand, vocational teachers in French vocational institutions (either in vocational lycées[27] or Apprentice Training Centers, *Les centres de formation d'apprentis* (CFA), Centre Inffo, 2016, 2018) focus on vocational and subject teaching where they work individually with the students on the competences, such as language competence (French as a second language).

As pointed out by the Centre Inffo (2016, p. 17-18), programs within VET for vocational qualifications "include teaching of general subjects ensuring continuity with the general education, and many curricula are implemented in a cross-cutting way to promote the acquisition of key competences beyond the teaching curricula." Language skills ("Learning French as a Mother Tongue", "Communication in the Mother Tongue") belong to mentioned key competences (Centre Inffo, 2016, p. 6)[28]. The key competence development at the upper secondary VET is promoted at national and regional level by means of the Act of 8 July 2013 stating (ibid.):

> "guidance and planning for the restructuring of the French school system and its measures – set up a framework for the renewal of all curricula and of the teachers training system regarding learning/teaching French as a mother tongue."

With regard to the national or regional curricula and standards, this involves that, across all the modules of the curricula in VET (including French), students develop the key competences. The curriculum thereby "focuses on verbal and written communication in the mother tongue" (Centre Inffo, 2016, p. 6).

According to statements by French teachers (Lycée Gustave Eiffel, Bordeaux), in all lessons, the French language is consistently rather used as a tool than a goal itself. By doing this, and since working is much more rewarding for the students than attending school, their aim is to

[27] For more information about the structure and contents of vocational lycées, see Centre Inffo (2018, p. 21).
[28] "Mother tongue" here refers to the official language of France.

become employable in a particular job, which is a significant motivation. This also reflects the motivation for the LSCT concept.

A reform having started in 2018 involves the field of action “fostering academic success and professional integration for students” (cedefop, 2018, p. 1). In concrete terms, the guideline states that “[g]eneral and vocational subjects will be better inter-connected; for instance, courses may be taught jointly in the classroom by the respective teachers” (ibid.). This gives the team teaching approach as a variation of the LSCT a completely new meaning. Language teachers and subject teachers teach the learners jointly.

2.3 Language-Sensitive Content Teaching Concept in This Study

2.3.1 Introduction and Definition

The concept of language-sensitive content teaching was chosen as the target competence for vocational teachers due to its holistic and comprehensive approach rather than focus on one specific field of language competence or subject. The model of language-sensitive didactics outlined here ties in with existing different approaches in the sense of a holistic approach and attempts to combine them into an overall model. The overall aim is to provide teachers with elements of integrable language promotion which do not overburden either them in teaching or the learners in learning processes.

In particular with respect to the field of vocational education and training, it serves as an appropriate bundle of strategies, tools and attitude that can be characterized as an additional teacher competence that can lead learners to obtain vocational action competence. Hence, the content-related, i.e., vocational or general content-related competence development of the learners is in the focus.

The concept became focus of this study as it serves as a support system for teachers (and learners) that does not displace vocational or general subject content learning from its first-line position. Instead, the concept is understood here as respecting and appreciating the primary objectives of vocational education by simultaneously engaging in subject-related language learning. It fits the need described in Chapter I: By applying language-sensitive content teaching, the language used for (vocational) education purposes is learnt in close relation to the subject content and promotes the language along and with the questions of the specific subject. Hence, it can be adequately applied by any teacher in vocational education.

With regard to a precise characterization of the term, some difficulties may occur. One of the first questions arises in view of the focus, as was briefly mentioned above. Language-related subject teaching or subject-related language lessons? As claimed by Kato (2014), language-sensitive content teaching is a sensible and reasonable mixture of both.

Language-sensitive content teaching
In the present study, language-sensitive content teaching (LSCT) is understood and defined as the bundle of strategies applied by teachers in (general or vocational) subject content teaching in order to promote learners´ vocational action competence by taking account linguistic obstacles and opportunities of language promotion in a sensitive manner (author´s definition).

By understanding the concept in this manner, it differs from similar concepts in particular by the primary focus on VET, in particular on vocational action competence (under consideration of language skills development). Moreover, the key target group are second language learners (non-native speakers), however the approach is equally applicable with the aim of developing first language learners´ (native speakers) language competences. Finally, the approach focuses on teachers in vocational schools as the responsible group for teaching. Despite the fact that recommendations for the didactic-methodic design of teaching lessons are provided, the approach has the specific feature of not pursuing the objective to transform the content teacher into a perfectly-trained language instructor. Instead, teacher language awareness is given a high priority in view of contributing to the learners´ language development and access to the learners.

The definition is based on diverse interpretations of concepts including both language and content learning that are mentioned in educational contexts (cf. Table 5 on p. 95). The present interpretation of the concept is significantly oriented towards the LSCT concept developed by the educationalist Leisen (2020) who simultaneously describes the core and aim of integrated language promotion as follows*:* “If subject learning and language learning in the subject are inseparably linked, then language education in the subject is the path from everyday language to educational language”.

Thus, by engaging in LSCT, teachers try to make language the basis of learning within subject content teaching accessible and available for all learners (Schmölzer-Eibinger et al., 2013).

LSCT considers in sum:

- learners´ vocational action competence as central factor

- specialist / professional and linguistic learning objectives
- explicit, appropriate support and assistance oriented on the learners´ needs to allow mastering the (job-related) learning situation at the linguistic levels.

There are alternative terms and similar approaches of the concept of the present study, i.e., regionally and internationally different types of LSCT. Each differs slightly from the other, depending on the focus of the specific educational field. In addition, the concept differs with respect to the target language it aims to improve – whether it is about promoting the official language (e.g., German as a SL or FL, or English as a FL).

A successfully implemented language-sensitive content teaching requires the interplay between different factors (cf. Peitz, 2018). These factors center around the teachers´ positive attitude towards learners´ language, language diversity and the individual´s needs with a view on social participation as the major goal (1), the planning of language-sensitive didactic learning environments and teaching material modified towards this direction (2), and the teacher´s awareness for their own use of language (3).

2.3.2 Elements of the Concept

Language-sensitive content teaching requires the planning of language-sensitive didactic learning environments and teaching material. Selected strategies which – combined and/or applied – form the LSCT bundle of strategies are presented in the following.

2.3.2.1 Linguistic Assistance

The teacher linguistically assists the learners by adding linguistic support whenever and wherever needed to understand the content and follow the teaching process (in particular regarding the preparation of teaching lessons / material). They adopt action-oriented and cooperative learning methods. For their language-sensitive subject teaching, teachers formulate linguistic goals in addition to content goals and have language learning situations in mind which they use during teaching. One of the major activities is the pre-relief (simplification, prereading plan) of teaching content and texts (Leisen, 2013; Ohm et al., 2007). Planning language-sensitive didactic learning environments refers to the areas of reading and writing texts and of oral and written communication in particular with respect to vocational contents. Linguistic assistance is highly important in the area of terminology.

Terminology

This concerns exercises of specialist terms w.r.t. the subject contents, e.g., specialist vocabulary of a motor car mechanics, or business vocabulary associated with the job of an administration secretary etc. The terminology is highly important in order develop vocational action competence as it provides learners with the safe handling of action situations, thereby leading to specialist knowhow and self-consciousness.

Variety of methods and tasks

- Scaffolding approach (cf. Cummins, 1984, 2000; Gibbons, 2015)

The scaffolding approach is one possible approach to vary methods and tasks. It is based upon the theory of *social constructivism* (Vygotsky, 1963, 1978) dealing with the conception of the zone of proximal development (quoted in Gibbons, 2015, p. 13). The key idea of this zone is to show the range between competences students can learn on their own and those which can be learned only by assistance, guidance, support of other students or the teacher. This again leads us to the area of responsibility or requirements of teachers´ jobs. Linked to the scaffold approach, teachers focus on the zone of proximal development and provide the extent of guidance and support to students at a particular point in time of the learning process which matches their current state of competences. The scaffold can be characterized by the tools the teacher provides which help learners to proceed in their learning process. Thus, the approach involves a step-by-step development of learners´ understanding, skills, and know-how guided by the teacher.

Obviously, teaches need to be able to measure or assess the learners´ level of knowledge which is assumed to be difficult. The difficulty is thereby dependent on the level of heterogeneity within one learning group. Experiences in teaching as well as a positive, open, and curious attitude towards individual needs of the learners will improve the teachers´ ability.

The following quotation of a teacher working in the STWT in the area of technics and mechanics exemplarily shows how scaffolding can be implemented (Kimmelmann & Peitz, 2018b, p. 9):

> "…[I] thought about things I could use for this, how can it be interesting, and then later on a whole concept, first the lighting system of a bicycle, and after having experienced this, […] I want to transfer it to a vehicle, to vehicle engineering as well. But I believe, it is just important within vocational training preparation, that you start at a low level and by making relatively small steps, and maybe, because these are young people that generally do not dispose of a driving license or so, that you are a little closer to the real world with this project then, with this learning arena."

- Linguistic simplification (cf. Leisen, 2011)

Linguistic simplification can be the first methodological approach. This must not be confused with the false belief of simplifying subject contents as far as possible. Considering school regulations, being accompanied by standardized test performances, such a simplification or modification would not be sensible or expedient. After having evaluated the linguistic level of students, texts should be simplified to the extent that they can understand them. It contains the use of short paragraphs and short sentences, explanations for difficult terms etc. A useful orientation guide is, e.g., offered by the set of rules of *simple language* (cf. Netzwerk leichte Sprache e.V., 2019 for German; or Center for Inclusive Design, 2020; inclusion Europe, 2020 for English use). In the context of social inclusion, this tool has been developed in Germany to make contents understandable for individuals with very low language skills. Despite its advantages, there is an on-going debate about potential problems arising from this tool, e.g., the risk of simplifying contents by simplifying language levels, and the gap between the level of linguistic difficulty in the lessons versus the one in subsequent exams. However, especially when teaching students with very low language levels due to the fact they learn the official language as a new language, it can be recommend to integrate the use of texts in simple language. This a good start for introducing the discussion about a specific content.

The extent of simplification have to be chosen by the teacher – which is also a challenge, however, can be managed with the help of a training. Especially, the long-term benefits will justify the effort.

- Linguistic internal differentiation

Another category of LSCT is linguistic internal differentiation (cf., in particular, the detailed manual by the ISB, 2017; Röttger, 2019; Wunram & Miesera, 2018). On the one hand, this can refer to diverse linguistic requirements connected to support mechanisms being available to a varying extent. It can also mean language products on different levels within tasks. On the other hand, the aim is to let students of diverse linguistic levels benefit from the interaction with other students, i.e., to design cooperative learning methods for mutual learning processes.

Note that according to the teachers´ statement in the QBi project, this element of LSCT was often criticized as it can only be realized in practice when provided with a higher time resource.

- Deliberate use of questioning techniques

Questions being asked to learners (orally or in writing) are preferred to be constructed in a short, clear and intentional way. The short length of a questions has an influence on the understanding (depending on the level of linguistic deficits, a long question can heavily inhibit the process of understanding) and it can positively influence the memorization process regarding the content of the question. Posing clear and intentional questions means that the teacher should take into account referring only to the concrete topic of the lesson. With respect to spontaneous questions, it is recommended to do so as authentic and lifelike as possible.

In addition, misunderstood pronouncements or statements on the learners´ side are to be deliberately repeated. The following teacher statement provides an example for this self-critical handling (Wentker, 2017, p. 54):

> “Up to now I have almost always (...) taken it for granted that what I say, for example, is relatively easy for the students to understand, and I am no longer so sure about that. (...) up to now I have always been so presumptuous in what I say, that can't be that difficult, (...) it must be understandable for everyone.”[29]

2.3.2.2 Language-Sensitive Design of Texts

A frequent phenomenon with learners is that they are often linguistically overchallenged (i.e., too high linguistic requirements) while being cognitively unchallenged (Leisen, 2020). This statement illustrates the often necessary balancing act between professional and linguistic support, even as the language acquisition of the learners progresses. Therefore, after identifying and defining cognitive requirements, i.e., the concrete range of requirements of the specific task, the goal is to also <u>identify and evaluate the language requirements</u>. Linguistically, teachers should therefore ask themselves: "How complex is the understanding (receptive) and processing (productive) of the task in linguistic terms?” No artificial hurdles should be set up here. This does not mean that tasks are simplified across the board, but rather that teachers should <u>consciously deal with tasks as well on a linguistic level</u>.

The following strategies of the task definition are suitable for this:

- The task is communicatively designed (attention: choice of social form).
- The task is simplified linguistically wherever possible.

[29] Original German quotation translated by the author.

- The task is preloaded in terms of content (by explaining technical vocabulary, phrases) and language (addressing the capitalization of nouns, indicating the articles of nouns, etc.).

When dealing with tasks, students often face the following challenges, which must be mastered with the help of the teacher: understanding and solving the type of task, understanding operators, avoiding specific barriers to understanding (Ohm et al., 2007). Operators can be defined as verbs serving as action guidelines for learners in three different levels of requirements. For instance, describe, explain, reflect on would each represent one of the levels of operators.

2.3.2.3 Pool of Methods

The following explanations about the pool of methods for teachers are based on Leisen (2011, 2013).

- Scenic forms of representation (variations of presentation)

By varying the form of presentation (in the sense of the type of text and its formal and linguistic preparation), students with diverse language skills can be supported and guided based on their resources and potential. At the same time, integrating different sorts of tests and their visual/graphical/didactical preparation or presentation promotes diverse factors of linguistic skills which means it serves a holistic approach of language promotion within specialized-subject classes.

- By means of the use of digital media, such as learning apps (cf. recent studies by Beutner & Pechuel, 2014; Guaqueta & Castro-Garces, 2018; Jones, 2018; Nobre & Moura, 2017)

In sum, LSCT in this thesis is the term describing a broad bundle of strategies from which the teacher can choose according to what they consider necessary. For this reason, the language requirement of any didactic element (activities, teaching materials chosen) should be briefly assessed in the sense of a needs assessment and diagnosis (cf. Kimmelmann, 2010a, 2010c). The general question along with LSCT is whether the learners can fulfil the linguistic requirements of the tasks (Sogl et al., 2013). The language skills required combined with the teacher´s assessment with a view to coping with these skills provides the teachers with the information they need to provide a certain level of support.

In order to realize the planning of language-sensitive didactic environments described above, the teacher should obtain an awareness for the learners´ proficiency and use of language(s) on the one hand, and for their own language use on the other hand. What these two aspects involve with regard to LSCT is described in the following section, with a special focus on the teacher role in LSCT. In addition, competences relevant for a successful realization of LSCT are arranged in a competence profile including language awareness as one central part of it.

3 The Research Subject: Teacher Professionals in Language-Sensitive Content Teaching due to Global Societal Trends

> » And as a teacher, you should constantly develop linguistically towards a student-centered learning, if you have the opportunity to do so. Which is the material, which is a subject the student are able to make use of. »
>
> *Teacher at vocational training institution, May 2019*

The following two sections will discuss the research subject of this study, vocational teacher professionals. In this regard, two aspects are important: First, the special role teachers play with respect to the target learner group (see Chapter II.1-2) will be outlined. Resulting from the role description, the second section will be dedicated to required competences of a teacher professional at the STWT with a special focus on language-sensitive content teaching. These are the designated additional competences resulting from the LSCT concept and the expectations which exist towards teachers. The expected and/or required additional competences lead to a necessary change in the role profile.

3.1 Teacher Role in Language-Sensitive Content Teaching

Individuals always play more than one role depending on their social environment. In this context, Wilbers (2019, p. 247) talks about condition levels which can be classified to macro, meso and micro levels, and the respective elements on these levels, i.e., actors. Apart from being a teacher, a professional in VET is as well a colleague, and apart from the institutional environment, the professional might be a life partner (ibid.). Also with regard to the teacher role, this

role can be further expanded to being motivator, consultant, moderator, trainer etc. The teacher role within the STWT can be considered a multi-faceted role.

Since the condition levels described above are interleaved, and there is a constant change of these, they are interdependent (Wilbers, 2019). This means, for instance, if there are societal changes such as is the case due to migration and flight, it will naturally influence the other levels. This, in turn, implies that vocational institutions as well as their personnel undergo these changes which might discomfort them as their roles change, too. If there are practical, useful support mechanisms, the discomfort can be transformed into a new motivation or a new positive relation with their role.

In their literature study on professional development for VET teachers in Germany, Hensen and Hippach-Schneider (2016b, p. 18) provided the following apt characterization of the professionals´ role:

> "…[T]eachers at vocational schools are the backbone of VET […]. They work in partnership at the interface between the educational sector and the labour market and assume joint responsibility in training tomorrow's skilled professionals. They are thus a key factor in the quality and attractiveness of VET."[30]

The quotation supports the statements about the influences of the condition levels on each other. Here, the labor market is the reference point which other levels react on and also teachers´ are required to know the labor market conditions and integrate their knowledge into their acting and behavior.

Thus, there is a relation between teacher role, behavior, acting, competence (cf. KMK, 2004) including – as is the particular focus of this study – teachers´ LSCT competence (cf. Figure 7).

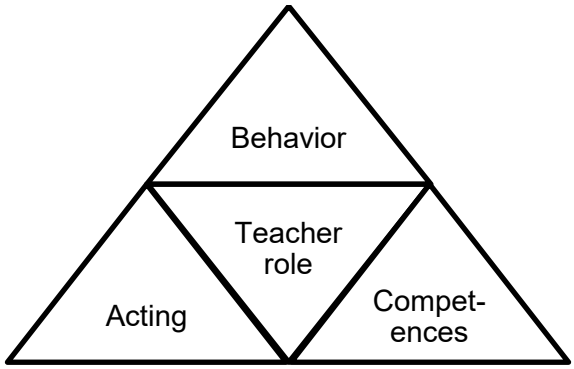


Figure 7 - Relation between teacher role, behavior, acting and competences (own diagram)

[30] In their quotation, „tomorrow´s skilled professionals" signifies the learners in contrast to the term professionals used to denote the teachers in this study.

The role of the teacher can generally be defined as follows:

The role of the teacher
The teacher role describes the social role a teacher plays in the school system. It includes the planning and execution of lessons, interaction with pupils, [...] colleagues and other groups of people as well as the role as a representative of the school in administration and the public. Based on many different and sometimes diverging expectations, teachers are assigned to different roles, such as knowledge mediators, advisors or educators. The teacher role can usually be individually designed according to existing guidelines (e.g., legal guidelines, curriculum) (Weiß, 2020). There is broad agreement that the professionalization of teachers is linked to a continuous development. This development must be instructed, initiated, maintained or supported (Gehrmann, 2013 quoted in Weiß, 2020).

Statements such as „The teacher is what matters!“ (Lipowsky, 2006, p. 47) demonstrate the high level of responsibility associated with the role profile. With regard to STWT, and in particular in view of dealing with migrant and refugee students, the role also involves a lot of relationship work. This conclusion resulted from the discourse with a teacher expert in LSCT who simultaneously teaches refugees in International Classes in a VTI in Münster, Germany. This relationship work stems from the teacher being an important attachment figure for the students.

This multi-faceted role involves the risk of overburdening and/or uncertainty, among others (Bylinski, 2014; Diettrich, 2017; Fiolić & Fiolić, 2019). According to Roth (2015, p. 13), the teacher´s own role is connected to uncertainty, and the teacher can determine which role they want to play. Relating to the relationship work described above, both teaching and learning is a matter of trust. As Roth is as well critical of the idea of a self-adjusting learning, he points to the result that “it doesn´t work without teachers” (ibid.).

Following Roth (2015, based on Hattie, 2003), the teaching and learning success is influenced by the following two areas, independent of the teaching type:

Table 6 - Influence factors of teaching and learning success (own diagram based on Hattie, 2003)

Teaching and learning success factors	**in percent**
Teacher personality, competence and credibility	40%
Learner intelligence, motivation and diligence	60%

Source: own research

It can thus be argued that learners will always check whether the specific learning process is worth the effort. The decision about this worthiness is significantly based on the trust in the teacher. Deutscher and Winther (2018) have, e.g., studied the effects of “instructional sensitivity” of teacher towards their learners and found these to be positive with regard to learners´ success in learning. This is another part of their role. The above-explained derivation of teaching and learning success factors demonstrates the importance of the teacher personality (as a central component of an individual´s identity) as a part of the role they take up and play.

There is a subtle but important difference between “behavior” and “acting” in view of the teacher profession. Döring (1992) claims that only the term behavior should be used, since it is a general term including an individual´s actions in its broadest sense.

Over the past four decades, the teacher´s role has changed in that it was about being “animator, facilitator of learning process largely initiated by pupils and pursued for purposes important to the learners rather than the teachers” (Cropley & Dave, 1978, p.32-33). Furthermore, they play the role of guides, consultants and diagnosticians (Huber, 2008, p. 16). The relationship was expected to become closer and more personal in the future. This has proven real as was highlighted above (relationship work between teacher and learner).

In the course of and as a consequence of globalization and migration (the details have been pointed out in the prior chapters), teachers have to obtain a new role, i.e. a role including an additional competence. This competence means being able to teach contents in a language-sensitive way. It is difficult, i.e., exhausting or challenging for teachers (cf. Bak & O’Maley, 2015; Müller et al., 2014).

Which implication does the LSCT concept have for the teacher´s role?

In (vocational) education, professional teachers have been identified as key players (Bredeson, 2000; cedefop, 2016a; Frimodt et al., 2006; Jemeljanova, 2016; Loewenberg Ball & Forzani, 2009). Changing roles do not imply, however, changing personalities. In line with the definition of a teacher role, changes are associated with changing planning or implementation of the teaching lessons as well as a modified interaction with students or colleagues. Following Wilkie (quoted in Superfine, 2019, p. 2), also professional development of teachers should rather pursue “helping teachers change their teaching practice rather than seeking to change the teachers per se…”.

The initial point of all efforts is again represented by the presence of teachers´ language awareness. As argued by Misra (2011, p. 31) in his comparative study on European professionalization of VET teacher issues,

> "[t]eachers are key to a successful VET system but remarkably little is known about patterns and contrasts of VET teacher training across the EU. As regards to VET teachers, it will be worth mentioning that many of the international studies do not make particular reference to the peculiar problems of teachers in vocational education. The last comprehensive international studies on vocational teachers occurred more than 30 years ago".

Before starting the discussion about existing professionalization concepts in Europe, it is important to define the role and identity of teachers in VET in Europe with regard to LSCT (cf. Misra, 2011).

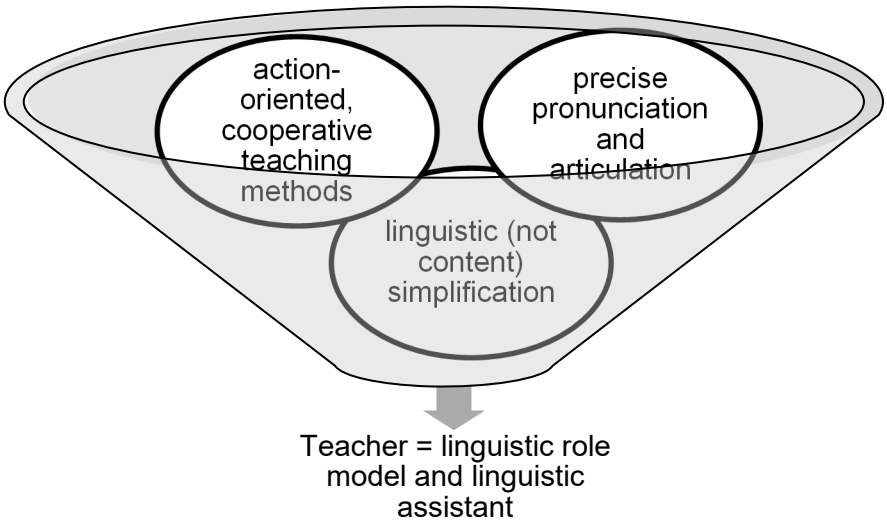


Figure 8 - Elements of the teacher role in view of language-sensitive content teaching (own diagram)

With regard to LSCT, the teacher´s role can be characterized by implementing the recommendations of working with the concept´s elements pointed out in Chapter II.2. As assumed by the definition and the assumptions above, teachers´ roles are changing (micro level) due to changing conditions on the meso- and macro level. In view of a higher attention and necessary actions of language promotion within VET, LSCT has led to additional teacher roles such as being a <u>linguistic role model, linguistic assistant, whatever subject content the teacher is teaching</u> (Figure 8). The role is less about always being perfectly prepared with a language-sensitive designed teaching material, knowing each and every method for promoting language during the teaching process, or insisting on the learners´ perfect know-how of grammar, for instance, in an economics course or in a theoretical or practical hairdresser´s lesson.

The role associated with the LSCT concept as understood in this study is rather characterized by the following aspects which are illustrated w.r.t. the hairdresser´s example and with the focus on teaching relevant job-specific vocabulary:

- being a linguistic role model: This is for instance realized by keeping an eye on learners´ specialist vocabulary according to the field of the hairdresser, hair stylist, the salon as their working place, and the relevant products including the respective chemical know-how (promoting their job-related language on learners´ way towards the goal of vocational action competence). The teacher might pay a particular attention to the learners´ pronunciation. The teacher might furthermore consider and realize metaphorical language to explain important terms. The list already demonstrates that this terminology is complex and might require special learning techniques the teacher can provide

- being a linguistic assistant where necessary: The teacher can support the students where needed with glossaries that learners can take with them and refer to, or as well can use different forms of representation in order to convey the meaning of specific vocabulary (e.g., pictures, photos, simulations, comparisons).

By playing the role that is required in view of the language-sensitive content teaching concept, the following principles are suggested. They refer to the teacher´s behavior including recommended actions. These principles evolved according to theories of language promotion in general combined with the experiences of the author in the field of subject content teaching of refugees in German International Classes (based on a few teaching lessons observed and discussions with the responsible teacher and LSCT expert of this learning group in 2016 and 2017). Although this was developed as a consequence of considerations about necessary aspects of teacher behavior with respect to refugee students, these principles can be useful a guide for teachers in VET. It addresses any teacher within STWT systems who teach students in general or vocational subject contents for which the country´s official language is not their first language. Specific behavioral and action patterns are linked to the role. Figure 9 illustrates principles recommended to be followed by teachers who teach learning groups with linguistic and cultural heterogeneity at the STWT (Brummel & Kimmelmann, 2017):

Principles of language promotion (with content teaching focus)
of refugee students from the teachers´ perspectives

1. I have patience with my students and accept that some linguistic processes take a long time or do not work (for the time being).
2. I always observe my own attitude. There will be situations in which there are major communication problems. Then I will try again in the next lesson.
3. I perceive the students in their differences and try to assess them in order to be able to respond to them individually.
4. The relational level is - especially at the beginning of a common lesson - as important as the professional level. Every student has their own history and personality.
5. The language of origin is highly relevant for learning and practicing the German language. I try to perceive this and to include it in the professionally oriented language support, if this is possible or arises.
6. The quality and willingness of oral communication has a direct relation to the learner's behavior with regard to the courage to speak in front of the group. This is dependent on the fear of making mistakes. I therefore handle the learners' mistakes with care.
7. As much as possible, I illustrate what is said through various forms of representation such as pictures, blackboard, objects, facial expressions, gestures etc.
8. In terms of content and language I try to challenge the learners, but never to overexert them!

Figure 9 - Principles of language promotion of refugee students in all subject teaching lessons in vocational schools from a teacher´s perspective (Brummel & Kimmelmann, 2017, p. 25, translated)

Figure 9 shows that the role of teachers in STWT courses has become more complex and challenging. Concepts have to be developed which consider more aspects than the exclusive development and modification of teaching material. Instead, the principles above imply a more holistic approach by also taking into account motivational, volitional and social competences of teachers, i.e., the attitude. The attitude contains the discussion

This necessity requires new concepts of training and further developing teachers, which motivates the development of the new concept. Subject content teachers are often not able to recognize their role involving providing their (second-language) learners with language support in their teaching (cf., e.g., Davison, 2015; Hajer, 2006; Hajer & Norén, 2017; Little, 2007; Norén, 2015).

To sum up, teachers play different roles leading to a specific behavior and acting depending on the respective situation they are in. Individuals thus have more than one role. The definition

is built upon teacher role in singular, when referring to the role teachers play in school with respect to the planning and implementation of teaching and the interrelation with their learners. However, it is assumed that, in particular in the field of LSCT, this specific role of teachers is of multi-faceted nature (see above).

Planning and implementing teaching lessons as well as interrelation with learners in view of LSCT is hence associated with a particular behavior and actions – as it is the case with regard to other concepts, as well. Both teachers´ behavior and actions require specific competences, by which know-how, skills, and motivational, social, value-related attitudes are meant. Finding a definition is difficult, can lead to insufficient results, and must therefore be carefully considered with respect to the discipline it is applied in, as the following section will show.

The discussion about the role and identity (cf., e.g., Köpsén, 2014) of today´s VET teachers directly leads to the necessity to examine the concept of competence - first, from the general perspective, application and understanding in business and vocational education and second, the concrete required competence of a teacher professional.

3.2 Required Competence Development for LSCT

3.2.1 Teacher Competence Profile – what do Vocational Teachers Have to Provide Today?

> » The concept of competence encompasses a number of dimensions: complex knowledge, skills, abilities as well as motivational orientations and (value) attitudes. While the first three dimensions mentioned are always part of the discourse on competences, motivation and (value) attitudes are all too often overlooked.[31] »
>
> *Seidl, 2018, p.1*

As was briefly addressed in the introduction of this thesis, supporting vocational teachers with the development of specific, need-oriented competences resulting, e.g., in standards of teaching competence, will improve the overall quality of vocational education and training. As argued by Oser, Salzmann and Heinzer (2009, p. 65), this impact should be taken seriously. With regard to teachers´ impact on the quality of VET, there is a large variety of literature (cf. Oser, Salzmann and Heinzer, 2009, and references therein).

[31] Original German quotation translated by the author.

Which are the competences necessary to be achieved by teachers in order to be able to teach in a language-sensitive way? The new role of teachers in VET comprises additional competences associated with LSCT. Following, e.g., the KMK (2018a) and Wilbers (2019), competence can, e.g., be developed by education, professional development measures, experience, self-reflection or informal learning.

Apart from defining or determining competences as the expected or desired learning outcome, the measurement of competences is a second important area within competence orientation. All in all, the measurement of competences in this study is addressed by the specific design of the evaluation (cf. Wilbers, 2019). Following the structure of the Nürnberg Model, the actual development of the expected competences (i.e., the desired learning outcome of the specific professional development concept) represents the third area of competence orientation (cf. Wilbers, 2019).

In view of teacher competences, an additional and essential dimension is added which is also associated with teacher language awareness: the attitude including motivation. Apart from that, the knowledge about the learners´ heterogeneity is as well one part of the pedagogic-psychologic competence (Voss & Kunter, 2013).

König (2016) presents teacher competence as the result of teacher education and – linking the discussion to the present study – professional development (see Figure 10). On the other hand, teacher competences influence the quality of teaching, which in turn, has in impact on learners´ performance and development of personality. Hence, teacher competences are the prerequisite of the quality of teaching.

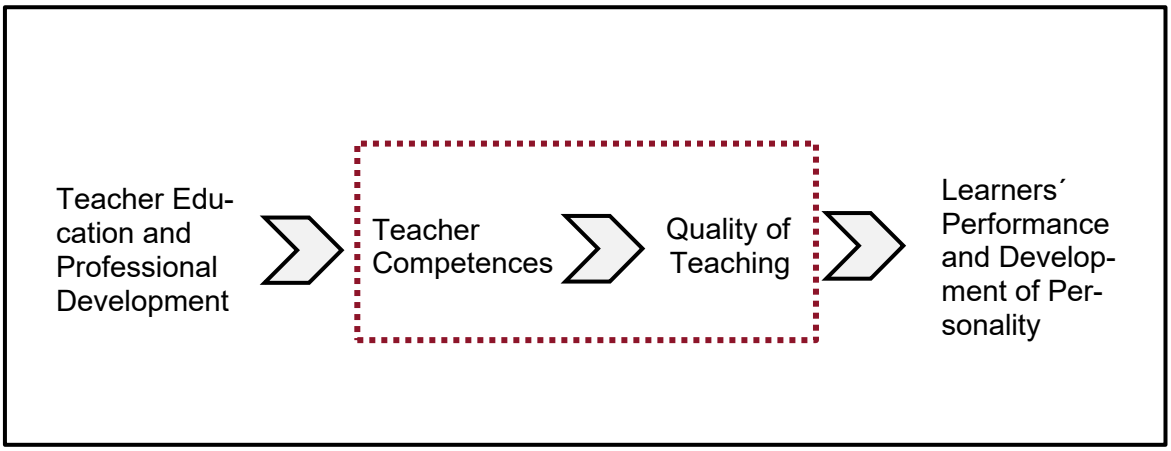


Figure 10 - Teacher competences as precondition for teaching quality (König, 2016, based on König & Herzmann, 2015)

After having defined the general concept of competences in Chapter II.2.2.1.1, this section focuses on the set of competences teachers have to possess. Teachers are required to obtain an additional competence as the consequence of global changes, mainly globalization (migration, diversity in the society) and technological change (increasing requirements in people´s profession and at the working place). Since they teach the target group of learners struggling with learning subject and vocational contents, teachers in all fields can contribute to supporting and enhancing learners´ language skills (and thus, also technical skills, as they depend on each other). If teachers want to meet the above-described demand, they have to develop the competence to teach their particular contents in a language-sensitive way. Following Klieme and Leutner (2006, p. 879), this specific type of teacher competence described above is characterized by context-specific cognitive performance dispositions that functionally relate to situations and requirements in specific domains.

In her study about diversity management in vocational education and training, Kimmelmann (2010a) developed a systematic construction of standards for the further development of professionals in vocational education and training. Educational standards denominate competence requirements in order to put the educational goals to be achieved in concrete terms, i.e., they determine in a precise, understandable and focused manner the competences (desired learning outcomes) which individuals in institutions (teachers and learners) should have in order to achieve the objectives of the institution.

As emphasized by Wilbers in the preface of Kimmelmann´s study, the book or the standards formulated in it are a challenge which has to be further broken down (2010, p. 3). This is the reference point for this work. The present study refers to one of seven dimensions of the standards established for professionals in VET in view of dealing with culturally diverse learners in the context of diversity (cf. Kimmelmann, 2010a, p. 434-497). In particular, Kimmelmann defines the sixth of seven dimensions by the standards about *dealing with language*. The LSCT competence thereby consists of knowledge, skills and attitude.

The LSCT competence dimension (also referred to as language promoting competence) includes standards referring to the country´s official language and concerning the learners´ first language (cf. Kimmelmann, 2010a, p. 434-471; 2015, p. 161; 2017, p. 64 et seqq.).

LSCT competence profile referring to the country´s official language:

1. The teacher adequately estimates the learners´ language skills.
2. The teacher creates learning situations involving a multitude of possibilities to apply the language used for (vocational) education purposes.
3. By means of their own teaching, the teacher contributes to the learners´ enhancement of their language ability used for (vocational) education purposes.
4. The teacher deals reasonably and sensitively with learners´ mistakes (error feedback)[32].
5. The teacher cooperates with colleagues and/or further external partners, i.e. language promotion is exercised as comprehensively as possible.

LSCT competence profile referring to the learners´ first language (if existing, however we assume that in the school-to-work transition, there is at least a share of non-native speakers in each learning group) (cf. Kimmelmann, 2010a, p. 472-488; 2015, p. 161; 2017, p. 64 et seqq.):

1. Adequate estimation of the learners´ first language skills by the teacher
2. The learners´ are taught and/or ensured by the teacher that their first language are "considered equal varieties of human expression" (ibid., p. 478)
3. By means of teaching educational content, the teacher produces links between the country´s official language and the learners´ first languages
4. The teacher cooperates reasonably with colleagues and/or further external partners with regard to language promotion in the first languages of the learners.

The study by Kimmelmann (2010) exclusively focuses on migration. Nonetheless, the LSCT standards which refer to the first group (concerning the country´s official language) can be adopted without any change to learners´ whose first language is the country´s official language (e.g., German native speakers in Germany).

[32] For more information about error or corrective feedback, see, e.g., Bitchener et al. (2005), Ferris and Roberts (2001), Liu (2008) regarding second language learners; Kleppin (2010) with respect to foreign language learners; or Lochtman (2007) for the field of CLIL. For the general professional dealing with errors, see Bethscheider et al. (2013, p. 12).

In conclusion, based on the standards described above, the competence profile associated with language-sensitive content teaching as was discussed in Chapter II.2 consists of a comprehensive compilation of knowledge, skills and attitude which can be summarized as follows (Table 7):

Table 7 - Language-sensitive content teaching competence profile in the present study

Language-sensitive content teaching competence of teachers
1. Openness and awareness for linguistic skills of learners (*language awareness* as *attitude*) 2. Motivation and willingness to teach in a language-sensitive manner also with respect to subject or vocational contents (*language awareness* as *attitude*) 3. Knowledge and understanding of the LSCT concept (teachers *know and understand* what language promotion integrated in content teaching means) 4. Knowledge about where to obtain and how to use LSCT techniques and strategies (*application skill*)

Source: own research

How LSCT competence can hence be understood: Being aware of one´s own use of language and the linguistic skills of the learners, as well as the willingness and ability to find and use solutions to overcome problems. These solutions include removing linguistic obstacles and misunderstandings that would lead to barriers in the learners´ learning and the teachers´ teaching process within general or vocational subject teaching.

The primary purpose of LSCT, with regard to VET, is that teachers work with these solutions to ensure or improve the learning process aims to acquire vocational action competence.

The motto can be summarized as follows: Make subject contents available and understandable by keeping in mind to use language as the general tool. Vocational teachers are not required to become language professionals. Instead, by acquiring a “sensitivity” for language usage in general and the language skill levels of their learners, they can reduce mutual misunderstandings and an improved teaching progress.

Table 7 showed that teacher language awareness is one central element of the language-sensitive content teaching competence profile of teachers. As claimed by Breidbach et al. (2011, p. 13), “language awareness ought to have a prominent place in teacher education programmes“. The following section provides an insight into existing teacher education programs in view of LSCT.

3.2.2 Language Awareness as Partial Aspect of the Competence Profile

Language awareness is an essential element of the above-described competence profile teachers are recommended to obtain in view of LSCT. The awareness is thereby directed to the language and communicative competences of the learners as well as their own use of language.

3.2.2.1 Positive Attitude towards Learners´ Use of Language(s) and Language Diversity

Teachers´ positive attitude towards language diversity, i.e., towards learners´ different languages and the stumbling blocks of the official language is of vital importance. This attitude is linked to the approach of language awareness which is both a core factor of LSCT and serves as prerequisite to enable teachers to carry out LSCT in the first place. In order for teachers to cope with learner groups with multiple first languages and different socio-cultural backgrounds, they “must develop language awareness” (Gage, 2020, p. 1). Without language awareness, it is not even possible to realize, integrate and use multiple languages in class (multilingualism) or detect learners´ language difficulties in order to react to these during teaching. The bibliography of language awareness “books and articles” is “long and regularly updated” (Garret & James, 1993, p. 109) and . One precise definition of LA is impossible to determine[33]. Obstacles to the development of a precise definition are, following Knapp-Potthoff (2013, p. 75), represented by the term´s inadequate theoretical foundation, terminological imprecision and the broad range of meanings it possesses. Kurtz (2012) critically recalls that there is a considerable need for theoretical, terminological and empirical clarification when it comes to the terms of language knowledge and language awareness. A further issue may be the fact that solid empirical research on language awareness is rather scarce (Knapp-Potthoff, 2013).

However, one broader definition that is frequently quoted and adequate in the present context is as follows:

Language awareness
Language awareness (LA) is an approach in language and education science developed in Great Britain and defines “the development in learners of an enhanced consciousness of and sensitivity to the forms and functions of language” (Carter, 2003, p.

[33] According to literature research and dictionary results, there is no direct translation of the term into German (or another language).

64). In this case, it is referred to the teacher being the “learner”, i.e., the focus lies on teacher language awareness (TLA) (cf. Andrews, 2008).

The Association for Language Awareness (ALA) which is responsible for the quarterly published journal “Language Awareness” was founded in 1994 and refers to the different perspectives with regard to LA. Here, LA is defined as “explicit knowledge about language, and conscious perception and sensitivity in language learning, language teaching and language use” (ALA, 2020). Already in the late nineties (1997), van Essen emphasized that the LA approach is not new, but rather has a long tradition in diverse European countries. Following Carter (2003, p. 64), it is important to know that the “approach has been developed in contexts of both second and foreign language learning, and in mother-tongue language education, where the term ‘knowledge about language’ has sometimes been preferred”. Whereas studies investigate language awareness from the learners´ perspectives (cf., e.g., Elsner & Lohe, 2015; Kostrzewa, 2008), others focus on teacher language awareness (cf. Andrews, 2008; Breidbach et al., 2011). With respect to learners, LA is a didactic concept that arouses the interest of students in multilingualism (Ulrich-Hinterecker & Großschmidt-Thierer, 2011, p. 90). By teaching all the languages of the learners in a class and by drawing attention to the structures and functions of language(s), not are only the language knowledge and language skills of all learners increased, but the self-confidence of multilingual learners with regard to their first language is sustainably strengthened as well (Butler & Goschler, 2019; Ulrich-Hinterecker & Großschmidt-Thierer, 2011; Kimmelmann, 2010b, 2013c).

Thinking about the first and second language means that language becomes an object of attention (Andresen & Funke, 2003), and that similarities, differences and mistakes (Luchtenberg, 2010), as well as potential areas of difficulty of the language (Gürsoy, 2010) are also more consciously perceived by teachers. Nevertheless, the integration of first languages and appreciation of multilingualism involves reflecting about specifications and difficulties of the joint language of communication (language of instruction, teaching language) as well. All in all, LA aims at a) actively accepting linguistic diversity, which can be motivating for learners with a migrant background to continue learning, b) awakening curiosity and interest in language, linguistic phenomena, linguistic and cultural diversity, c) strengthening linguistic analytical skills through (comparative) language analysis of the language system and language use (e.g. German in comparison to English, French, Arabic, etc.), d) to raise awareness of linguistic action in a socio-cultural context, or e) to develop meta-linguistic communication (cf. Gürsoy, 2010). Chadwick (2012) developed a “toolkit for content and language teachers” and simultaneously drew the attention to the fact that LA can be well-linked to the CLIL approach.

As highlighted by Chadwick (2012, p. iix), his book “aims to help [teachers] to become more aware of the language issues [the learners] face when they study content subjects like Science or Maths“ through a language that is not the learners´ first or native language.

As argued by Gürsoy (2010), in the LA concept, the term "language" should be viewed holistically and must not be reduced to grammatical knowledge or vocabulary. The focus is on a broad and comprehensive concept of language, which also includes socio-cultural, pragmatic and intercultural aspects such as politeness, greetings, speech acts (ibid.). In addition, linguistic cultural attributions and non-verbal communication, media language, language manipulation, language discrimination, etc. are as well part of the concept (ibid.).

With respect to the holistic consideration of language, language awareness also has a holistic objective including diverse domains, a procedure from which advantages arise (James & Garrett, 1992, p. 12; cf. also Svalberg, 2007, p. 290-291):

1. Affective domain: Emotional attitudes towards language(s) and linguistic diversity, joy in dealing with multilingualism, formation of a positive attitude of (native) languages and their speakers, but also towards the grammar of the official language.

2. Social domain: The role of language and social acceptance in school and society. Social harmonization is the keyword which can be pursued by increasing the understanding and tolerance of one and more languages.

3. Power domain: Language manipulation or language abuse in politics, advertising and the media.

4. Cognitive domain: A stronger emphasis on rules, patterns and concepts of language(s) in the official country´s language, foreign languages, languages of origin and subject content teaching should develop metalinguistic knowledge and increase language awareness.

5. Performance domain: The analytical knowledge supported by language awareness is assumed to have a positive effect on language behavior.

The most interesting aspect of LA with regard to this thesis is certainly that “LA is about reflection, talk, and knowledge about language and language learning” from the professionals´ perspective (Garret & James, 1993, p. 111). Hence, LA represents a concept that, based on its linkage to second or foreign language didactics, is understood as a cognitive disposition that leads to linguistic knowledge being accessed. Language awareness thus concerns the verbalizable part of linguistic knowledge (Aguado, 2017, p. 8). Language awareness also includes a specific attention towards (the system, use and subtleties of) language (ibid.), meaning that

language awareness is the directing of attention to the respective relevant aspects. This means that language awareness is a state of directed attention (Aguado, 2017). It is regarded both as a prerequisite and as the result of – here, the teacher´s – speech reflection.

In particular, the reflection about language can be used as a good starting point in teacher training and further development in order to improve dealing with linguistic and cultural heterogeneity in the classrooms.

By gaining in or developing LA, the teachers will study language features and learn how language works which will help them to enhance their competence of making "judgements about what happens, and why, when language is used" in any classroom interaction (Arndt, Harvey, & Nuttal, 2000, p. 12). In this study, TLA additionally includes the teachers´ sensitive dealing with the learners´ use of language, the use of language within teaching contents (oral communication, teaching material) and their own use of language. The teacher is aware of what language can induce. In relation to the use of language, the teacher shows a positive attitude towards the learner associated with interest, openness and curiosity.

In the study by Svalberg (2007), the most relevant principles of LA are summarized. These consider, e.g., student-centered language learning, speaking about language(s), reflection on learning or the critical assessment of power dynamics expressed by the use of language. Both Andrews (2008) and Svalberg (2007) apply these principles whose findings, in turn, go back to the methodological studies on LA by Wright and Bolitho (1993) or Edge (1988). For Edge, the language teacher had to obtain three competence fields connected to three interconnected roles: language user, language analyst, and finally, language teacher. The teacher´s own sensitivity with respect to language was in the focus and should constantly be reflected in this approach. Gage (2020, p. 4) critically reflects upon the challenge that is connected to TLA:

> "The challenge for teachers in training is that while they may be language users, they may not have sufficient metalinguistic tools to be language analysts and they do not have the experience of teaching. Thus the challenge in preparation is to engage teachers to explore concepts of language awareness, which they do not yet know that they need to know."

In the present study, language awareness concretely refers to a teacher´s attitude with respect to the conscious treatment of language towards their students. In a broad sense, the language-aware teacher pays careful attention to their own use of language by anticipating potential linguistic obstacles in their communication. The language-aware teacher also reacts in a sensitive way to learners´ use of language, i.e., possible mistakes, misunderstandings, difficulties in understanding tasks etc.

As was argued by a teacher from a vocational training institution during the QBi project, this attitude is additionally linked to the teachers´ appreciation towards the learner, stated as follows: “In our field, language is the essential thing. For me, though, it is not about accuracy. It is about appreciation. [...] The teacher´s appreciation for the student” (Peitz, 2018, p. 19).

Apart from being the central element, teacher language awareness is the prerequisite to actually be able to teach in a language-sensitive way. It is as well a central element in LSCT due to its close relation to teachers´ positive and open attitude towards the linguistic diversity, difficulties of learners and their own use of language which can be specifically utilized to increase the teaching progress. In addition, language awareness is based on the theory differing between everyday’s language of communication and the language used for educational purposes as explained before. Thus, teacher language awareness is connected to their function as linguistic role model.

3.2.2.2 Teachers´ Awareness for their Own Use of Language

The positive attitude or awareness towards language can and should be directed towards teachers´ own use of language as well. Being a linguistic role model as a teacher (in particular regarding oral teaching) is essential. In particular, this consists of two factors the teacher is recommended to consider:

- Precise pronunciation and articulation of their own language
- Anticipation of linguistic barriers (e.g., through avoiding or explaining typical idioms)

In the specific field of school-to-work transition system where teachers are often dealing with non-native speakers, considering these two aspects is especially useful in order to assess why there are subject-related misunderstandings or stagnation in the students´ learning process. Examples of how teachers can apply their LA are, e.g., expressing things clearer, being very explicit in their teaching, explaining contents and the reason why they are important or recognizing linguistic obstacles in texts before communicating the content information (Tran & Le, 2017, p. 86-87). Teachers may then use their language awareness to manage and navigate their teaching in a manner that is more in accordance with the students´ needs, as they can easier detect the elements that should be taught in order to make progress in subject content learning. As stated by Arndt et al. (2000), language is “a fundamental and integral part of human culture and society, and not something that can be separated from its context of use” (p. 12).

A classification of concepts and the implementation of development measures for teachers to obtain the language-sensitive content teaching competence in the context of teacher training and continuous further development is presented in the following section.

4 Professional Development for Teachers within Vocational Education

There are different teacher training phases in Germany: initial teacher training (conventionally by teacher profession studies at the university), preparatory service (practical training), and further development (postgraduate training). The third phase is also called (continuous) professional development (CPD) which is in the focus of this thesis.

The intervention in this thesis is part of the professional development that takes place after the initial teacher training phase. It aims at fostering the LSCT competence of teacher personnel at vocational training institutions who are currently employed and working. From the German perspective, it can be classified into the third teacher training phase. It is thus a measure offered to active, or in-service, teachers.

What kind of concepts and activities exist for teachers to support them for teaching linguistically or culturally heterogeneous learning groups? The present section sheds light on this question by discussing professional development theories and the current implementation of professional development (PD) for teachers (in VET). The special focus lies on concepts and the implementation of developing teachers´ LSCT competence. The section begins with a brief outline of the role and relevance of professional development in VET, followed by a discussion of concepts in view of the current implementation of professional development with the focus on language promotion. Here, examples from Germany and European status quo are distinguished. Due to the scope of the thesis, the German perspective focuses on Bavaria and NRW.

4.1 Role and Relevance of Professional Development

> « The role of teachers and trainers is crucial in the modernisation of VET with a special focus on how they are recruited, their professional development and status in society. The future dominated by change as outlined here presents new challenges for both teachers and trainers in VET, involving new

> pedagogies, curriculum design, quality assurance, management and administrative tasks.
>
> There is a convergence in the roles of teachers and trainers: a trainer in a work-based setting will need more pedagogical competences and must play a supportive and mentoring role; while a teacher in a school will need, like a trainer, a good understanding of work practices. This convergence should be reflected in policies for recruitment and continuing development of skills and competences, which should be validated and reflected in their career status. »
>
> *EC in their Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions (2010, p. 6-7)*

Already in 2010, the EC states: the claim for continuous support of teachers due to new required competences and the need for an "understanding of work practices" (ibid.) which should be subject to policy decisions. The demand for lifelong learning can be classified into the field of professional development of in-service teachers who are expected and recommended to participate in PD measurements during their whole working life (cf. Reusser & Tremp, 2008; Day, 2002).

The educational scientist Hattie (2012; 2009) found in his studies that good teacher further development has a positive impact on the performances of their learners. This is affirmed by international studies of the past thirteen to eighteen years (cf., e.g., cedefop, 2010, 2016; Timperley et al., 2007; Tinoca, 2004; Wenglinsky, 2002; Yoon et al., 2007). There still is an unresolved issue about the assessment of „good" in this context, but this depends on the study design (cf. Lipowsky, 2013; Lipowsky & Rzejak, 2015).

Professional development is generally considered as significantly important since it directly influences the role of a teacher (cf. Caena, 2013; Lipowsky, 2006). Teachers have to keep pace with the fast growing social and economic changes, information pools and levels of knowledge in education (cf. Borko, 2004; Desimone, 2009; Guskey, 2000). Educational policies, scientists and decision-makers from the practice must adapt and react to this situation by improving or innovating professional development. Jemeljanova (2016) describes the meaning of PD for teachers as "[h]ow to form the skills of those who form the skills of others".

In order to improve teacher professional development, experts call for the investment of more money for teacher professional development, but additionally, a higher degree of transparency, cooperation and a systematic requirement analysis (Kerstan, 2018, p. 2). The requirement analysis shall thereby be linked to effective qualifications at the best.

Following Schachter (2015, p. 1058), despite the fact that a multitude of definitions of high-quality professional development exists in theory, these findings still “remain vague” which causes a lack of guidance from the designers´ and implementers´ perspective. Nevertheless, there is a growing consensus about the objectives of professional development, whereas little instruction or recommendation is provided with respect to “how to accomplish it” (ibid.)

Professional development can generally be defined as “activities that develop an individual’s skills, knowledge, expertise and other characteristics as a teacher” (OECD, 2009, p. 49). It can consist of a multitude of initiatives. In the present study, design-based research interventions serve as a professional development initiative to enhance the LSCT competence of vocational teachers. Further possibilities can include seminars, lectures, workshops, conferences or action research (cf. Desimone, 2009). The inconsistency of various definitions in the literature is a consequence of the variety of initiatives. They range from broad to highly narrow ones (cf., e.g., Avalos, 2011; Borko, 2004; OECD, 2010; Schachter, 2015; Timperley et al., 2007). It is important to dissociate the definition which is relevant for the purpose of the present study from other ones.

In the present study, professional development is defined according to the understanding of Guskey (2000), Tienken and Achielles (2003) (quoted from Merchie et al., 2018) amended by Borg (2018) as follows:

Teacher professional development
Teacher professional development (PD) is defined as “activities explicitly designed for and provided to educators or certified educational professionals with a focus on enhancing their own and their students’ knowledge, skills, and attitudes” (Merchie et al., 2018, p. 144). Teacher PD “is a key strategy for teacher improvement and includes any activity which is designed to bring about positive change in practising teachers’ competence” (Borg, 2018, p. 195).

In view of the present intervention, the focus is towards in-service teachers working in vocational training institutions, i.e., continuous professional development.

As claimed by Michallik (2013, p. 2), the KMK secretary general states in light of the global challenges of educational changes throughout Europe that lifelong learning should not be a burdensome obligation, but rather a desirable virtue. Still, only few practitioners within the field of education use offers consisting of European experiences such as study visits to move towards this terrain (PAD KMK, 2013).

Teacher professional development is a core factor in improving VET quality for learners (Misra, 2011). Grollmann and Rauner (2007, p. 2) even state that the profession of being a teacher or trainer as “learning facilitator” is one of the most essential due to the growing importance of lifelong learning. According to the educationalist Oelkers (quoted in Kerstan, 2018), professional development of teachers can be considered the key for the improvement of teaching and the institutional development (school development) (cf. the design-based school development study by Mintrop, 2019).

Among their five key actions aiming at the improvement of the quality and efficiency of initial and continuing VET, the EC (2010, p. 8) sets the following aspect to be part of the 2020 strategy: Developing a competence framework for teachers and trainers in initial and continuing VET.

Finally, Altrichter (2017, p. 12), assesses the role and relevance of teacher professional development as a “support structure” which aims at preserving and developing teachers´ competences (cf. also Richter & Vigerske, 2011, using the example of the state of Baden-Wuerttemberg). Furthermore, it shall be functional in terms of the development factors that educational policy and institutional development considers interesting (ibid.). This means, e.g., being functional for the understanding of specific educational standards or dealing with linguistic heterogeneity at the STWT as is essential for the present study. The role and relevance of teacher professional development is also manifested by the embedment in the curricula, which are the institutional provisions for the planning of teaching and learning.

Apart from the fact that several promotion measures exist in view of didactic-methodical recommendations or the analysis of the problem situation, the teacher perspective is often neglected so far. As concluded by Siemon et al. (2016, p. 27), “a decisive factor for the implementation of any measures to promote language and communication skills in vocational training is likely to be the professionalisation of vocational training personnel.“[34].

With respect to the effectiveness, apart from the variety of the settings, it is the work on teachers´ attitudes and opinions that plays an important role in the design of professional development (Altrichter, 2017). This aspect is particularly vital due to the inclusive dealing with heterogeneity or as well the different ways of learners´ cognitive activation which are based on more than technical or methodical aspects (ibid.). Instead, it is important for teachers to learn that these differences can result from underlying beliefs or attitudes in view of learning in school or human development opportunities (ibid.).

[34] Original German quotation translated by the author.

Continuous professional development of vocational teachers should therefore address and cover the pedagogical and professional dealing with heterogeneous learning groups characterized by cultural and linguistic diversity (Baumann & Becker-Mrotzek, 2014, p. 5). Baumann and Becker-Mrotzek (2014) emphasize intercultural and didactic competences as the two major objectives of teacher training nowadays. Among these, the promotion of language acquisition and language understanding as well as the teaching knowledge about second language acquisition are mentioned. It is also stated that this remains a significant challenge.

The classification of professional development into the general teacher training system in Germany as well as German and further European concepts and the organization of professional development are subject matter of the next section.

4.2 Professionalization Concepts for Vocational Teachers

> "Teacher training is one of the strongest influence factors in view of teachers´ changes of behavior in teaching."
>
> *Hattie, 2013*

Teacher professionalization is a lifelong process that cannot be concluded with the first and second phase of teacher education (cf. Komoss & Sørensen, 2019, p. 46 ; Baumann & Becker-Mrotzek, 2014). Instead, it takes place during the largest part of teachers´ professional lives (ibid.). As pointed out in Chapter I.1, social, cultural, demographic, or digital changing processes in the educational systems lead to changes in the framework conditions of teachers´ professions. At the same time, there is the challenge of overthinking and redefining the role in view of the (vocational) school systems they belong to (cf. Chapters II.3.1 and II.4.1). Competences associated with the teaching profession are wide-ranging (cf. Chapter II.3.2) and "increasing through the integration of cross-sectional tasks such as vocational orientation or continuous language training[35]" (Komoss & Sørensen, 2019, p. 46). The important aspect is that the outlined competences, such as language-sensitive content teaching, can nowadays no longer be developed within the first two phases of teacher training (ibid.) alone, i.e., teacher training at the university and subsequent preparatory service. Instead, teacher professionalization is understood as a continuous learning task as stated by the KMK (2020).

[35] Original German quotation translated by the author.

4.2.1 Current State of Implementation in Germany with a Special Focus on Bavaria and NRW

4.2.1.1 Teacher Training in VET

The description of teacher training and continuing education of professionals in vocational education is mainly oriented on the version by Kimmelmann (2010a, p. 137-140) and extended by current developments over the past years, hereby in particular drawing on Frommberger and Lange, (2018). The description of general teacher training is deliberately kept brief, as the focus is on the description of activities in the field of continuous language training. The training of teachers for vocational schools is designed in three phases parallel to the other qualifications to teach at schools in Germany, consisting of a two-stage training period and further training following entry into the profession as a third phase (Pasternack et al., 2017).

In Germany, the structures of vocational teacher training are equivalent to general teacher training. This equivalence can be traced back to the high esteem in which vocational training is held in Germany as international comparisons reveal (Frommberger & Lange, 2018, p. 11). Frommberger and Lange call this standard exceptional or even unique.

The training of teachers at vocational schools shows differences between theory teachers and practice or specialist teachers. Therefore, the following first describes the training of theory teachers with teaching qualifications. This has historically evolved from the separate tradition of trade teachers (industrial-technical field) and commercial teachers (commercial-administrative field), which is still reflected today in different models of teacher training (Sloane, 2004, p. 351 et seqq.). Following Dehmel (2011, p. 218), after World War II and the division of Germany, teacher training in the two German countries (Federal Republic of German and German Democratic Republic) was primarily characterized by a shortage of vocational school teachers as a "recurrent long-term problem". In the Federal Republic of Germany, one of the responses to this was the academization of trade teacher training from the end of the 1950s (cf. Frommberger & Lange, 2018). From the plurality of models at that time evolved the two-phase training structure which is still fundamental today. Both fields of training are anchored in the sub-discipline of business and vocational education.

The theoretical knowledge is imparted in the first training phase within the framework of a corresponding teacher training course at a university or equal (teacher´s) college. The course of study comprises a total of 300 credit points and ends with the first state examination or a degree recognized as comparable (Kimmelmann, 2010a). Professional specializations (cf. Dobischat & Düsseldorf, 2010) are connected to the study of a general education subject or an in-depth or further professional specialization. In addition, studies of teaching methodology

in the respective selected specialization and vocational and business education must be completed (cf. Frommberger & Lange, 2018, p. 4). In this connection, diploma courses of study formerly equal to the state examination were replaced by a Master's degree in Business and Human Resource Education as a consequence of the Bologna Process (ibid.)[36]. The concrete design of the training and its requirements is regulated by the Teacher Training Act or the Teacher Examination Regulations of the respective federal state (Kimmelmann, 2010a). The first phase serves to provide a scientific basis for the development of the professional competences of teachers (Terhart, 2000).

The practice-oriented second phase of training (school-based preparatory service) usually follows the academic studies of the first phase (Frommberger & Lange, 2018, p. 5). Moreover, apart from a corresponding degree, the prerequisite for entry into the preparatory service is at least one year of practical experience in an institution or company related to the professional field (KMK, 2018b). The preparatory service takes place in so-called study seminars of the different states through a modular consolidation of certain contents with simultaneous assignment to at least one assigned vocational school (Lenhard, 2004, p. 275 et seqq.). The focus of this second phase is vocational training, which lasts one to two years and takes place in study seminars and at training schools (Frommberger & Lange, 2018, p. 5). The second state examination then completes the formal teacher training (ibid.). This section of the training is also a mandatory requirement for teaching at a state or municipal vocational school (at least if one disregards special measures and credits). With respect to additional requirements for prospective teacher trainees, these are agreed upon in the respective national laws (Kimmelmann, 2010a). In Bavaria, for example, proof of at least twelve months of relevant professional internship or a professionally correlating training is required (Art. 6 (1) BayLBG). The duration of the second phase can also vary considerably from one federal state to another. In some, where individual parts of the practical training are already completed during university studies or outside of university, the length of the preparatory service, which is usually 24 months, is shortened. In NRW, for instance, the length is 18 months (Art. 2 § 5 (1) LABG).

For practical or specialist teachers, the training is different and in accordance with the respective admission, training and examination regulations (Kimmelmann, 2010a). While the first group goes through an academic first phase, here the master craftsman´s or technician degree replaces the university education (ibid.).

The third phase of teacher training has the aim of maintaining and updating teachers' competence levels throughout their careers (cf. Altrichter, 2017; Misra, 2011; Richter & Vigerske,

[36] For more information about teacher education and the Bologna process, see, e.g., Schmees (2020) for Germany; Jakku-Sihvonen et al. (2012) for Scandinavia; or Symeonidis (2018) from a comprehensive European perspective.

2011; Terhart, 2000). In addition, it is the longest phase in terms of time, also called continuing vocational education and training. It includes the entry phase, the competence and career development phase and finally the phase of preparation for the end of the professional career (Keuffer & Oelkers, 2001). Hence, it can be characterized as an on-the-job training (Pasternack et al., 2017, p. 223). It comprises continuous professional development which can be, in the German-speaking world, divided into two types of further training depending on the aim (Kimmelmann, 2010a)[37]. In-service, continuous professional development for vocational teachers is defined by the respective school or teacher training laws as a fundamentally obligatory task of each teacher (cf., e.g., § 20 BayLBG) and is largely organized by the respective state institutions. In addition, teachers have the possibility of booking seminars at local pedagogical institutions, among others. Furthermore, pedagogical days at school can also be used for the further qualification of educational staff, for example by involving external trainers (Kimmelmann, 2010a). Organizational structures differ in the German states (cf. Diedrich & Zschiesche, 2009).

All in all, teachers at vocational schools undergo initial and further training that includes large vocational and business pedagogical as well as didactic and methodological parts from theory and practice. At the same time, it could be shown that effective teacher training should pay special attention to the individual experiences and reflection of the teachers. It is essential in order to promote the further development of professionalism in view of meeting societal needs. With respect to the legal framework and key players, teacher training in Germany is covered by a differentiation between federal and state level. The federal level includes, e.g., the BMBF (Federal Ministry of Education and Research) or the KMK (Standing Conference of the Ministers of Education and Cultural Affairs of the Länder in the Federal Republic of Germany)[38]. At the state level, the ministries that are responsible for education and science are of great importance. Among the central players are, for instance, the Bavarian State Ministry of Education and Cultural Affairs or the Ministry for School and Education of North Rhine-Westphalia[39]. They regulate the state-specific legal framework of teacher education through school and university laws, teacher education laws and state ordinances (Frommberger & Lange, 2018, p. 6). Further central players in teacher training are:

[37] The first type of further training is called *Weiterbildung* which is geared towards the acquisition of additional competences (e.g., the teaching qualification for another subject) (Daschner, 2004, p. 290). In contrast, *Fortbildung* is the second type of further training characterized as lifelong updating of the professional competences of teachers acquired during initial training. In the English-speaking world, both are summarized under the *term further training or in-service training*. In this thesis, it is mainly called (continuous) professional development.

[38] For more information about the legal framework and key players in teacher training, see Frommberger and Lange (2018).

[39] https://www.km.bayern.de/education-in-bavaria.html (Bavaria) and https://www.schulministerium.nrw.de/docs/bp/index.html (NRW).

- the universities
- centers for teacher training or schools of education
- the study seminars and state institutes for practical professional training in the second phase
- the schools

According to Frommberger and Lange (2018), there are, in addition, the providers of continuing vocational training and continuing education in the third phase of teacher training. At the state level, each state has training institutions, such as the State Institute for School Quality and Educational Research (ISB[40]) or the Academy for Teacher Training and Personnel Management (ALP[41]) in Bavaria. In NRW, there is, for instance, the Quality and Support Agency, State Institute for Schools (QUA-LiS[42]) or as well the Ministry for School and Education of North Rhine-Westphalia (MSB[43]) offering specific measures of professional development for teachers. Moreover, the five district governments in NRW offer, e.g., diverse training programs (sporadically, also regarding the topics of learners´ heterogeneity or integrated language promotion, or German as a SL) (cf., e.g., Detmold District Administration, 2020; Münster District Administration, 2020).

With respect to the structure of services in the context of teacher training, three areas can be distinguished (Pasternack et al., 2017, p. 225):

1. distinction: demand-oriented vs. supply-oriented
2. distinction: within vs. outside the school
3. distinction: subject-related vs. didactical vs. more general, pedagogical-practical problems vs. school development processes

Huber (2009, p. 183-184) extends the distinction by further possible formats, claiming that the scope or the temporal duration of the measure is the most striking criterion to choose. The formats can be differentiated with regard to the following criteria (Table 8):

[40] https://www.isb.bayern.de/english-version/.
[41] https://alp.dillingen.de/.
[42] https://www.qua-lis.nrw.de/.
[43] https://www.schulministerium.nrw.de/en.

Table 8 - Formats of professional development measures following Huber (2009, p. 183-184)

Time frame	*short vs. long (extensive study or training courses, from one-day courses to courses lasting several months)*
Structure / structuring or temporal intensity	*sequentialized/modularized vs. block*
Organized	*formal vs. informal*
Status	*mandatory vs. voluntary*
Mode	*mediation or lecture-oriented vs. work- or exchange-oriented*
Access requirements	*open access vs. closed access*
Financing	*carried by institution or subsidized or self-financed by participants*
Graduation/ certification	*with or without a (politically important) certificate (even with the Master degree)*

Source: own research

A classification of the selected formats of the present intervention with respect to the distinction above is carried out in Chapter IV, when the first didactic design is developed.

According to the findings resulting from investigations with school management and further education institutional decision-makers in 15 countries, Huber (2009) has developed a small-step and precise list of principles which have proven positive if considered in the design of teacher professional development. Among the principles, the following are the most relevant for the present thesis (for a detailed description on the principles, see Huber, 2009, p. 186-187):

1. target-oriented
2. school system-oriented
3. context-oriented
4. value-oriented (towards values and pedagogical premises)
5. process-oriented
6. modularized (with the aim of guaranteeing flexibility and participant orientation by simultaneously generating commitment and quality)
7. science-oriented (this is particularly about to unfold in the following chapter on “Research Methodology”)
8. theory-oriented, but also
9. practice-oriented
10. reflection-oriented
11. competence-oriented
12. participant-oriented
13. participation-oriented
14. activity-oriented
15. cooperation and communication-oriented
16. method- and content-oriented
17. requirement-oriented

18. transfer-oriented
19. didactical-quality-oriented
20. sustainability-oriented
21. instructor/speaker-oriented
22. evaluation-oriented.

All in all, PD measures are more and more understood as a broad spectrum of different activities which should, above all, strive for meeting the teachers´ specific needs (Caena, 2013, p. 43). With respect to the legal rights and permission of teachers´ participation, whether or not and whom of the teaching personnel participates in a professional development measure, is independently decided by the respective school management (KMK, 2017, p. 5-6). This applies to both Bavaria and NRW. However, the decision must be taken under consideration of the valid legal school principles (ibid.). Apart from the mere permission to let teaching personnel participate in PD activities, the European Commission claims that "[s]chool leaders play a key role in encouraging and advising teachers about appropriate professional learning" (Caena, 2013, p. 43).

Lipowsky (2013, p. 1) compared the measurements of all phases and argued that "[w]hile considerable research efforts have been made in Germany in recent years on the determinants of successful learning in the first, university phase of teacher education, […] the third phase has so far rarely been the subject of research"[44]. There is little empirical research available on the third phase of vocational teacher training (cf. Frommberger & Lange, 2018; Lipowsky, 2013). As emphasized by Lipowsky (2013, p. 1), this conclusion is particularly surprising as the third phase (continuous professional development) "extends over a considerably longer period of time at around 30 years and is thus likely to be more significant overall than the first phase".

Frommberger and Lange (2018) particularly mention the formal continuing education and training, which is a research desideratum, especially from a cross-state perspective. As was furthermore shown in their study (Frommberger & Lange, 2018, p. 10-11), whereas intensive vocational training research is being conducted to develop the content and structure of initial and continuing VET, far fewer findings are available on vocational teachers.

Apart from the lack of empirical studies, Walm and Wittek (2014, p. 5) call it an „educational policy permanent construction site". As Oelkers (2001) claimed, the reason for this is that the reality of teacher further development has always been subject to a lot of criticism not at least because academic teacher education refers, above all, to an approach that is assumed to be too scientific, and associated with a lack of practical relevance.

[44] Original German quotation translated by the author.

With respect to the current state of teacher PD, Lipowsky & Rzejak (2015, p. 6) argue that professional development is effective, however, not under any condition. This is an important factor that has been considered during the planning and developing phase of the intervention (Chapter IV). On the other hand, planning, development, design, and implementation is a complex challenge. There is no guarantee for a carefully planned and previously analyzed professional development to be successful – with respect to expected outcome and functionality. There is no guarantee that a change will take place in view of teachers´ knowledge, acting, their attitude. This is due to the fact that learning outcomes depend on motivational, social, cognitive preconditions of the teachers (cf. Domitrovich et al., 2010; Kennedy, 2016; Lipowsky, 2009; Smith & Gillespie, 2007).

The design-based intervention carried out in the present thesis can be classified into the third phase of teacher training.

4.2.1.2 Teacher Training in the Didactics of German as a Second Language

Special attention is paid to learners with German as a second language, who often face challenges due to the language requirements in the subject content lessons (Schmölzer-Eibinger et al., 2013, p. 3). There has been an ongoing discussion in the German education landscape about the qualification of vocational teachers for dealing with learners' language difficulties for several years now. Following the demand that language promotion should be built into curricula in a consistent and binding manner for all teachers, it is of course necessary that teachers are promoted in this competence and learn concepts for this purpose, such as how they, as non-language experts, can deal with the linguistic stumbling blocks and teach language integrated into subject lessons.

Chapter II.4.2.1.1 provided an overview of the three different phases of teacher training in Germany, including selected relevant institutional key players. This overview was relevant as background information in terms of understanding the following presentation of different measurements. These are measurements taken to train VET teachers in the didactics of German as a second language as a means to enable teachers across all subjects to deal with linguistically heterogeneous learners.

In particular, the first phase (initial teacher training at university or similar institution) recently engages in professional development measures in the area of didactics based on German as a second language (SL) (cf. Wilbers, 2016a). It is therefore becoming increasingly important for this teacher training phase (not only) at vocational schools that all current teacher students develop an awareness of the linguistic and cultural diversity of their learners and develop ideas

on how support measures should be designed accordingly (Riedl, 2017). Riedl (2017, p. 24) furthermore claims that at least a certain share of vocational teachers should have a significantly higher level of competence than that. Newly-established sub-degree programs at the universities shall lead to achieving this competence profile, for instance, by substituting one school subject. Empirical studies on these novelties do not exist, so far.

However, following Simml (2020, p. 239-240), universities in Germany proceed with a closer integration of linguistic and cultural education into the teacher training. For instance, the two largest vocational training locations in Bavaria, Munich and Erlangen-Nuremberg, are active players in this field. At the Technical University of Munich, for instance, "Linguistic and Cultural Diversity" has for some time now been offered as a teaching or extension subject in cooperation with the LMU-Munich for vocational student teachers (Simml, 2020). In the meantime, one basic and one advanced seminar on "Linguistic and Cultural Diversity" have been made compulsory for all students of vocational education and training in Bachelor's and Master's programs (Simml, 2020, p. 239),. Furthermore, in NRW, since 2009, the Teacher Training Act has stipulated that a module on "German for learners with migration background" is obligatory for all student teachers in North Rhine-Westphalia (Oleschko, 2017, p. 12). Within the framework of a project initiative of Hamburg University, Master of Education teacher students are offered a seminar called “Professional Teachers’ Actions to Promote Subject-based Learning under Changing Societal Conditions” (cf. Schroedler & Grommes, 2019, for more details). The universities have been offering seminars since then that deal with the topic in general and in specific fields (ibid.).

The foundation for the success of learners´ job integration measures is not represented by one teacher´s PD alone. It is important to note that the success stems from the close cooperation of vocational and business educators, second or foreign language teachers, socio-educational professionals and general / subject content teachers (Simml, 2020).

New publications in Germany provide theoretical approaches by answering questions and partially also by practical findings for concepts supporting teachers in teaching in the field of “language and profession” (Hochleitner & Roche, 2020). In this collective volume, professional development offers are divided into these two different major areas. The theoretical studies deal with, for instance: language-communicational requirements on the job, language-educational aspects, language didactics or the creation of need-oriented curricula from a didactic and vocational education perspective. The second part focuses on (further) development concepts of teachers. These include specific study offers for teacher students at the university. The theoretical development of teaching material is a further topic.

In the course of the refugee debate and consequently, of considerations on how to provide a fast and useful support for teachers in vocational institutions in Germany, scientists and educators developed guides and manuals. Although literature was scarce before – mostly in the field of education and integration of SL learners with a migrant background, there has been a growing body of literature in this field since 2015.

Within the course of the project 3i[45], a manual was developed by the author in cooperation with Kimmelmann (2017) as an attempt to offer support to vocational teachers teaching newly-arrived refugees in school-to-work transition programs at vocational training institutions[46]. This "jump start" includes an introduction into the relevance of language proficiency in VET and into the knowledge of specific features of this learner group (refugees), provides didactic basics for a practical implementation of this language promotion and concludes by suggesting teachers to use a checklist about what to consider when starting language promotion for refugees in VET.

As the QBi project had proven, vocational teachers stated that they require concrete implementation techniques at short notice for questions with regard to their teaching material or situations in class where there is no progress in oral communication while working on tasks. In conclusion, it can be summarized that theoretical concepts exist about the integration of language across the whole spectrum of subjects (cf. Settelmeyer et al., 2019).

Among possible types of professional development for (future) teachers, the OECD (2009, p. 50) mentioned:

- "courses/workshops (e.g., on subject matter or methods and/or other education-related topics);
- education conferences or seminars (at which teachers and/or researchers present their research results and discuss education problems);
- qualification programme (e.g., a degree programme);
- observation visits to other schools;
- participation in a network of teachers formed specifically for the professional development of teachers;
- individual or collaborative research on a topic of professional interest; and

[45] "3i – Professionelle Bildungsgangarbeit zur individuellen Förderung, inklusiven Bildungsarbeit und sozialen Integration" ("Professional educational program work for the individual promotion, inclusive education work and social integration") (online available: https://www.uni-paderborn.de/cevet/forschung/abgeschlossene-projekte/3i/).
[46] The following statements are mainly based on the manual "Integrative Sprachförderung für neu zugewanderte Jugendliche am Berufskolleg. Handreichung für Lehrende", a guideline for teachers who are about to start teaching newly-arrived second language learners by Brummel and Kimmelmann (2017).

• mentoring and/or peer observation and coaching, as part of a formal school arrangement".

Additionally, less formal types of PD measures exist as well, such as "reading professional literature (e.g. journals, evidence-based papers, thesis papers) and (…) engaging in informal dialogue with peers on how to improve teaching" (OECD, 2009, p. 50).

The third phase, continuous professional development (CPD), has so far still rarely been the subject of research (Lipowsky, 2013, p. 1). The current implementation points to modular professional development measures, for instance, of the following kind:

- at the universities:
  - theoretical lectures on "LSCT" (e.g., Paderborn University, NRW)
  - postgraduate studies "Multilingualism, German as a second and foreign language" (e.g., Paderborn University, NRW)
  - w.r.t. to specific LSCT training in VET, there are diverse (pilot) projects such as SpraSibeQ by the Universities of Bielefeld, Leipzig and Erlangen-Nuremberg (cf., e.g., Kimmelmann & Dippold-Schenk, 2015) including further training units with teachers;
- at the centers for teacher training or schools of education:
  - congresses, e.g., "Intercultural School – Language-Sensitive Teaching", "Heterogeneity as Challenge at the Vocational Institution" or "Perspective on Integration – Language at Work" (QUA-LiS, NRW)
  - self-study courses, e.g., "second language acquisition and language promotion for teaching refugees and migrants in vocational schools" or "language support in subject classes - targeted measures of language support in German classes and support opportunities for second language learners" (ALP, Bavaria).

Nevertheless, there are no findings on the effectiveness of these training offers yet. Some teachers or teacher trainees engage in an additional training on German as a second language at a university. However, these seminars only comprise of only a few credit points, i.e., might not cover a sufficiently large scope. Nevertheless, this is an adequate starting point for building up an understanding of LSCT.

One of the major obstacles of (not only) vocational teachers participating in PD measures in their professional environment, is the tight working routine (Simml, 2020). The often existing

lack of cooperation with respect to PD measures is also a result of this (Richter & Pant, 2016, p. 32). Richter and Pant (2016) even claim that the everyday working life of a teacher basically offers rather unfavorable starting conditions for cooperative working relationships. These include in particular the cellular organizational structure of the school, the high degree of autonomy in teaching, the shared workplace and the tight time schedule of lessons (ibid.). However, it is exactly the cooperation of different players which leads to an improvement of teachers´ competence development or the quality of a school (Simml, 2020).

As it was concluded in the beginning that European countries pursue their own implementation of training teachers (in VET) of all subjects in dealing with learners who learn the official language as second language, the following section sheds light on existing approaches from a European perspective.

4.2.2 Existing International Approaches

> « Even though internationalization is manifested in various dimensions of the vocational education and training system in both developed and developing countries, it is an often-neglected phenomenon in the existing VET and internationalization literature. »
>
> *Tran & Dempsey, 2017, p. 1*

Due to the focus of this thesis, in particular, concepts which can be used for the continuous professional development (CPD) of teachers will be discussed, in view of the subsequent design-based intervention in this study. Here, existing approaches of teacher professional development from the European perspective are described, considering the major perspective of competence development in view of learning groups characterized by linguistic diversity and/or difficulties in the VET system. On the one hand, findings from existing teacher professional development measures with a transnational perspective are described. On the other hand, existing language-related teacher professional development measures are discussed.

The two-sided perspective will built a thorough theoretical basis for the subsequent intervention which combines the transnational concept with the language-related content.

4.2.2.1 Teacher Professional Development with Transnational Perspective

As emphasized by Lipowsky (2013, p. 1), the existing research desiderata in Germany, pointed out in the previous chapter, underline the necessity of future research in the area of continuous professional development (third phase of teacher training). On the other hand, they can also be understood as a call to include experiences from abroad and corresponding research findings in the design of continuing education courses. Indeed, following the OECD (2009), the European perspective shows that teachers across Europe wish for more opportunities to develop or enhance their professional competences.

There are specific institutions and networks in Europe working on teacher professional development, either through providing new concepts or concrete measures as a reaction on current challenges in the different education systems. One of the respective institutions with an exclusive focus on VET is the European Centre for the Development of Vocational Training (cedefop[47]). What is most relevant in view of the present study, cedefop engages in consulting the European Commission, the European Union´s member states as well as social partners in the implementation of "European strategic objectives and policy priorities concerning the role and professional development of VET teachers and trainers". Two of its major thematic areas relevant for this thesis are the professional development of teachers and trainers as well as designing inclusive learning environments in VET (by researching LSCT). Precise analysis is provided for the relevance of PD in various European countries and some of their reports present information about organizing institutions.

As the need for a Europe-wide "pool of competent, motivated and committed VET staff who are capable of mastering challenges of ever-increasing complexity" was seen throughout Europe, cedefop founded the Training of Trainer Network (TTnet) already more than twenty years ago with the aim of developing a "pan-European forum for key players and decision-makers involved in the training and professional development of vocational teachers and trainers" (cf. Gross & Grollmann, 2007, p. 22). After 2011, the network was discontinued, however, its work was continued by the thematic working group on professional development of trainers in VET (cedefop, 2016a).

On a global level, the Teaching and Learning International Survey (TALIS) regularly investigates learning and school environments, by asking teachers and school managements about their working conditions. The aim is to support the corresponding countries to address a mul-

[47] https://www.cedefop.europa.eu/en/events-and-projects/projects/teachers-and-trainers-professional-development.

titude of challenges (cf. OECD, 2009, 2019a). For instance, survey results are published involving the detection of barriers to PD participation or teachers´ behavior in view of PD in general (OECD, 2019b). The survey moreover enables an international comparison of the countries in view of teacher professional development.

However, the actual contents of professional development measures, i.e., the concrete design and implementation of the PD content has not yet been addressed in research. This is due to the fact that "most countries do not monitor or evaluate it" (cedefop, 2016, p. 4). As furthermore highlighted by cedefop (2016, p. 4), the contents are "usually supply-driven and not regulated".

In Europe, various opportunities exist for teachers (or teacher trainees) to collect experiences abroad in an external PD. In Germany, the Central Agency for Schools Abroad (Federal Administration Office), the Pedagogical Exchange Service as part of the KMK (PAD KMK), the German Academic Exchange Service (DAAD), in-service training for teachers and other educational staff (Erasmus+), or internships in newly-industrializing countries (easyGo-easyCome) are the most common providers of exchange programs (DIPF Leibniz Institute for Research and Information in Education, 2020).

Erasmus+, for instance, enables institutions to apply for and carry out mobility projects (cf., e.g., mobinardo, 2020; Peitz, 2019). Mobility projects are characterized, e.g., as the development of the (vocational) institution, the individual training courses for which the participants travel to other European countries, or the planning and implementation of activities with a clear objective in mind (European Commission, 2020, p. 31). In the extract of the *Erasmus+ Programme Guide* by the European Commission, the expected outcome of a teacher's stay abroad in the context of Key Action 1 (Learning Mobility of Individuals) is stated (European Commission, 2020, p. 29):

- "improved competences, linked to their professional profiles (teaching, training, youth work, etc.);
- broader understanding of practices, policies and systems in education, training or youth work across countries;
- increased capacity to trigger changes in terms of modernisation and international opening within their educational organisations;
- greater understanding of interconnections between formal and non-formal education, vocational training and the labour market respectively;
- better quality of their work and activities in favour of students, trainees, apprentices, pupils, adult learners, young people and volunteers;
- greater understanding and responsiveness to social, linguistic and cultural diversity;
- increased ability to address the needs of the disadvantaged;
- increased support for and promotion of mobility activities for learners;
- increased opportunities for professional and career development;
- improved foreign language competences;
- increased motivation and satisfaction in their daily work".

Study visits belong to the field of exchange programs and represent one PD concept (and thus, one element of teacher training) with a transnational perspective.

Visits abroad can be an effective means for intercultural and linguistic exchange and development. The concept thereby appropriately matches the present objective to develop or improve the competence of teaching linguistically or culturally heterogeneous learning groups across the whole spectrum of subjects in school.

Study visits
"Study visits enable the exchange of information and experience on transnational issues of teaching and European education and training systems. Study visits last three to five days."[48] PAD KMK (2013, p. 4)

Study visits for education and training professionals are offered and carried out, e.g., by the transversal lifelong learning program of which Erasmus+ (former Leonardo da Vinci) is a part of (cf. Lifelong Learning Platform, 2020). Erasmus+ is one of four pillars of the program representing the VET area. Following the PAD KMK (2013, p. 2), the study visit program is one of the oldest programs of European cooperation in the field of education - and yet it is known to surprisingly few education professionals. In principle, study visits can be carried out with teachers in each of the three phases of teacher training.

Study visits prove to be a useful instrument and an important source of inspiration, bringing together European experts and enabling them to engage in intensive exchanges (PAD KMK, 2013). This is based on the idea that findings and methods that have proven effective in practice elsewhere can be a suitable model for locally shaping and developing one's own educational landscape. In this sense, study visits also help to put one's own findings and experiences into (a new) perspective. After all, professional exchange often shows that European citizens have more in common when it comes to education than usually assumed (ibid.).

As emphasized by the PAD KMK (2013), study visits are also characterized by the fact that the contacts made by the participants have a particularly lasting effect. Often, the personal discussions during and - in an informal setting - outside the program lay the foundation for networks that last far beyond the meeting and are used for professional exchange. The contributions of former participants show this particularly vividly (ibid.).

[48] Original German quotation translated by the author.

The participation is usually financed entirely by funds from the EU Lifelong Learning Program. However, as indicated by the PAD KMK (2013), their program is open for participations of management from all sectors of the education and training system (general, vocational, technical and vocational education and training, social partners) with responsibilities at local, regional and national level. Here, the circle of eligible participants is thus limited to decision-makers only.

Experiences collected from study visits over the past 15 years particularly point to a multitude of different advantages for teachers (or teacher trainees), in view of language-cultural, personal, or professional/technical competence development (cf. cedefop, 2013; PAD KMK, 2013). Personal development is, e.g., observed in the form of teachers becoming more open-minded and socially-aware (cedefop, 2010, p. 8). The study visits´ effects in the field of linguistic-cultural competences is also pointed out. In particular, the stay abroad has revealed that

> "communication in foreign languages and social and civic competences play an important role in widening individuals' horizons, increasing awareness and understanding of diversity of cultures and perspectives and developing personal, interpersonal and intercultural competence" (ibid.).

With respect to potential school policy changes, the effect of adopting new ideas from the school system abroad to the domestic school system is highlighted by a school administrator and study visit participant (cedefop, 2012). Enhancing one´s professional knowledge by learning from colleagues abroad is, for instance, stated by participants of a further study visit program, not least as "[s]uch learning brings the European dimension into education and training" (cedefop, 2010, p. 5). Moreover, with respect to transfer from the PD measure to teachers´ everyday working life on the one hand and school development on the other hand, participants of former study visits state that their participation lead to getting "new ideas and inspiration for initiating change to improve existing practice" at their home institutions (cedefop, 2011, p. 3).

With respect to scientific studies about the role of teacher exchange abroad in view of teacher professional development, a scarcity can be reported. This is also valid for findings on effects of (vocational) teacher exchange programs, apart from the effects describe above. With respect to the teacher language awareness approach (TLA), findings from outside Europe prove that language sensitivity can be gained by the confrontation with teachers´ own experiences in a foreign language (cf. Çiftçi & Karaman, 2019; Paik et al., 2015). In their meta-synthesis study, Çiftçi and Karaman (2019, p. 108), e.g., investigated international qualitative studies between the years 2000 and 2016 and showed that "[s]hort-term international experiences, in fact, can significantly contribute to language teachers' multidimensional development".

Apart from that, there is no empirical study yet which examines the impact and functioning of an exchange of experience across borders that has to be realized by the teachers through the use of a foreign language.

Transnational exchange programs are recommended to follow certain criteria in the planning, organizing and implementation phases. A summarized list of the principles which have been found valuable for the present thesis is as follows (for more detailed information, see the *Handbook for organisers of study visits for education and vocational training specialists* by cedefop, 2011a, p.57-59):

- develop, prepare and provide a program including, e.g., theme, dates, working language, local organizer´s contact, group leader (person accompanying the group), accommodation information, cost, content and time schedule, sessions, visits [p. 57]
- "institutions and organizations to be visited are identified and contacted" [p. 58]
- topics (content, intention) of the stay abroad are explained to and discussed with the institutions and organizations
- "potential speakers are identified and contacted
- materials about the study visit sent to speakers and institutions (draft program, description, list of participants with their professional backgrounds)
- preliminary and final program prepared
- professional backgrounds, interests and motivation of participants studied
- an informal meeting for the group on the eve[ning] of the starting day arranged" [p. 58-59].

As found by Sprott (2019, p. 321), traveling is one of several factors helping teachers "in developing valuable 21st century teaching skills and global competencies". Experiencing new perspectives through the exchange with foreign, yet unknown participants on the one hand and less distractions through disturbances in daily school life due to the necessary distance to the workplace on the other hand are advantages of a PD measure abroad. Furthermore, the immersion in an "unfamiliar environment" leads to learning "professional knowledge for teaching in an increasingly complex world" (Moorhouse & Harfitt, 2019, p. 1).[49] The professional learning experience abroad is considered to complement the knowledge teachers gain in their domestic programs and courses. In addition, by means of exchanging ideas on pedagogic, didactic, content-related aspects, the teacher participants from abroad also benefit (ibid.).

[49] For more information about linking external and internal PD, cf. Morris et al. (2003).

Although here referring to the first phase of formal initial teacher training instead of continuous PD, for future teachers enrolled in a university program, a new project has been initiated that takes up the idea of this thesis (cf. UPB, 2019). Instead of in-service teachers in vocational training institutions, this project aims at enabling future teachers (current teacher students) to participate in a stay abroad for an intercultural training in the context of heterogeneous student groups in vocational education and training due to migration backgrounds. In return, teacher students from other European countries shall be provided with the possibility to collect experiences in Germany.

Serving as an example of combining a PD measurement with the intention to develop (future) teachers´ competences in the field of dealing with linguistic and cultural heterogeneity, the link is drawn to the following section.

4.2.2.2 Teacher Professional Development Related to LSCT

In the debate on integrating both language and subject content promotion within teacher professional development, two current articles are presented in the following which exactly address this topic and deliver valuable results which can be used for the present investigation.[50] Afterwards, a brief digression into the area of team teaching for the purpose of language-sensitive content teaching is carried out. This is relevant as both the subsequent interventions in France (cedefop, 2018) and Sweden (cf., e.g., The Swedish ESF Council, 2020) have revealed the implementation of team teaching in this regard.

The first study is an intervention study carried out by Swart et al. (2018) with teacher educators in the Netherlands. By taking a meta-perspective on the language aspect, the aim was to understand “how experienced teacher educators (…) conceptualize ongoing language development in professional learning and teaching (…) as part of their pedagogical content knowledge” (ibid., p. 412). The data analysis took place by means of content analysis. Results showed that the participating teacher educators from teacher training institutes of universities in the field of applied science understood language both as a tool and a target which links “academic knowledge and interpersonally oriented language” (p. 414). This understanding also matches the interpretation of the LSCT concept in this study.

The investigation design involved several topics which were analyzed by applying the Socratic dialogue method (for more information, see Swart et al., 2018, p. 415) covering questions for discussion and conceptualization. Different topics were addressed, for instance “key aspects

[50] It should be noted that the studies did not focus on VET teachers, but on teachers in general.

for language-developing learning" (p. 416-417). The teachers were asked about focus opportunities for an improved connection to the learners´ prior knowledge by means of knowledge development and language as a tool. Furthermore, if the objective of language is perceived as language being a tool and a target, this would result in a teacher behavior focused on the communication of the subject content matter and the development of language and knowledge during teaching (p. 419). The study indicates that discussions about the purpose of language in content classes support perceiving teachers´ own language awareness. As concluded by the authors, "[s]uch practices support the development of academic and interpersonal language in the deployment of language, both as a tool and as a target, in the various content areas" (p. 424).

The second study is conducted by Kalinowski et al. (2019) by means of a systematic literature review. It aims at answering the question about which "structural, content-related, and didactic features characterize teacher PD programs that are suitable for fostering students' language proficiency across the curriculum" (p. 3). By doing this, the researchers acknowledge the fact that characteristics of effective teacher PD can vary across different domains although they are specific features independent of domains as stressed by Lipowsky and Rzejak (2015, 2018). On the other hand, the literature-based study provides suggestions for the content design of the planned measurement.

Regarding the structural features of a teacher PD intervention to foster language proficiency, the authors conclude that the duration is important as well as multiple delivery formats (such as workshops, training sessions, coaching, group meetings, classroom demonstrations), expert involvement and the "consideration of teachers' needs, interests, and existing knowledge" (p. 6-7). An aspect that is highly interesting in view of the planning of the contents of the PDI in this thesis, is described in the section "Content-Related Features of the PD Interventions". Here, the list of recommended advantageous elements involves (p. 7-8):

- "Research- and theory-based approaches to fostering students' language proficiency"
- "Application-oriented knowledge"
- "Valuing and involving students' home languages and cultures"
- "Focus on student learning".

Finally, Kalinowski et al. (2019, p. 8-9) identify factors that have proven effective in terms of the implementation of a PD intervention. More precisely, this involves the way teachers were

supposed to increase their competences by means of the didactic design of the intervention. The following striking criteria were listed (ibid.):

- “Cooperation and collaboration”
- “Input, application, and reflection”
- “Active learning”
- “Materials for language support”.

The publication thus provides valuable information for the development of the design of the present study (Chapter IV).

Team teaching as a cooperative approach can be one concrete form of language-sensitive content teaching. In this form of teaching, a subject content teacher works together with a language (or basic skills) teacher, both of which are responsible for planning and implementing the teaching lesson. Not much has been reported on empirical evidence about team teaching with regard to promoting linguistic skills in an integrative way. Nevertheless, despite the fact that this exceeds the European level, the author participated in a seminar in the United States (Seattle Vocational College). The purpose of her participation was to understand what team teaching with regard to LSCT means and additionally, how this approach is taught to the teachers in the sense of participating in a professional development intervention. This one-day PDI where in-service teachers learn how to teach in teams with their colleagues is part of the so-called Integrated Basic Education and Skills Training Program (I-BEST) in Washington State (I-BEST, 2018a). The aim is to support teachers who work in the program so that they can contribute to quickly teaching students both “literacy, work, and college-readiness skills so they can move through school and into living wage jobs faster.” The program is funded by the state. Apart from cooperatively planning the lesson, two teachers are present in the classroom: one teacher is responsible for the “job-training” and the second teaches basic skills in the official language (English), mathematics or further subjects (ibid.).

It has to be noted that the opportunity to teach in teams always depends on the resources available in the schools, and on decision-makers in institutional development. For this reason, team teaching for the purpose of language promotion within subject content teaching is carried out in European countries on the rare basis of projects, or – as it was the case in Germany after the refugee crisis in 2015 – only in exceptional circumstances.

The advantages are clear, since both aims can be cooperatively achieved and it is not one vocational teacher who is required to learn additional competences. One idea that mixes both

could involve introducing a team teaching phase, where both subject content and language teacher learn from each other during team teaching. Later-on, this can be gradually reduced, when they have taught each other important aspects to consider.

The approach that the author learnt at Seattle Vocational College offers a variety of promising opportunities. Information or learning material about team teaching models is freely available (I-BEST, 2018b). It includes strategies which are based on research, theory which is based on evidence, and even video samples of how to effectively instruct during team teaching. It thereby represents a type of self-directed learning material (self-regulated PD).

4.3 Lack of Transnational Professional Development Opportunities

Apart from regional, national or international (European) further education programs, until now, there is a lack of practical, European-oriented professional development opportunities for in-service teachers in view of language-sensitive content teaching (LSCT). This refers to measures that enable educated teachers who are already experienced with teaching students of our target group. The addressed teachers who are directly employed in teaching in VET shall be offered 1) an extended discussion about LSCT (exchange of experience across the national borders) to increase their knowledge and skills and 2) have the (short but intensive) experience of being a second-language language or non-native speakers themselves. These influence factors above and further aspects of the intervention might directly promote their LSCT competence. An intervention of this type does not yet exist or at least has not been documented.

Conventional existing further development proposals do not sufficiently address and deal with increasing teachers´ language awareness. In particular, theoretical lectures on language-sensitive content teaching cannot accomplish this result as conversations with teachers have unveiled. Other teacher statements include that most of them are unaware that a) there exists a pool of examples of language-promoting strategies and methods for a variety of vocational (cf. Efing, 2013a, 2013b, 2014a; Michalak et al., 2015) and general subjects (such as for mathematical or biological didactics, cf. Leisen, 2011, 2013) in the literature.

As highlighted in Chapter I.1.1., a European exchange of experiences and ideas of educational actors in vocational education and training is recommended and advocated by the European Commission and should be supported by school managements, too. Until now, there were, however, no empirical studies about offers for teachers to go abroad and discuss the issue of LSCT on an international basis. Within the debate on enhanced teacher support in VET (and

further educational systems) as a consequence of changing societies due to migration and globalization, such caution and lack of concepts is unexpected due to the fact that the problem relates to many European countries and there indeed exists the notion of European solutions. Or at least there is the idea of a closer networking between European educational systems. Darling-Hammond (2017, p. 307) summarizes the necessity for filling the gap in her comparative study on international practice of teacher education around the world as follows:

> "The teaching challenges posed by higher expectations for learning and greater diversity of learners around the globe will likely be better met if nations can learn from each other about what matters and what works in different contexts."

Considered individually, offers for teacher further development abroad do exist, but do not refer to the specific question of how language development takes place across the different European countries. The existing concepts do also not aim at promoting teachers´ language awareness as central element of increasing one´s LSCT competence.

Financial means are provided by the European Union for educational purposes, also with regard to personnel. The EC (2010) claims to increase the support mechanisms for mobilities and developments of teachers. Yet, entities are required who are entitled to and responsible for the actual implementation of these measurements and – a condition that must not be underestimated due to individual regulations of all single schools – the provisions and cultures of the educational institutions that employ teachers.

The European initiative Erasmus+ offers, e.g., general stays abroad for teaching personnel with regard to the European countries. The possibility of a financing through an Erasmus+ support and funding program has been adopted for the present study, and used to develop and test the program developed by the author in cooperation with further actors. The program has been accompanied abroad by the author herself and it was specifically oriented towards the experience of language-sensitive content teaching and language awareness in VET. Hence, in conclusion, existing educational offers were located and used in a creative way. This contributes to closing one educational gap.

For the sake of completeness, it should be noted at this point that there is an additional scarcity of design-based research studies in the context of transnational professional development in VET. Brahm (2017, p. 1) points out, that "[w]hile there is some research in the context of VET using DBR or related approaches […], research regarding the actual design of learning environments in VET is scarce". Design-Based Research (Chapter III.1) is a useful access to approach the complex subject matter which is set forth in detail in the following chapter.

III Research Methodology

> » [S]ubjects of research acquire their meaning from the national school community; it is not possible to carry out empirical research on problems that are not seen in reality. «
>
> *Kansanen, 2006, p. 11*

1 Methodological Access – Design-Based Research in a Teaching and Learning Research Model to Design an Educational Intervention

1.1 Introduction into the Approach

Motivated by the existence of a pedagogic or educational problem in practice, design-based research (DBR) enables researchers to contribute to finding innovative solutions for this problem by providing examples which generate practical theories (Reinmann, 2005, p. 62; cf. also Euler & Sloane, 2014; Cobb et al., 2003).

These theories depend on the context, however, and thus can or should be applied in the educational practice (Cobb et al., 2003; Euler & Sloane, 2014). For this reason, DBR is located in the application-oriented research field. Moreover, the generated theories represent scientific knowledge and will optimally improve the knowledge (Euler & Sloane, 2014). As emphasized by Bereiter (2002), additional objectives might emerge, i.e., they arise in the course of the design and research procedure.

Only in recent years, the DBR approach evolved in the context of teaching and learning research (cf. Alghamdi & Li, 2013). Teaching and learning research which is not an independent discipline combines research from different fields such as empirical educational research or teaching methodology (cf. Arnold, 2009b, 2009a; Gräsel & Gniewosz, 2011; von Saldern, 2000).

“How can the quality of (vocational) education be improved?” is one of the essential questions in educational research. A systematic further development of teacher education becomes more and more important in this context as was emphasized in Chapter II. The DBR approach serves as one research paradigm or research framework rather than a method (cf. Reinmann, 2018) to investigate the above question. In addition, the DBR pursues a *holistic* approach with its interventions in teaching and learning research (Reinmann, 2005, p. 63). This paradigm is used to test and study models and/or theories dealing with the interaction between teachers and learners in educational institutions and teachers acting in different education systems.

Apart from that, methods, media and material are used and are also part of the interplay (Reinmann, 2005). It is thus holistic in that the intervention is a creation, artifact or product influenced by the specific context it takes place in.

Many empirical methods follow a strict regulatory framework. Rigid framework conditions and methodological constraints in research can hamper or slow a development process. It is precisely the non-rigidity and methodological openness that the DBR approach can be characterized by (cf., e.g., Bakker & van Eerde, 2015). In the quotation at the beginning of this chapter, the business education scientist Kansanen (2006) addresses the importance of two features which simultaneously point to the peculiarity of the DBR method: the context of a research subject and its influence on diverse factors, and second, the reality of the setting. They are connected to the fact that the approach typically includes actors from different fields such as researchers, decision-makers or teaching staff of educational institutions. To be able to perceive and study the reality as a researcher, the cooperation – "teamwork" – with actors from this "reality" is indispensable. At the same time, considering what the theoretical framework of the study showed in Chapter II, it provides us with the proof that the design-based research approach is appropriate for the present purpose to solve a highly relevant and complex problem from educational practice where the behavior and acting of individuals in a specific context is to be analyzed (cf. Bell, 2004).

The meaning of the research subjects is strongly influenced by their context. For instance, teachers´ behavior and actions, attitude, and understanding of roles can only be understood to their full extent if the context where they work and act in is considered as well. This statement also reveals that empirical research in teaching and learning research cannot neglect "seeing" the reality. Seeing means becoming aware of and recognizing the reality in the educational environment that one is interested in. Kansanen is an expert in the field of "teachers´ pedagogical thinking", among others. "Pedagogical thinking manifests itself, one the one hand through a teacher´s action and, on the other hand, through how the teacher explicates his/her teaching and how he/she justifies his/her decisions" (cf. Jyrhämä & Syrjäläinen, 2011, p. 140 based on Kansanen, 1995). Thus, pedagogical thinking is a decision-making process that is additionally influenced by the teacher´s belief system (cf. Jyrhämä & Syrjäläinen, 2011, p. 140; Kansanen, Tirri, Meri, Krokfors, & Husu, 2000). All these factors in relation to the subject of research are relevant in the present study. With regard to such an individual, context-sensitive, practice-oriented issue, can it be sufficient to apply educational theories with strict measurement criteria? Not at all.

Design research has first been subject to scientific literature in the early nineties, e.g., in articles by Brown (1992) or Collins (1992) who dealt with design experiments. Nonetheless, the

DBR in the sense of educational design research only became subject to more research in the subsequent years. It is precisely the need for studying learning activities and phenomena in real settings rather than in a laboratory that was already addressed by Brown´s idea (1992) which led to filling the research gap in teaching and learning research of empirical educational science. Before, this research field was hardly considered in the literature.

As a starting point for the development towards educational design research[51], it was the constant criticism regarding the low degree of appreciation and consideration of scientific findings in teaching situations in the practice (cf. Reinmann, 2005, 2014). As exemplarily argued by Juuti and Lavonen (2006) or Sari and Lim (2012) , an isolation of educational research from every day's educational practice issues is often the case. This was recognized in the majority of the literature on educational research as highlighted by Alghamdi and Li (2013) in their literature review about DBR in educational settings.

Subsequently, following Barab and Squire (2004), design-based research was developed with the intention to bring science and practical application even more in line with each other. Measurements in teaching practice (e.g., certain didactic formats) were specifically developed for and tested in the practice. The research is called design-based, a term that transports the idea that the measure is *designed* and *explored*. In the end, as pointed out by the DBRC (2003) and Hoadley (2004), design-based research is as well about optimization in the sense of considering that the outcome of the process will be an optimal measurement (as for instance, an optimal concept of an exchange of experience program for vocational teachers with respect to LSCT). However, it is not clearly defined in the literature when this outcome will be achieved, i.e., when the development process will be completed (see also "iterations" in Chapter III.1.2.1).The above-mentioned criticism about the lack of practicality of the outcome in traditional education approaches is one of the key motivations of design-based research activities which the following quotation by Reinmann (2005, p. 62) summarizes as follows: "Solving a problem in educational practice as immediate objective within the DBR approach".

Furthermore, as added by Bakker (2019, p. 178), researchers "want to know how to change educational practice with an eye for contextual specifics". This motivation is claimed to be rather exceptional and is, e.g., viewed critically by some researchers as it requires fulfilling design evaluation and the formation of theory at the same time (cf. Phillips & Dolle, 2006).

[51] Following the statements by McKenney and Reeves (2013, p. 10), educational design research is used as a synonym of design-based research. McKenney and Reeves claim that referencing educational design research by many different terms in the literature has made it more difficult to differ between the approaches. Adding „educational" to the term design research draws the attention to the „subtle differences in how these terms are used by various researchers" and „helps to avoid confusion with design research as used in other fields" (ibid.).

Having pointed out the major elements of the approach serving as an introduction, questions arise about where and how the approach evolved in general and in view of teaching and learning research, as well as how it can be related to the present research question (cf. Mason, 2002, p. 19-21 for finding the focus with respect to the research question). It should be noted at this point that the research question itself was as well subject to redevelopment and modification as part of the design-based research process (see also Chapter III.1.2.1.1) .

History of the approach and development of the term

Design research serves as overall terminology labeling a number of variations in research designs according to objectives or characteristics (cf. Van den Akker, Gravemeijer, McKenney, & Nieveen, 2006). The name design research is, e.g., used in studies by Oh & Reeves (2010).

The establishment of the innovative approach is complicated due to the multitude of subtle differentiations of the application which is reflected in a large number of variations. The most common examples are characterized by design experiments or design experimentations such as in Brown (1992), Collins (1992) or Cobb, Di Sessa, Lehrer, & Schauble (2003), design studies (Shavelson, Phillips, Towne, & Feuer, 2003; Walker, 2006), development(al) research (Conceicao, Sherry, & Gibson, 2004; Oh & Reeves, 2010; Van den Akker, 1999; Lijnse, 1995; Gravemeijer, 1994; Freudenthal, 1988; Romberg, 1973) or design-based research (DBRC, 2003). The latter one is the name used by the Design-Based Research Collective and the name which this thesis is oriented on. Van den Akker et al. (2006, p. 12-13) chose the term educational design research, and additionally include participatory action research (e.g., used in studies by Eilks & Ralle, 2002; and Marks & Eilks, 2010) as well as design-based implementation research (Fishman, Penuel, Allen, Cheng, & Sabelli, 2013; Penuel, Fishman, Haugan Cheng, & Sabelli, 2011) in the group of variations.

The popularity of the DBR has been constantly increasing as the appearance of literature studies proves. Following McKenney and Reeves (2013, p. 5-6), this occurred as a consequence to special issues “of highly respected journals” dealing with educational design research in the beginning of the 21st century. These included, for instance, the Educational Researcher (2003, 31(1)), the Journal of Learning Science (2004, 13(1)) or the Educational Psychologist (2004, 39(4)). As a result afterwards, books were published dealing with educational design research focusing on conceptualization (van den Akker et al., 2006), methodological considerations (Kelly, Lesh, & Baek, 2008), or alternatively, on specific features of conducting design studies (McKenney & Reeves, 2013) all of them located across educational fields. In Germany, very recently, the Educational Design Research Journal (EDeR, 2017) with international focus was

initiated as a consequence of the increasing attention towards and work on DBR in educational science.

Variations as highlighted above, can, e.g., be found with respect to the function of research in the particular context. In the present study, the research function is characterized by *design and development*, or as formulated within a question by Plomp and Nieveen (2013, p. 15): “What are the characteristics of an effective teaching and learning strategy aimed at acquiring certain learning outcomes?”. For instance, referring to the present investigation, the learning outcome to be acquired is that the participating teachers in the present study shall develop or enhance their competence of teaching their students in a language-sensitive way. The (expected) effective teaching and learning strategy will then be represented by the study visit abroad.

In view of further variations of design research, “action research” – from which the design-based research was derived – is an example of the function *designing / developing solutions for practical problems* (Plomp & Nieveen, 2013). In contrast, a “case study” would *describe, compare, explain*; while “evaluation research” aims at *determining the effectiveness* of a program.

With respect to the German focus on DBR in VET, the upward trend towards a more sophisticated dealing with DBR taking place in vocational and business education is demonstrated by a variety of respective studies having paradigmatic-methodological or direct implementation character (cf. Burda-Zoyke, 2017 and references therein; Schäfer & Diezemann, 2017).

Fields of application apart from educational science

As design-based research has become more popular in the past years, the scope of its fields of application has been covering a multitude of disciplines. Apart from teaching and learning research in business education and vocational education and training, the DBR approach has recently also been applied, e.g., in studies within Information Systems Research (cf. Österle et al., 2011 (design-oriented information systems research), Peffers, Tuunanen, Rothenberger, & Chatterjee, 2007 (here also called Design Science Research Methodology)) or inquiry learning in Biology (cf. Reiser et al., 2001). Following Rodgers and Yee (2015), engineering, arts or fashion are furthermore among the research fields where the design-based research approach (DBRA) can be found as the chosen methodology.

Geographic focus and appearance of DBR studies in the literature by use of language

In particular, scientists in the English-speaking area engage in DBR approaches. However, the approach has also been discussed in detail by Dutch researchers (e.g., Van den Akker et al., 2006) who mostly publish in English. In the German-speaking parts of the world, the approach has grown in scientific discourse connected with vocational education and training (Burda-Zoyke, 2017). On the international level, DBR has been increasingly integrated into the field of vocational education and training for approximately 15 years now (ibid, p. 2; Anderson & Shattuck, 2012). In a recent Dutch study, Zeggelaar et al. (2018) investigate the effective factors of PD measures in vocational education and training by means of developing design requirements. The still low, however, increasing numbers of studies is due to the fact that many countries have a high need for innovations in education as a consequence of societal changes, and existing approaches do not meet the needs sufficiently (cf. Chapters I and II).

To further illustrate this point, Figure 11 depicts the share distribution of first-stated authors´ countries by analyzing 47 countries (cf. Anderson & Shattuck, 2012, p. 20). As the pie chart shows, there is a predominance of articles published by US authors in which the DBRA is applied.

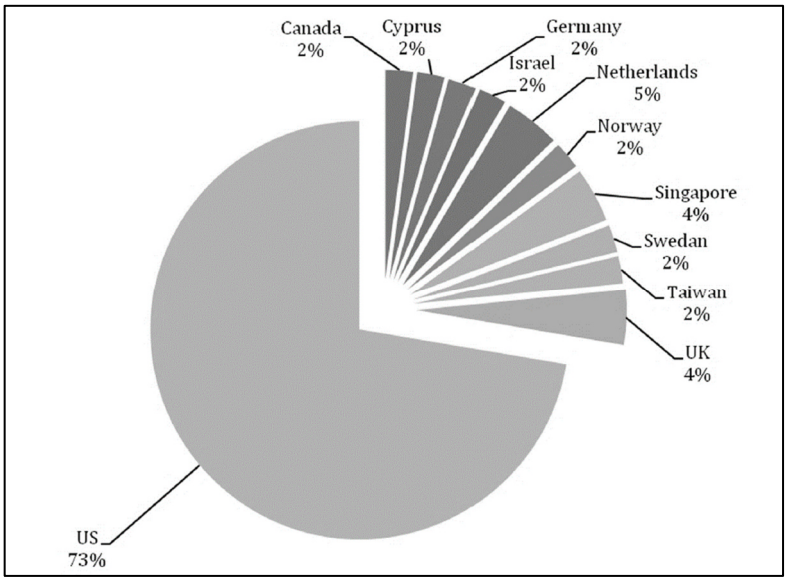


Figure 11 - Share distribution of first-stated authors´ countries (with n = 47) applying the DBRA (Anderson & Shattuck, 2012, p. 20)

Relation to action research

Historically, as pointed out above, DBR is based on the idea of the action research (cf. Bakker & van Eerde, 2015). Some scientists claim that these are similar approaches (cf. Wang & Hannafin, 2004). Anderson and Shattuck (2012, p. 17-18) provide a useful discussion about the link between DBR and action research. Despite the fact that they accept the idea of how to apply the DBR arose from action research, they clearly argue that "the focus on the evolution of design principles[52] differentiates DBR from much action research formative evaluation designs" (ibid., p. 17). The main difference is that the DBR develops a design that shall enhance the scientific theory by, e.g., revealing and confirming relationships with regard to this theory (Barab & Squire, 2004, p. 5).

A comparison between design-based research versus action research finally reveals a difference in terms of cooperation of actors in the research process. In action research, other active players than the "teacher alone" (Anderson and Shattuck, 2012, p, 17) are not included which leads to the fact that the opportunity to take advantage of the co-design as well as "expertise and energy" (ibid.) that arises through teamwork is not seized. The latter aspect is precisely one of the DBR approach´s strengths.

However, the practical relevance of both the DBR and action research indicate that both research fields belong to applied research – an obvious fact after having dealt with the details. Nevertheless, there is consensus among diverse scientists such as Anderson and Shattuck (2012) following assumptions by Stokes (1997) or Stappers (2007) that the general contrasting of basic research and applied research should not be accepted. This is due to exactly the same reasons researchers strive for an approach combining practical outcomes with theoretic elements (understand theories). According to Stokes (1997), productivity in educational research is achieved by maximizing understanding, if possible generalization, and the production of practical output. Generalization, however, is difficult to accomplish and must be treated carefully in qualitative social science.

Based on this principal understanding of DBR, the central characteristic features and the DBR process shall be described in the following sub-chapters.

[52] *Design principles* are defined and discussed in Chapter III.1.2.1.4.

1.2 Characteristic Features, Important Terms

1.2.1 The Design-Based Research Approach Terminology

In the introductory paragraph, a variety of terms associated with the approach has been mentioned. For obtaining a thorough understanding of a) the method and b) the empirical investigation carried out later-on it is necessary that all important terms are explained. This is done along their appearance in the description of characteristics and the process in order to let the reader follow the logic procedure. It is the conscious choice of the author to continue the DBR introduction by starting to define the terminology before presenting the characteristics of the DBR in summarized form as the characteristic features are assumed to be better understood by the reader this way.

Orientation towards terminology used by Plomp

The present thesis is oriented principally towards the DBR terminology by Plomp (2013). Moreover, the visual representation in the following Figure 12 is used as graphical support to understand the essential elements and terminology. It shows the DBR map 2.0 by Wilbers (2013a) based on Plomp (2013) translated by the author. The map aims at generating questions about and towards all elements of the planned DBR process. More precisely, it supports reflecting on the type of questions that a researcher should ask in connection with design-based research.

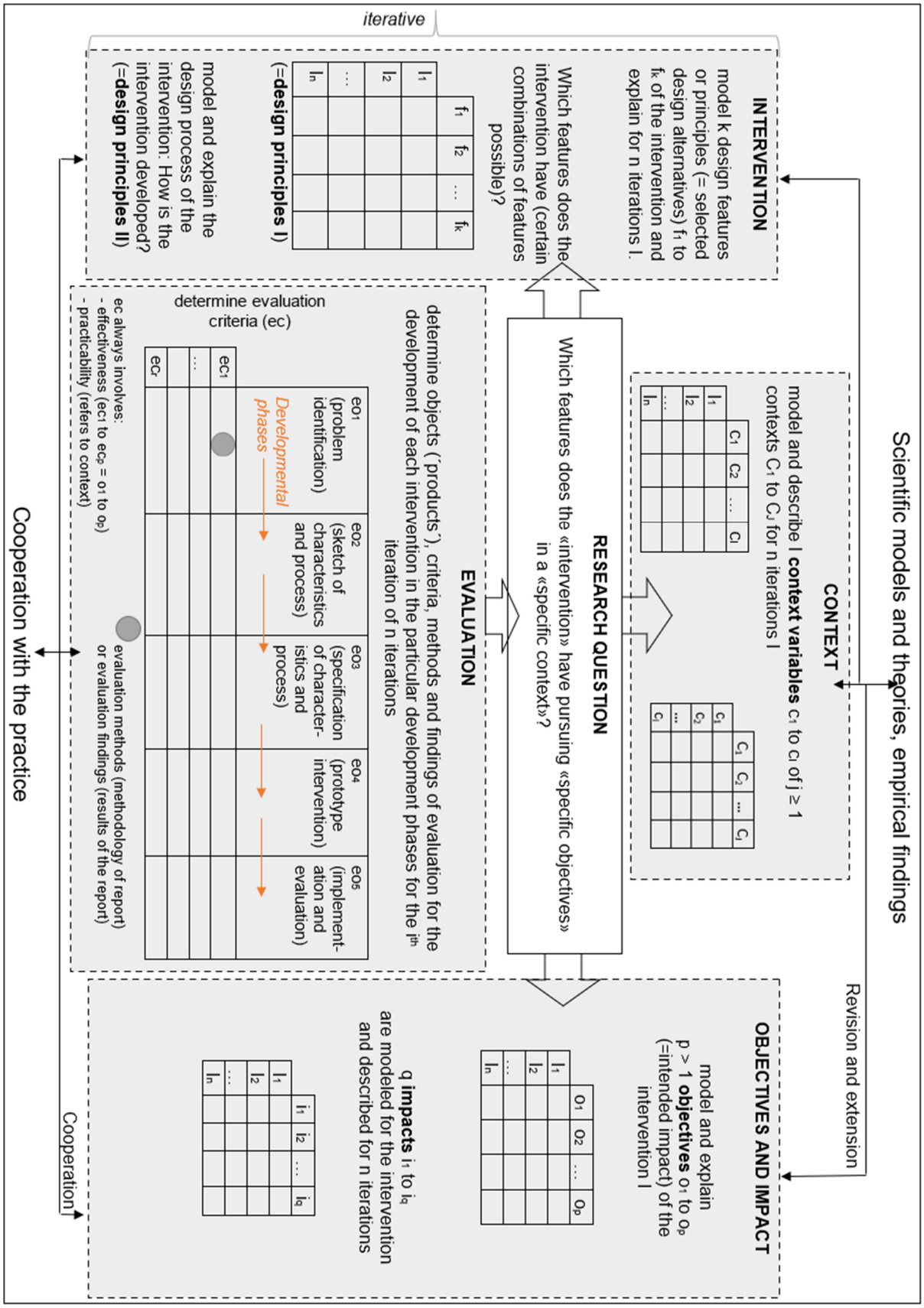


Figure 12 - Which questions should be generated in DBR? - DBR map 2.0 following Wilbers (2013) based on Plomp (2013)

Design is used to express that the whole procedure starting from the development and creation of measurements is considered a scientific undertaking – under the condition that the design is based on existing theories and empirical findings (cf. Reinmann, 2005).

Along the DBR map (cf. Figure 12), the following characteristic key elements of the DBR are described: the research question, the context, the intervention, the design principles as well as the objectives and impact. All of the following explanations in Section 1.2 refer to Figure 12.

1.2.1.1 Research Question

As illustrated in Figure 12, the generic research question takes center stage within the process model by Wilbers (2013a): Which features does the intervention have pursuing specific objectives in a specific context?

The development and determination of the research question is connected to the DBR approach. As was shown in the theoretical part of this thesis and indicated in the previous paragraph, this DBR project deals with a complex topic. This is, e.g., due to the fact that the research subject (vocational teachers) is represented by individuals that differ in their competences (knowledge, skills, attitudes), and findings are dependent on the respective context.

The research question was initially motivated by focusing on learners´ perspectives: How can learners be supported by applying didactic strategies of LSCT? During the development process, the research question including the perspective was redesigned, as experiences during a project revealed that learners at the STWT are hardly or not at all able to reflect on their own competences and performances, while it is generally hardly possible to evaluate their written or oral results (cf. Peitz & Kimmelmann, 2018; Peitz, 2018). Language levels in learning groups of the school-to-work transition systems are often very low which makes a qualitative evaluation impossible.

As formulated very appropriately by Bakker (2019, p. 178, cited from Schwartz et al., 2018), “[d]esign research is namely not about education as it was or is, but how it could be or perhaps even how it should be”. For the reasons that have been explained, there was a switch from focusing on learners to focusing on teachers. Also, as a consequence of the former QBi project (cf. Peitz & Kimmelmann, 2018b), modifications were made from focusing only on the teachers´ own teaching material to relocating the work to another focus – experiencing how LSCT can be interpreted outside the domestic vocational institution towards vocational training institutions abroad. By doing this, the research subject is in a location that is completely new to

them. In such a setting, effects shall, e.g., be evaluated by observation during the whole research process, by having conversations in individual interviews combined with written questionnaires (mixed method process, see Chapter III.2.3). The mere measurement of effects according to the rules of quantitative social research will not yield useful results. Instead, there is a strong need for a method that enables a certain degree of disengagement of rigid methodological rules and leaves sufficient space to let a particular concept develop and redevelop. In particular, educational practitioners will profit from such a process or at least, they will be more interested in seeing the findings of the specific steps in the process called cycle results. Some researchers even go as far as claiming that the final research results are not relevant or lacking in practical relevance (cf. Collins, 1999, p. 289).

1.2.1.2 Context

When analyzing and evaluating the design, all existing and emerging components have to be considered in their interrelationship – in their context. The role of the researcher, the relation between design and scientific findings (knowledge acquisition) as well as the relevance of the model which is developed for the study visit design. Otherwise the position regarding the selected research method cannot be detached from the research project context.

Engaging in educational design research means striving for an extended look on phenomena, by including the context (Euler, 2014a). It additionally means striving not only for the development of theories, but also for the refinement of these in the course of time. This is the characteristic development process of the DBR. Following Edelson (2002), educational researchers working in the design field more and more aim at “advancing their understanding” (p. 105). This is an important development due to the existing critic in educational science stating that theoretic and empirical findings lack a concrete feasibility. Understanding the research subject (e.g., learners or teachers) in relation to their broader context, i.e., the environment they are influenced by, live, work or act in, might result in improved results. Brown (1992) already emphasized this underlining that the isolated consideration of various factors (such as learning, context, cognition) will prevent researchers from fully understanding the relevance of the occurring processes in the real world setting. For example, one teacher´s behavior will gain a certain relevance and can be understood if taking into account his or her professional background or regulations and the business culture of the school he or she works in (such as the time he or she is given for further development or the allocation of different tasks he or she has to fulfil), differing state provisions in view of curricula etc. All of these factors will have an impact on the behavior, beliefs, thinking, and maybe as well on teachers´ competences (how

well he or she is educated in the subjects he or she teaches, in his or her linguistic competence, possibilities of further development or social competences).

The specific context which the question refers to is characterized by a certain number of context variables. Here, the question arises how this context differs from other contexts and which features could be interesting for the entire research and development process. Barab and Squire (2004, p. 1), who refer to the design experimentalist Brown (1992), argue as follows:

> "If one believes that context matters in terms of learning and cognition, research paradigms that simply examine these processes as isolated variables within laboratory or other impoverished contexts of participation will necessarily lead to an incomplete understanding of their relevance in more naturalistic settings."

In the present study, there is a primary, overall context of professional development with respect to language promotion integrated in content teaching at the school-to-work transition. As the context moves and changes between three European countries, the context variables change, too. The change takes place by having framework conditions within the joint school-to-work transition (or more general, vocational education and training systems) that differ with regard to certain factors such as educational programs for refugees and migrant students, types and degrees of language promotion within VET, educational policy and labor market conditions on which VET systems depend (cf. Chapter II). Context variables can include LSCT variations in the design as well. Note that there is not one specific LSCT concept. Instead, here, it is understood as an aggregate of diverse interpretations of how to teach contents in a language sensitive way.

The DBR takes into account that the research subject is influenced and controlled to a certain degree by their environment. Paying attention to this helps preventing the isolated consideration of the various factors of interest. The intervention has therefore to be adapted to the real educational context. Giving the characterization of the context sufficient space in the research process is an essential part of the process. Kohnen (2012, p. 153) phrased it the descriptive characterization of the complexity of the teaching and learning process. By the profound inclusion of the context into the research process, the complexity of the teaching reality can be preserved (ibid.).

1.2.1.3 Intervention

In the design-based research approach (DBRA), everything is built around the intervention. One definition is represented by "the act or fact of becoming involved intentionally in a difficult situation" (Cambridge Dictionary, 2020). In coaching theory, an intervention is considered to

promote and enhance an individual´s ability to act, to question their beliefs and attitude, develop strategies and discover new choices in view of thinking, acting and feeling or perceiving (cf. Rauen, 2008). This concept generally matches the purpose of the interventions of this study.

Since interventions play an essential role within the design-based research process, Figure 13 graphically explains an intervention in general:

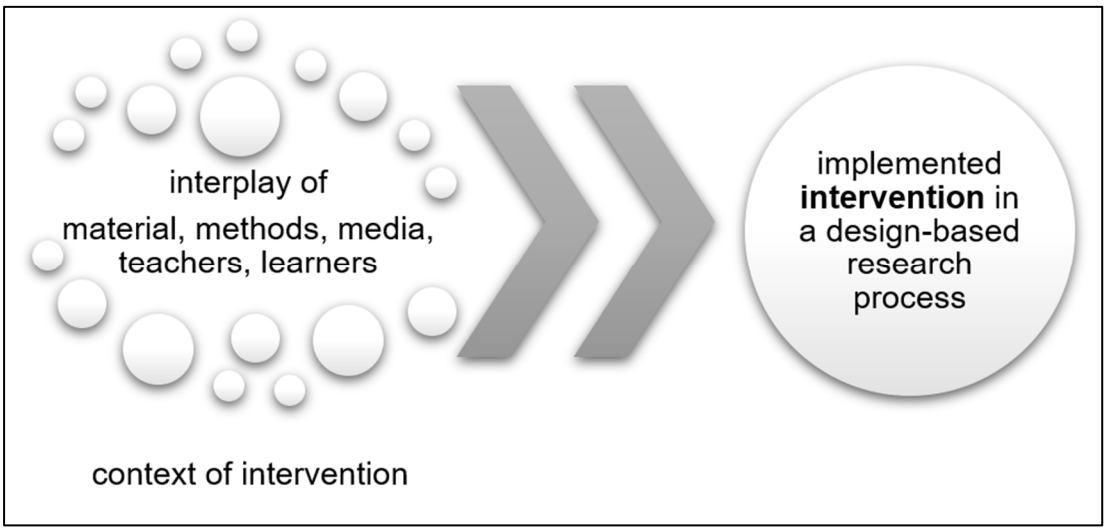


Figure 13 - Holistic nature of interventions in DBR compared to experimental research (own diagram based on Reinmann, 2005)

As highlighted, the intervention in a design-based research process can be characterized as a particular situation which has to be solved in a specific context. This context consists of the interplay between material, methods, media, as well as teachers and/or learners.

Following the Design Based Research Collective (DBRC) (2003), DBR exceeds designing and testing these interventions. Instead, “[i]nterventions embody specific theoretical claims about teaching and learning, and reflect a commitment to understanding the relationships among theory, designed products, and the practice. At the same time, research on specific interventions can contribute to theories of learning and teaching” (DBRC, 2003, p. 6). The intervention is influenced and defined by the research question and the described context. Usually, typical features are described that are subject to decisions. A particular number of design features (or design principles) determine the intervention, whereas these features (can) vary from one intervention to another. Within the iterative cycles, the interventions are improved, while both the development process and the design principles are documented.

In a concrete manner, the terms professionalization concept, professional/further development (measure), training program, exchange program are used as an alternative term to intervention, in the following parts of the study.

“Books are linear, educational design research is not.” McKenney´s and Reeves´s quotation (2012, p. 3) states that educational design research development consists of a constant evaluation of the components which leads to the refinement of these (formative evaluation in each cycle). There is a constant revision and expansion of the design features of an intervention which leads to the improvement of the design process implemented in the next intervention. Hence, the process is characterized by iterating cycles rather than a line.

In their study, Anderson and Shattuck (2012) take up the question that should naturally come up when analyzing the cycle process of the DBR. How man iterations are recommended until the final outcome has been completed by achieving the desired effect? Literature does not clearly answer this question and there is no consensus about it. Nevertheless, the analysis of a multitude of DRB studies has revealed that the majority of articles (with n = 34) investigated involved a 2-stage phase (two iterations).

Iterations are also referred to as testing or implementation. Serving as a visual example, Figure 14 sets out how the iterations of systematic design cycles proceed, according to Plomp (2013, p. 17).

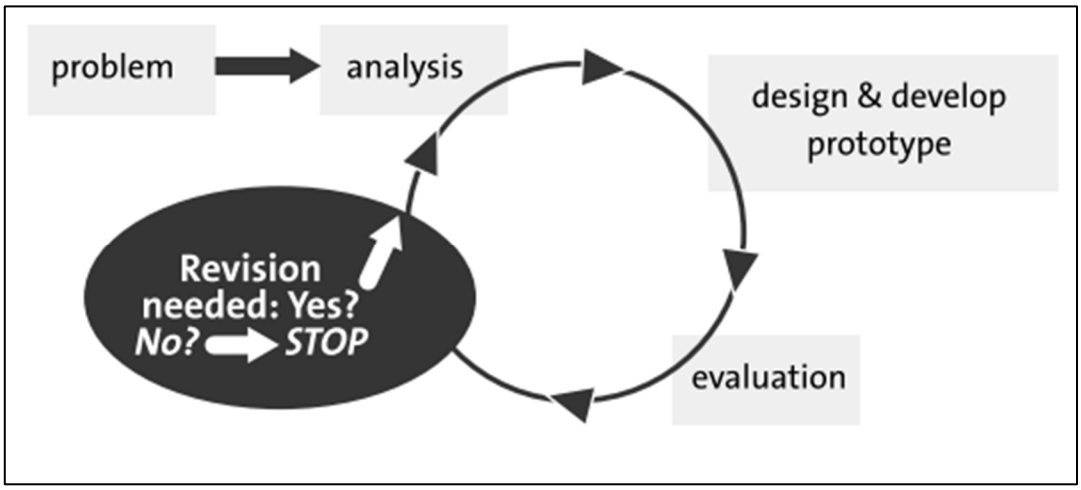


Figure 14 - Iterations of systematic design cycles (Plomp, 2013, p. 17)

These systematic processes are integral part of the DBRA, independent of the design´s objective. The problem analysis is followed by the design and development of the prototype, which is evaluated after having been tested. Afterwards, a consideration takes place whether the revision of the prototype is necessary or not – if yes, the design cycle will be iterated.

The continuous process of intervention and evaluation (the iterations) results in an improvement of the design. The so-called prototype is the concrete concept or the model of the intervention. It will be further developed during the design-based research process. Hence, each iteration will produce a prototype which reflects the enhanced concept of each intervention cycle.

Prototypes of developed interventions are continuously re-designed throughout the entire research process while reflecting evaluation results of every intervention`s iteration (Euler, 2014). The design principles evolve as result of the cycles. These are selected and – as an effect of the development process – refined.

1.2.1.4 Design Principles

As the nature of design-based research is understood, design principles are at the core of the research process. One reason is that they are both the result of the planning and development phases, and moreover control, influence and define the outcome. Thus, they represent the crux of the matter. Euler (2014) aptly entitles them the focal point for designing the practice. They represent a rather small *event* (guidelines for designing practice resulting from a small-scale project intervention which are sensitive to the specific context they have been tested and evaluated in) (ibid.). This, in turn, has significant consequences for educational practice or is expected to increase in the meaning, dissemination, application etc. They are small events, since they represent prescriptive assumptions about particular actions or behavior in a particular context or field of action (McKenney & Reeves, 2012, p. 34). In addition, the design principles are limited or vary in their scope (due to the context in which they have been implemented) (ibid.).

Documenting design principles takes place via formulating hypotheses which guide and support the development process. The terminology *design principles* chosen here is developed by the design researchers van den Akker (1999), Nieveen, McKenney, and van den Akker (2006) and Reeves (2000, 2006).

Following (Euler, 2014b, p. 19-20), within the cycles, interventions are improved in an incremental manner, and both the development process and the design principles are documented. For this reason, each cycle phase leads to explicit cycle findings, and the formulated hypotheses (propositions) based on these findings will support the development process.

However, what is the central focus of the design principles? From a scientific perspective, what are they about and what are they able to achieve? How can they be built so that they are

empirically evident? Finally, also with regard to this documentation of a DBR study, how can design principles be communicated in a scientific manner?

Plomb (2013, p. 32), for instance, approaches the nature of design principles by deriving them from a simplified DBR model. In the following scheme (based on Plomp, 2013 and adapted to the terminology of this study), the definition of design principles is illustrated with regard to their position in the research process (cf. Figure 15).

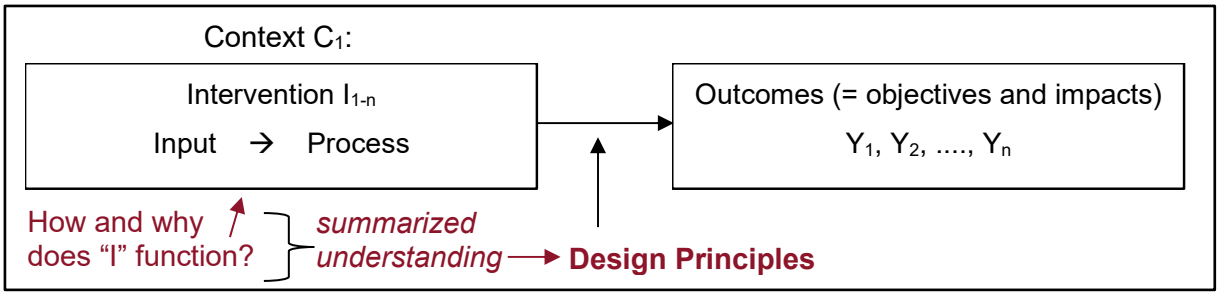


Figure 15 - Design Principles as the Connection between Intervention and Output (own diagram based on Plomp, 2013, p. 32)

Alternative terms to define design principles are, e.g., *intervention theory* or *design theory* (cf. Wademan, 2005), or as well *local instruction theory* (see, e.g., Gravemeijer & Cobb, 2013). Using *theory* instead of principles is due to the fact that some researchers determine *theory* to be the result of DBR (cf. Barab & Squire, 2004; Edelson, 2006).

Euler (2014, p. 18) defines design principles as elements forming "area-specific theories as targeted results" of the intervention(s). Since they have each been tested and evaluated for a "designated application context" (ibid.), they are usually called context-sensitive design principles and theories (cf. Van den Akker, 1999; Reeves, 2006). Design principles can vary in their focus depending on the selected means and forms of actions. In the present study, design principles have been divided into three areas: 1) contents (intention), 2) methods and 3) further conditions of teaching and learning which are considered as given (a detailed discussion about the classification of the principles will be provided in Section 1.4.2 of this chapter). This evolved from the intervention design. Design artifacts (cf. Edelson, 2002; Jahn, 2017) play a major role. They show what has been gained by the new concept, e.g., in the form of guidelines, recommendations or conceptions for teaching (material). Design artifacts also incorporate propositions for the implementation such as is the case in the present study by the cooperation of expert practitioners (teachers) and the researcher. Here, artifacts describe the theoretical framework in the form of a concrete conception and didactic recommendations for exercising (the) language-sensitive content teaching (competence). Furthermore, they constitute a list of

requirements imposed on the professionalization in becoming competent to teach in a language-sensitive way, as well as a collection of context-sensitive design principles for the practical implementation. These are two additional factors on which the professionalization concept for vocational teachers are based. They represent a plan for implementing the practical concept of the design.

1.2.1.5 Objectives and Impact

The research process pursues specific objectives, i.e., the desired or intended effects of an intervention. As a consequence, it shows specific impacts. The impact here includes the actual and the undesired impact factors. Each intervention´s objectives and impacts can be influenced by the design features. It is essential that the objective(s) and the research question itself are characterized by a certain degree of openness in order to ensure that the cooperation with the practice partner can be realized (that they are willing to cooperate).

Objectives and impacts are remodeled and explained for each intervention including their intended and the undesired impact. There is a parallel evaluation procedure for the refinement and further development of the intervention. Practicality is defined as “quality of being suitable for a particular occasion or use” or “the possibility of being put into practice” (Cambridge Dictionary, 2020). Effectiveness means “the ability to be successful and produce the intended results“ or „the quality of being successful in achieving what is wanted“ (Cambridge Dictionary, 2020). In design-based research, evaluation criteria are reflected by evaluation methods and evaluation findings, and are formulated for each evaluation object (= step of the development phase). On the one hand, the evaluation criteria always involve effectiveness, i.e., whether or not the objectives have been accomplished (cf. Plomp, 2013, p. 28-29; Nieveen & Folmer, 2013, p. 158, 160-161). For instance, if evaluation criterion ec_1 equals objective o_1, this factor has been effective. On the other hand, evaluation criteria are defined by practicality which has to be considered with regard to the context.

In addition, there are two important interdependencies which form further parts of the process (cf. Figure 12 on p. 162): scientific models, theories and empirical findings are consulted and studied while there is a cooperation of players from the practice and the researcher. This facilitates the refinement and further development or even creates the access to the research field (the context) at all. Thus, science and practice and the DBR process mutually depend on each other.

1.2.1.6 Evaluation

As briefly emphasized above, there is a formative evaluation in each iteration cycle with the aim to improve the prototype before it is tested again, and the next formative evaluation will take place (Brahm, 2017, p. 4 et seqq.; Kelly, 2013, p. 135; Nieveen & Folmer, 2013). In contrast, a summative evaluation critically reflects, as the adjective suggests, the overall situation in comparison to the prior prototype and the initial state (ibid.).

The evaluation process is parallel to the intervention with the aim to (further) develop and refine it (cf. Guskey, 2000). The design-based research project on the one hand and scientific and practice collaborators on the other hand depend on each other. The evaluation takes places along pre-defined criteria, above all the intervention´s effectiveness and practicality are measured by means of a variety of evaluation tools. A more detailed discussion about evaluation in DBR can be found in Section 2.3.2 (*Evaluation*).

1.2.2 Characteristics of the DBRA – a Discussion of Researchers´ Perspectives

Four principal characteristics and their components of DBR are illustrated in Figure 16 as follows:

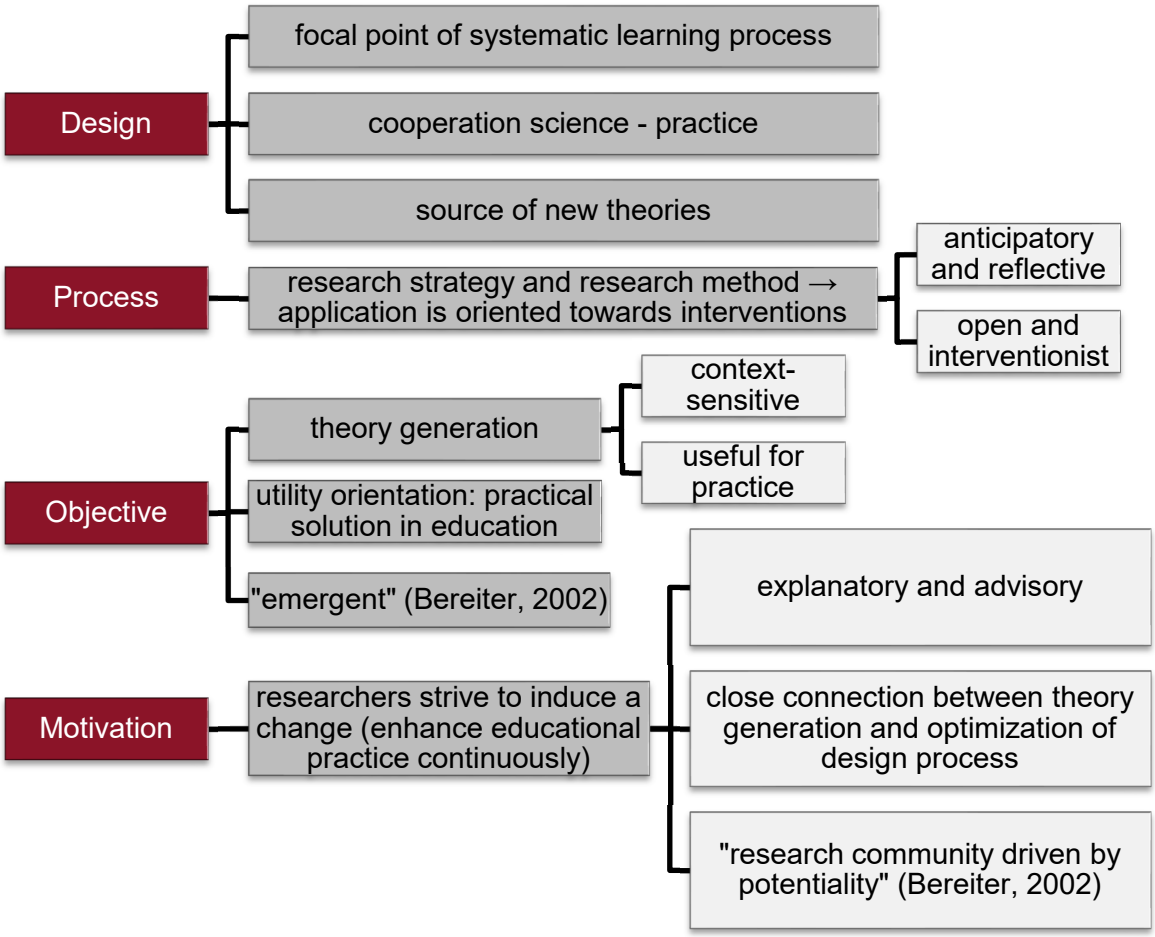


Figure 16 - Summary of the DBR´s special characteristics (own diagram based on Reinmann, 2005, Plomp, 2013, Euler, 2014, and Bakker & van Eerde, 2015)

Design of DBR

It is particularly based on literature findings by Reinmann (2005), Plomp (2013), Euler (2014) and Bakker and van Eerde (2015). The design is particularly important within the research process. It can be considered the focal point of the systematic learning process and the source of new theories. Both factors are closely connected to the science-practice cooperation. The cooperation, in turn, is a prerequisite for the implementation of a teaching/learning concept which is incorporated in both development and research from the beginning. This, in turn, is due to the design which is adjusted to the context variables.

Experts from the practice are included into the research process (see also the exemplary study by Bogaerds-Hazenberg, Evers-Vermeul, & van den Bergh, 2019). In addition to being the

research subject of the study, they are considered co-researchers in the development of the interventions. This way, it can thereby be ensured that the research process is indeed based on the understanding of the context (cf. Anderson & Shattuck, 2012; Einsiedler, 2010).

As argued by Superfine (2019, p.1-2), educational researchers should engage in the cooperation with teachers by integrating them into the development and implementation process of the design. The design should deal with a subject matter which teachers perceive as a current problem in educational practice. The context for which solutions are developed will then match and, if the documentation is appropriate and thorough, the solutions can be adapted to new settings or contexts, as well. Superfine (2019, p.1-2) states as follows:

> "These models tend to situate teacher learning in problems of practice that teachers see as relevant to their own contexts and circumstances, and engage teachers as collaborators in the design and implementation processes. Common across all of these emerging models is that researchers work with teachers as opposed to doing research on teachers. Such models offer new conceptualizations of teacher learning and afford new opportunities and designs for studying teacher learning over time. When teachers are engaged as co-designers and co-implementors of professional learning experiences, we can better understand what is working, for whom and under what conditions (Erickson, 2014), thereby increasing the likelihood that changes in teacher practice can take root."

One of the most striking elements of DBR is certainly a consequence arising from the cooperation between science and practice: the non-stationary position of the researcher. The researcher has to have a high level of flexibility and the vision and foresight to always keep science and practice in mind. This means that the position is closely connected to the formation and generation of scientific knowledge (cf. Burda-Zoyke, 2017). Sloane (2005, p. 337 et seqq. 2007, p. 40 et seqq.; 2014, p. 121 et seqq.), e.g., labels researchers engaging in DBR as crossers between science and practice. Although it is highly important that researchers get involved with the practice, i.e., a change from an observer´s perspective to a participant´s perspective, Sloane claims that researchers have to move back to the distanced observatory perspective, since by doing this, their participation in the practice environment including its practical constraints must be reflected. This requirement corresponds to Sloane´s lifeworld conception (ibid.). The degree to which researchers engage in the two fields as well as to which the changes are performed can vary.

Process of DBR

The process in terms of research strategy and methods is characteristic in DBR in that the application of these is oriented towards interventions. However, the strategies and methods per se are not DBR characteristics. Instead, they are for instance taken from qualitative social

science. Moreover, the process is anticipatory and reflective, open and interventionist. As emphasized by Reinmann (2005, p. 62), the process is anticipatory since the designs are implemented and investigated against the background of hypothetic learning processes and on the basis of theoretical models. The reflective nature of the DBR process is due to the fact that assumptions made in the research process are analyzed and verified (multiple times) (ibid.). Design-based research is open due to its limited control of the data or the research situation in general (Bakker & van Eerde, 2015). Interventionist means that researchers investigate and "intervene in what naturally happens" in contrast to naturalistic research such as surveys (Bakker & van Eerde, 2015, p. 432).

Objective of DBR

As was highlighted in detail and from different perspectives, the objective directly concerns practical solutions in education. In addition, theory generation and "emergent goals" exist (cf. Bereiter, 2002, p. 326). Generating context-sensitive theories which are useful for the practice has the purpose of increasing scientific findings in teaching and learning. Therefore, the research state in theory and practice is included into the design process and theory generation.

The DBR is characterized by a decoupling of design and research closely connected to the objectives. In this light, as also argued by Euler & Sloane (2014), the DBRA in qualitative social science rates the epistemological interest higher than the perfection of the implemented measure (see Figure 17). The epistemological interest shall be deemed the research factor, whereas design describes the cooperative development of practical, useful, innovative interventions in order to solve a problem of the "unfiltered practice" (Jahn, 2017, p. 1). Both mutually depend on each other (ibid.). It is not obligatory to investigate each part of the design with regard to the research component (ibid.). Instead, this investigation might focus on selected parts.

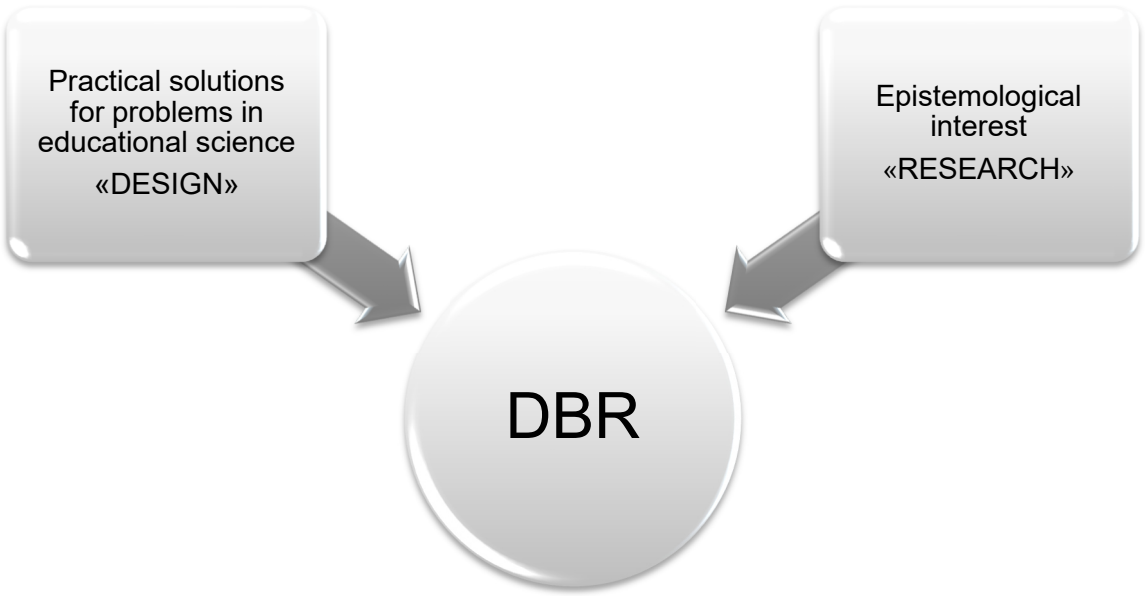


Figure 17 - Two key objectives of the DBR (own diagram based on Euler & Sloane, 2014; Plomp, 2013, p. 11)

Hence, practical and useful products (artifacts) are produced by and with the design, while these are accompanied with knowledge and insight for science providing information on ways of utilization in educational environments (Bakker & van Eerde, 2015; McKenney & Reeves, 2012; Van den Akker et al., 2006). Following Plomp & Nieveen (2013, quoted from Bakker und Van den Eerde, 2015), "[i]t is also said to be suitable for addressing complex educational problems that should be dealt with in a holistic way". McKenney and Reeves (2013, p. 14-16) refer to "scientific output" versus "practical output".

Bereiter (2014, p. 4) entitles the knowledge resulting from the development process described above as "[p]rincipled practical knowledge (PPK)". This knowledge type combines features of "practical know-how and scientific theory", thereby fulfilling "standards of explanatory coherence". Unlike other interpretations which equate the two major objectives and emphasize the epistemological interest by researchers in particular (cf. Figure 17), the PPK mainly focuses on guidelines for practice. Bereiter explains the combination as follows: "PPK grows out of efforts to solve practical problems, but it requires additional effort invested in producing knowledge that goes beyond what is required for the task at hand yet not so far beyond as to be unusable by practitioners" (ibid,. p.4). The assumptions are criticized by (Janssen, Westbroek, & Doyle, 2015, p. 176) who accuse Bereiter´s findings in that even an enhanced form of his PPK concept would not be sufficient "to address the challenging issues of practicality teachers face" by pointing to and explaining the dimensions of practicality in teachers´ daily work.

The identified characteristics of DBR differ slightly in wording or aggregation (cf. Reinmann, 2005). Different discourses have been offered by researchers dealing with educational design research (cf. Reinking & Bradley, 2008; van den Akker et al., 2006; Wang & Hannafin, 2004; Kelly, 2003).

In DBR, it is rather a question of how a specific aspired educational goal (here: how to promote the LSCT competence of vocational teachers) can be achieved in a particular context by an innovative design that needs to be refined step by step in the best way (cf. Euler & Sloane, 2014). Thus, apart from examining existing realities, a fundamental importance is associated with creating future opportunities. This procedure is acknowledged in the present study in particular due to the results of the pre-study. It has been shown that a systematic analysis of LSCT professional development is very difficult.

Motivation to engage in DBR

The motivation for research on a design basis that researchers strive for effecting a change by enhancing educational practice continuously. According to Bakker and van Eerde (2015), the motivation is for instance reflected by the approach´s explanatory and advisory function. On the one hand, there is a close link between producing theories and optimizing the design process. On the other hand, as formulated by Bereiter (2002, p. 324), researchers are part of a "research driven community by potentiality". This means DBR supporters believe in potential outcomes. The motivation of potentiality will enable the development of innovations in the first place (cf. Reinmann, 2005).

1.3 Method and Sample Selection

1.3.1 Methodological Point of View based on the Characteristics

In order to build a foundation for the step-by-step improvement of both theory and practice, the methodological process should be arranged in a reasonable and versatile manner. Since design-based research is aimed towards describing, but also understanding the different mechanisms of action that accompany the cycle results of the interventions, an agglomeration of the collected data is used and analyzed (cf. Jahn, 2012). This access to research is defined as multi-perspective or called "triangulation" in scientific theory (Flick, 2011).

With regard to the method, the following questions are relevant for discussion:

- Which research techniques fit the research question and the sub-questions?
- To which degree are the quality criteria fulfilled?
- Which variables should be collected (and which of them *can* be)?
- How does the analysis of observed data take place?

The DBR approach can be linked to the application of all empirical methods (cf. Reinmann, 2018; Jahn, 2012). There is no particular determined method the DBR is defined by (DBRC, 2003, p. 7). Depending on the specific design of the research phase or the research object, there a limitations to the selection of proper empirical methods. The present study uses empirical instruments of qualitative social science to collect and analyze relevant data. Chapter III.2.2 provides a detailed look into the research techniques applied. As noted by Reinmann and Sesink (2011, p. 17), instruments have to be chosen in such a way that they best fit the purpose: the outcome that shall be achieved (theories of knowledge on the hand and the utilization in the educational practice on the other hand). This represents one of the major advantages of the DRB approach. As a result, there is always the researcher´s individual reflection or the research process that also have to be critically discussed and documented afterwards. The instruments support this research process if adequately chosen. A standardized written questionnaire will for instance be able to acquire expected effects but not be able to consider unexpected factors adequately. The attempt to classify or evaluate the meaning of unexpected factors thereby is another complex requirement. Some methods or the composition of methods can enable the researcher to reveal the meaning of these effects for the overall research process. However, the research question (of the research process phase) or potentially the research objects (here: possibilities to learn how to teach (vocational) contents in a language-sensitive way) may limit the choice of instruments (cf. Reinmann, 2018).

Examples of appropriate instruments to collect data in a DBR process are, e.g., research journals, developmental meetings, photo material, video material, protocols (cf. Reinmann & Sesink, 2011). Recording or gathering data about specific features – sometimes of one particular situation – can be enabled via these instruments rather than by only analyzing texts. McKenney and Reeves (2012, p. 147) point out seven evaluation techniques, ranging from interviews, focus groups, observations over questionnaires, checklists, pre- and post-test to protocols, journals and a document analysis.

With respect to the methodological perspective, progressively improving and refining both theory and practical outcome within teaching and learning setting requires a sensitive and rational

selection of diverse methods or techniques to generate data (cf. Jahn, 2012). Testing the design takes place in complex real-life educational settings. This has two implications: First, the researcher who is also companion, architect, performing actor (Jahn, 2012, p. 44) or even the applier of the measurement (the object) is challenged by being faced with a multitude of variables. Trying to entirely identify and control these variables is not taken into consideration (see also Chapter 1.1 and the statements about the measurability of data in educational science).

On the contrary, according to Collins, Joseph and Bielaczyc (2004, p. 11), the DBR´s claim is precisely the detection of critical features (or variables). As the researcher strives to understand the reactions induced by the intervention as well as the interplay of the variables with each other and in view of their capability to fulfil their task (function) within the design. The researcher is interested in understanding whether the design is well-functioning or not. In particular, the reasons for these outcomes are important to find.

In order to achieve a comprehensive and wide-ranging demonstration of the general functioning of the design and intervention, the object of interest is recommended to be examined from different perspectives. This involves the artifacts resulting from the intervention, as well as the variables of these and their impact.

During the process of understanding the functioning of the design, the researcher follows the question whether it serves the purpose that was determined in the beginning of the process. The key performance indicator or objective criterion includes a) effectivity and b) practicality, as has been described in Chapter III.1.2.

Furthermore, the researcher should be interested in potential causes for a failure of the design or artifacts of the design. As highlighted before, DBR does not aim towards the perfect result of the design – although the process will end at the moment the design is considered to be in a state where no further refinement is necessary. Nevertheless, it is essential to examine how specific key elements interact and why they are key elements for the functioning or non-functioning of the design in the first place. Note that the failure of achieving the purpose or the created function of the design, i.e., the failure of the artifacts, plays an important role in DBR. A systematic documentation plays a major role in the design-based research process in particular due to the non-rigid and open framework features of the approach, and in particular due to possible failures or undesired side effects. Documenting and exploring side effects or other problems during the test phase of the process can lead to the further development by the researcher of either expanded or new theories or of artifacts being useful, e.g., for teaching (cf. Jahn, 2012).

In order to generate theories, it is necessary to be precise and critically reflective above all when it comes to the documentation. Here, each cycle of the entire research process, i.e., each iteration, of both the testing and adjustment shall be precisely described. It is comparable to writing a design profile. It should clarify the following aspects in each cycle (based on the explanation by Jahn, 2012, p. 45):

- Which key elements does the design show?
- How are these elements implemented?
- Which specific function is performed by these elements?
- Which cycle findings could be achieved by this?

Following Collins et al. (2004, p. 38-39), a variety of factors must be taken into account, as a support tool or even necessary precondition for answering the questions above: A detailed description of the goal and the specific parts of the design must be available as well as the outline of the operation setting, and moreover, light has to be shed on each phase´s course of action (procedure) followed by the presentation of the results of the cycle. In addition, the findings shall be systematically gathered and compared to what has been previously revealed in the theoretical framework. This is a critical point within the research process due to the fact that research is not complete and lacks the global reference point if this step is left out.

Joseph (2004, p. 23) sheds light on three major functions within DBR processes:

- How do thoughts about design yield a focus for the development of research questions?
- How is it that design is further developing (“moving forward”) at different points at the same time?
- How do new theories “inform both the design of interventions and the development of lenses for investigation”?

1.3.2 Sampling

Apart from the choice and selection of adequate research tools for the planned research process, one of the major considerations is the sampling. Qualitative social research requires selecting a sampling for the investigation which is highly relevant for answering the developed research questions (cf. Flick, 2016). Typical sampling procedures of qualitative social research are the theoretical , selective and purposive sampling (cf. Flick, 2016, p. 154 et seqq.).

The decision for the sampling concerns the occupational features of persons as well as the number of persons to be observed and interviewed. This is the selective sampling, i.e., select-

ing individuals according to relevant criteria beforehand, determined on the basis of the question (cf. Flick, 2011). For instance, whether or not a German vocational teacher is working with learning groups of school-to-to-work transition programs is one of the selection criteria, as the research questions directly addresses these individuals.

The DBR is not defined by large sample sizes (cf. Flick, 2016; Nienke Nieveen, 2010). Instead, the number of persons involved in the sampling is not a decisive factor, as already individual statements by a small number of persons might lead to valuable assessments or impressions. Small samples can thus be efficient. In addition, as argued by Nieveen (2010, p. 48), there might be a limited added value in gathering information from too many sources or a too large sample size. The reasons for this is that “rich” data collection techniques of qualitative social research (such as observations and individual interviews) are difficult or impossible to be conducted with a large sampling size.

Nevertheless, a deliberate sampling should be pursued (ibid., p. 97). This means that it is important not to choose the sampling according to the persons´ specific characteristics, in order to not influence the results beforehand (cf. Nieveen, 2010, p. 97).

In line with Mayring (2002) and Reicher (2012), this sampling process was also called systematic selection, apart from being a deliberate process.

1.4 Development and Design Process

1.4.1 The Term „Didactic Design“ considered in General and in Particular

> « A didactic design is created to pursue specific teaching and learning goals. It involves the development, implementation and evaluation of teaching and learning situations and learning material.[53] »
>
> *Ballstaedt, 1997, p. 12*

The development of a didactic design is a vital part of the research process. Moreover, the development, testing and evaluation of the didactic design is the core of a DBR study. It takes place during the entire cycle of problem identification, drafting as well as specification of the features and the process, prototype and intervention up to the implementation and evaluation.

[53] Original German quotation translated by the author.

It is precisely the high levels of purposefulness and complexity of a didactic situation which have an impact on two directions. On the one hand, the design pursues certain determined objective(s) for which it requires guidelines or a structure. On the other hand, it is important to keep in mind that, in contrast to other research approaches such as in quantitative research, didactic situations cannot entirely be controlled (Wilbers, 2016). For a structural and process orientation and an appropriate terminology, didactic models have been developed as a support system for developing, implementing and evaluating didactic situations (designs).

Furthermore, the complexity of the situation leads to the fact that it is not possible to strictly follow certain rules in a didactic learning environment (Wilbers, 2016, p. 8-9). The philosopher Schon (1984) wrote about technical rationality in this context. This involves the perspective of the practice of professional teachers representing a process of problem solving. If, however, problem solving plays the most important role and receives the most attention, the complexity of the situation is not completely covered. For instance, analyzing the initial problem setting would be neglected then. Instead, the link is drawn again to the generalization of concepts developed with and for the educational practice: Problems usually arise if scientists strive for general knowledge about solutions that shall be made available for application in the practices afterwards (cf. Wilbers, 2016). It should be noted that researchers of course strive for this knowledge. For this reason, it should be constantly considered to waive this demand and rather search for a model that can be adhered to, by always keeping a critical eye on the results that arise subsequently. This involves pursuing a holistic approach and the attempt to collect as many data as possible. In concrete terms, it means that it is suggested to consider and analyze a didactic situation from all necessary perspectives, such as problem setting (context analysis), individuals involved, location and field where the didactic situation is implemented and further factors which can all contribute to meeting the challenges that the complexity brings along.[54]

In order to describe didactic situations, didactic models are applied (cf. Wilbers, 2016) which are discussed in the following.

[54] For a detailed insight into the interaction of practical experiences and scientific knowledge essential to develop adult learning professionality, see the discussion regarding competence and professionalism by Pachner (2013) who also refers to Schön (1983).

1.4.2 Didactic Models in Business Education

1.4.2.1 Objective, Function and Definitions of Didactic Models

The principles of teaching (pedagogy, didactics) (cf. Walklin, 1990) are the core research topic of teaching and learning science. Over time, a multitude of corresponding models have evolved. All of these models serve to explain or describe teaching phenomena. Two aspects are important with regard to this study: How can a didactic model be defined and how is it applied (for what purpose)?

Wilbers (2013b, p. 2) adds a further, prefixed vital question about the aim of a didactic model and recipient and answers as follows:

> "Didactic models within business and vocational education help to develop the competence of professionals in business and vocational education, in particular those of novices, with respect to the preparation, implementation and follow-up of teaching lessons."[55]

By pursuing this aim, didactic models provide a series of different functions (ibid. based on Plöger, 1999, p. 33 et seqq.; cf. also Jank & Meyer, 2002):

1. They offer the researcher a framework or structure of terminology on which he or she can orient.
2. They introduce systematic order, rules or classifications (cf. Reetz, 1984).
3. They allow for relativization (identify and relate priorities, limitations of models or empirical findings).

The choice of an appropriate didactic model with different connecting factors for the design principles and evaluation factors is essential. Design principles can be structured according to the specific elements of this selected didactic model. These connecting factors such as contents or methods or framework conditions of the design as well the respective terminology linked to it have to be based on a matching didactic model.

Didactic models can be classified according to what they state or assume about the relation between teaching and learning objectives, contents and methods.

They describe a specific learning setting (here: the study visit program for teachers). Two well-known and renowned didactic models within the field of German business education are represented by the Berlin Model and the Nürnberg Model.

[55] Original German quotation translated by the author.

1.4.2.2 The Berlin Model

In order to introduce the didactics of a particular theory-practice combination in view of teacher education, the Berlin Model (didactics of teaching and learning theory) has been developed by the educationalist Paul Heimann and his assistants Gunter Otto and Wolfgang Schulz from the former *Pädagogische Hochschule Berlin* (Heimann, 1976b, p. 142; 1976a; Heimann, Otto, & Schulz, 1979). It first appeared in essay form in the 1960s. Heimann follows a different – more practical – line of argumentation than the educationalist Klafki did with his didactics in terms of education theory which is in contrast to Heimann´s model (cf. Klafki, 1958, 1975, 2007).

One of the essential factors is the question of how to understand, interpret and define a didactic situation. Heimann comments on this as follows in his essay (1976a, p. 149): Didactic settings are "highly dynamic interactive processes of strict mutual relatedness, accentuated singularity and situatedness…, that nevertheless obey a specific structural legality."[56] Heimann (1976b, p. 105) claimed that, although a teaching lesson is always highly individual, there are certain constant elements, a uniformity providing a teaching lesson with a timeless and formal structure. Forming the basis of a structural analysis, six factors are introduced of which two are conditional factors, whereas four are represented by decisive factors (contents and intention of the didactic situation). Note that the interdependence between these factors is one essential criterion of the model (ibid.). The model helps to plan, evaluate and revise teaching lessons.

1.4.2.3 The Nürnberg Model

The Nürnberg Model is based on the tradition of the Köln Model which is, in turn, the continuation of the Berlin Model. Wilbers (2019, p. 15) introduces the Nürnberg Model whose structure is based on Heimann´s Berlin Model[57].

Expected competences (why and what?), methods and activities (how?) as well as conditions of teaching and learning (where and who?) are the three didactic structural elements in the model. It is essential to consider the structural elements as equally important. In addition, similar to the Berlin Model, each of the three elements always has to be taken into account in its interdependence with the other ones. They influence each other and are based on each other which is also called alignment of the elements. For instance, as argued by Heimann (1976b, p. 116-117), the question about how a design works must not be asked in isolation, but rather

[56] Original German quotation translated by the author.
[57] The *Berlin Model* was subject to a variety of further development such as the *Hamburg Model* relating to learners´ emancipatory relevance and professional pedagogy (cf. Schulz (1980), Heimann´s former assistant) or the *Bern Model* focusing on adult education (cf. Furrer, 2009).

by considering all the other questions, as well. Wilbers (2016, p. 16-17) suggests disassembling the planning into different phases in order to meet the complexity of didactic situations. Thus, the planning phase is characterized by process elements: The development of the major idea, a macrodidactic and afterwards microdidactic planning, followed by the implementation of the design, the evaluation and finally, the revision (ibid.). By doing this, structural elements are combined with didactic process elements.

In this study, the didactic design of the intervention is based on the Nürnberg Model. It is particularly suitable due to its combination of important elements from the Berlin Model as well as the Köln Model. It focuses on expected competences, and aggregates methods and activities as one central element. Finally, it combines structural and process elements of former traditional models and thus, offers a comprehensive and holistic perspective on a didactic design.

It has to be noted that the Nürnberg Model is applied according to its structural elements and didactic process steps, however adapted to the present specific context of a professional development measure (in contrast to a teaching lesson design at school). The model is adjusted, and offers a valuable orientation framework for developing a functional didactic design. Teachers are the learners in the present study, whereas researchers, practitioners from the field of language-sensitive content teaching or language promotion in VET or PD trainers are the teachers.

As the didactic design is embedded into the design-based research process by focusing on its development, testing, evaluation and re-design, selected models of how design-research process can take place are presented in the following section.

1.4.3 Design-Based Research Process Models

After having defined the nature of a didactic design, it is important to examine how research on a didactic design takes place following the DBRA. On the basis of four selected models, this section discusses how a design-based research process is usually executed. The models show similarities with respect to the content, whereas the forms of representation or categorization differ.

The minimized visual representation of a DBR process is the one developed by Plomp (2013) which has already been shown in Figure 14 (cf. p. 167 in Section 1.2.1.3) to show the typical iterative process of an intervention. Hence, a second presentation is omitted here, however,

can be consulted for comparison. The process contains as little information as necessary. Provided the existence of an initial problem, there are four major steps to take – analysis, design/development of a protype, evaluation and revision. The fourth step (revision) decides in each cycle whether the process cycle will restart or end (cf. Figure 14). In summarized form, Plomp divides the design-based research process into the three major phases analysis – prototype design – testing / evaluation (cf. Reinmann, 2017, p. 51). Similar to this, Österle et al. (2011, p. 9) suggest these three phases for design research in information systems, however adding a fourth phase – diffusion – for which they determine adequate instruments "to achieve the best possible diffusion of results among the target groups".

A second DBR process model is presented by Middleton, Gorard, Taylor and Bannan-Ritland (2006) who provide an extensive derivation of the meaning of *design* (Figure 18):

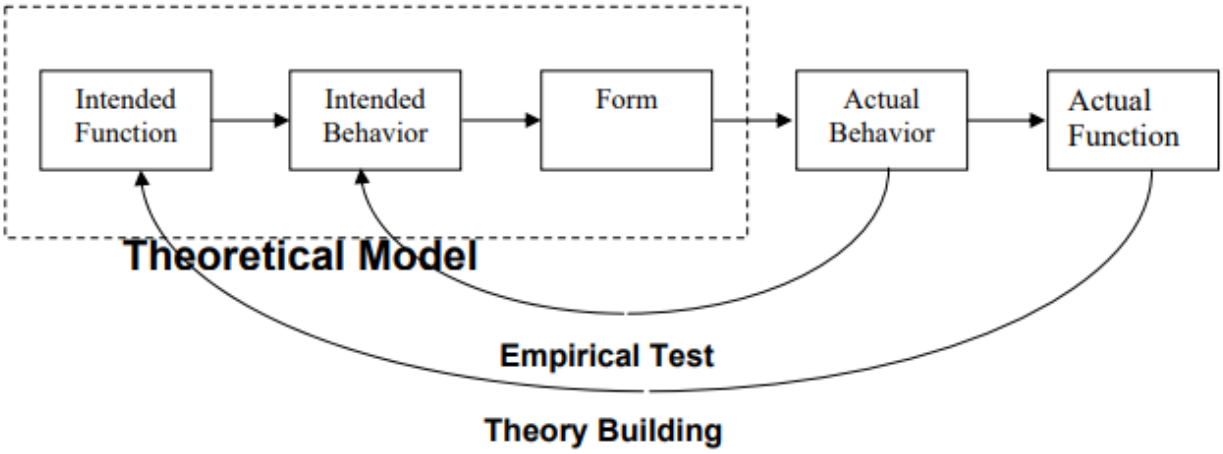


Figure 18 - General model of design research (Middleton et al., 2006, p. 33)

The terminology is different as is the level of abstraction. By defining design as both verb and noun, and focusing on the interrelation with function and behavior, Middleton et al. (2006, p. 2) state as follows:

> "Design (the verb), is the creative process by which designer(s), considering a problem within their field of expertise, generate a hypothetical solution to that problem, which solution can be termed a design. Design (the noun) constitutes that general hypothetical solution, often embodied in material form (e.g., a blueprint or physical model)."

The design activity of a designer is then influenced by constraints given by the context and achieved by determining the process´ or artifact´s form. This form will, in turn, determine its behavior and this leads to a comparison of the actual behavior and the original intended function (ibid.). In contrast to other researchers, Middleton et al. use the term system as the outcome of the design. As illustrated by the dashed box in Figure 18, the hypothetical model consists of the desired function, desired behavior and the corresponding form. Again, this phase would include the analysis / pre-study in the form the theoretical model. Their model characterizes an infinite cycle of empirical testing resulting from the actual behavior of the theoretical model, and the theory building, resulting from the actual function which has been assessed (cf. Figure 18).

From Reeves´ (2006) different perspective, a third alternative, four-level DBR process model is represented as follows (Figure 19):

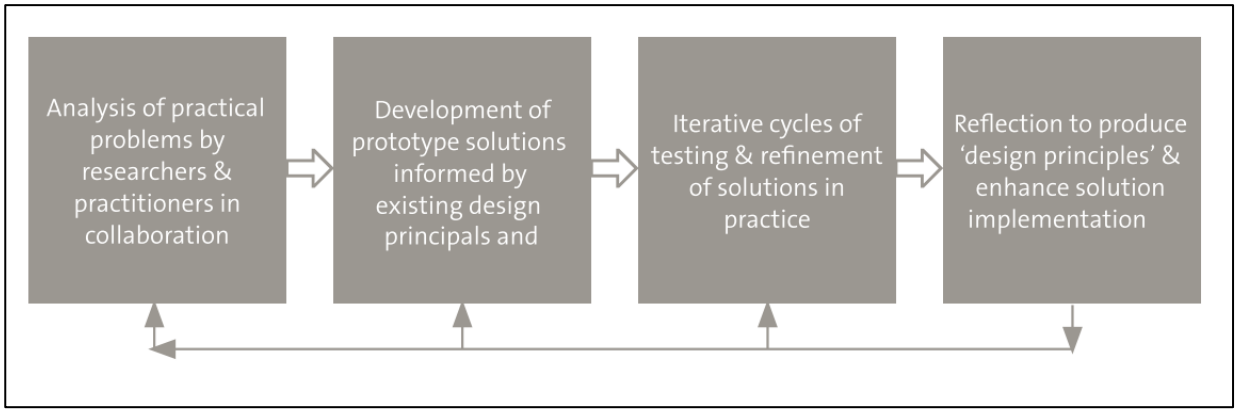


Figure 19 - DBR process model following Reeves (2006)

In contrast to the abstract visual representation of Middleton et al. (2006), Reeves suggests similar phases to Plomp (2013), yet the phases are divided differently. The four steps are characterized by the refinement of problems (1), solutions (2), methods (3) and design principles (4). Step one and two can be summarized as the pre-study of the project (Plomp, 2013, p. 19; Jahn, 2014, p. 7 et seqq.). From the scientist´s point of view, the pre-study strives to gain insights into the relation between the institutional players and the vocational fields of actions here. This includes the analysis of the context demands as well as literature and first data from the field in order to limit the examination and research questions. In addition, the goal is to formulate the first idea of the design as well as design principles derived from the project. Each modification will represent the starting point of a new cycle.

Finally, Euler (2014a) suggests a DBR process model involving six different phases following a cyclic pattern thus underlining the iterative character (Figure 20):

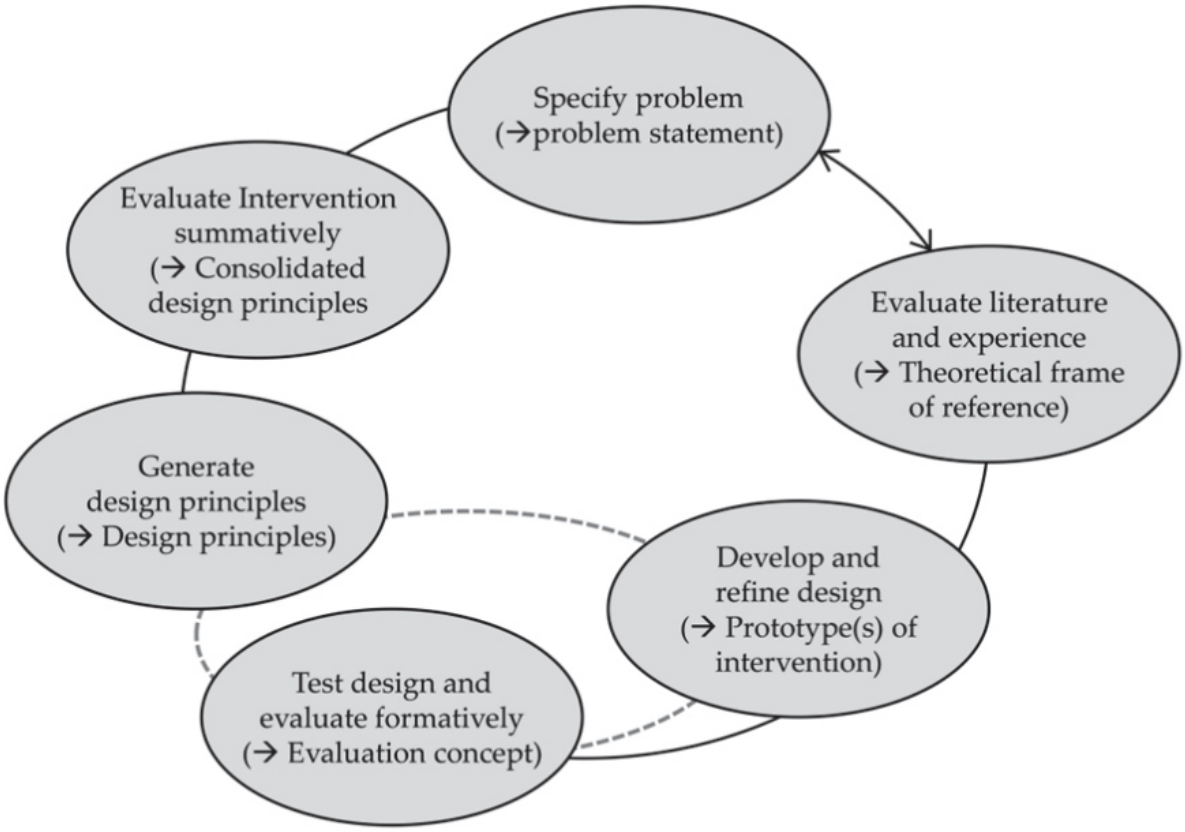


Figure 20 - DBR process model following Euler (2014a)

The pre-study is taken on by Euler by means of the first three phases, beginning with the problem specification including the research question(s) which has to be appropriately explained (1), followed by an assessment of literature and (empirical) experiences (2) in order to use these findings for developing a design (3). After phase (3), the first prototype is established. The design is tested and evaluated (4) with the aim of deriving design principles (5). Usually, the phases (3) to (5) are iterated more than once since it is assumed that the didactic design will be refined / optimized step-by-step in each cycle. This is illustrated by the dashed line. All of the phases require the cooperation between science and practice (cf. Reinmann, 2017, p. 52). Although DBR processes are considered “interminable” (Tulodziecki et al., 2014, p. 13), the final phase in Euler´s model – whose point in time is determined by the researcher when the design is evaluated as solving the problem in a satisfactory manner – is characterized by a summative evaluation (6). This final point or summative evaluation including consolidated design principles is necessary in order to create a useful solution within education science.

The comparison of the selected models shows that, although there is no standardized form of the DBR process until now, three process elements are part of any DBR model, as highlighted by Plomp (2013):

1. Preliminary research: This phase involves the analysis of the problem and context, a literature review and the development of a theoretical understanding for the research study
2. Development or prototyping phase: The didactic design for the intervention is developed, tested and evaluated, with the aim of a continuous refinement and a high priority of the intervention´s formative evaluation
3. Assessment phase: In this phase, a summative evaluation takes place where it is checked whether the "solution or intervention meets the pre-determined specifications" (Plomp, 2013, p. 19), followed by the derivation of cycle results and recommendations.

The present study includes the above-mentioned three process phases and is furthermore mostly associated with the process model developed by Euler. The reasons for the DBRA being an appropriate approach for the present research project are discussed in the following section.

1.5 Justification for Applying the Design-Based Research Approach in the Context of Qualitative Social Research

The development of a design contributing to the support and promotion of vocational teachers in language-sensitive content teaching via a study visit program in another European country calls for a solution that is feasible and useful. In addition, the research object is located in teaching and learning research with a general gap between innovations and research within the field of education (cf. Gräsel, 2010; Reinmann, 2005). Following Stark (2004) and Einsiedler (2010), this is known as theory-practice-problem and refers to the issue of transferring findings from learning theory into feasible innovations. For instance, innovations are implemented into teaching practice (Einsiedler, 2010; Reinmann & Vohle, 2012) or the testing of new concepts in empirical investigations. All of these examples emphasize the complexity of this field of education which represents a significant challenge (cf. Einsiedler, 2010; Reinmann,

2005). Between theory and practice, the transfer of scientific results to the application in practice is thereby understood as an independent field of action (Einsiedler, 2010, p. 59). The author´s research view includes the preparation of this transfer by developing the professionalization concept with recommended actions in an application-driven manner.

The DBRA has been selected as an adequate methodological access since it offers the researcher development and implementation actions directly in the field as well as enables the implementation of a research design that indeed focuses on innovation. As mentioned above, the DBR allows for taking the (high) complexity of the context of the research objects and subjects in the present thesis into account. This is a significant advantage.

In order to improve a specific practice within teaching and learning or – if put more generally – the quality of vocational education and training shall increase, the aim should be to determine a reliable and feasible solution (cf. Jahn, 2012). The tradition of the DBR can provide remedy as effective solutions are progressively improved. A second essential factor advocating for the DBR approach is represented by the requirement to know and understand the reason for which a solution has (not) been effective. With respect to this factor, the DBR is superior to other approaches. Chapter III.1.2 provided insights into the characteristics of design-based research. Striving for answers to the question of how, when and why a certain approach might be effective (or practical) or not, and understand the phenomena, is a dimension associated with an overall theoretical understanding of teaching and learning environments. These are precise principles describing the impact of a particular didactic design in the corresponding context (e.g., school-to-work transition of different countries).

The research goal aims at enhancing the (concrete) educational practice and the theories of teaching and learning within the framework of language-sensitive content teaching in VET. Thus, a professionalization concept is developed step by step, but towards the intended impact, in the real setting of a study visit program developed by the researcher herself. The concept shall – in line with the quality criteria of the DBR – be practical, sustainable, and innovative (Reinmann, 2005, p. 63). By applying the DBRA, the aim is to contribute to the current state of research by building scientific theories regarding programs to promote vocational teachers´ competences in language-sensitive content teaching.

The approach offers a high degree of freedom when it comes to the utilization of research tools. This does not directly serve as a justification factor, but certainly constitutes an advantage: The combination of quantitative and qualitative (mixed) methods in DBR leads to research results of higher quality (cf. Lamnek & Krell, 2016). The approach usually does not rely on only one of these methods (ibid.).

In addition, the approach is paradigm-oriented in order to satisfy both the design (practical innovation) and the research (understanding and learning the background of functions and outcome, theoretical findings through design principles) objectives.

Finally, the DBRA provides the necessary framework of prerequisites that need to be fulfilled to test and implement the design. This enables the design to be modeled and examined in a naturalistic setting. Examples of prerequisites are the access to a certain context or the inclusion of various players.

Kelly (2013, p. 136) addresses the justification of the DBRA in a different manner, i.e., by defining criteria who determine the DBRA as inappropriate. Hence, there is no justification for applying the DBRA if:

- The problem to solve is (too) simple
- The problem has a known or standard solution
- The problem is closed.

All of these three criteria do not match to the present problem´s features.

It is recommended to apply the DBRA in the case of open and wicked[58] problems which is the case whenever one or more of the cases shown in Table 9 apply as suggested by Kelly (2013, p. 137-138). Table 9 presents characteristics of open or wicked problems (left column) and points out whether they are valid to the present problem setting and conditions (right column):

[58] For detailed information on wicked problems, see, e.g., Camillus (2008) and Richey (2013).

Table 9 - Justification criteria for applying the DBRA in the present study following Kelly (2013)

The DBR is appropriate if some or more of the following identifying factors exist:	**Consideration with regard to the present problem setting and conditions**
Open problems include one or more of the following items:	
unknown or unclear initial state	The initial state is unclear. Only the individual components provide insight into some state of research, e.g., existing general concepts of language-sensitive content teaching, of professional development, of the language difficulties of learners in vocational education and training. There are no research results about professional development for vocational teachers in language-sensitive content teaching on a transnational basis. More specifically, there are no findings about how a transnational study visit abroad in a country where the communication language is not German can develop the language promotion of vocational teachers working with learners at the school-to-work transition, were tested, evaluated and applied in the educational practice. In addition, there is no study in this field following the design-based research approach. Thus, there is no research result showing how the DBRA can by means of a professional development intervention promote the language promotion competence of vocational teachers. Moreover, according to the literature review, language-sensitive content teaching is not a concept with one clear solution, but rather has to be defined in comparison to the many diverse existing concepts.
unknown or unclear goal state	The goal state in the present study is unclear. The precise design of the design principles is not known. These design principles shall be developed in the course of the research process in order to yield context-sensitive general theories and recommend how a study visit abroad with the above-described aim (underlined) shall be designed with respect to the expected outcome, methods or activities and the conditions of teaching and learning.
unknown or unclear (application of) operators to move from initial states to goal states	There is no clear answer to the question of selecting and applying operators in order to achieve the present objectives. The interventions aiming at developing teachers´ language promotion competence in content teaching have to be effective and practical (objectives). At the initial state, it is unclear what the intervention involves and how it is applied, as well as the related research tools with the aim of gathering, analyzing and evaluating data about the intervention.

Problems are wicked if one or more of the following items contribute to making the problem more difficult to solve (Kelly, 2013, p. 138):	
"When the content knowledge to be learned is new or being discovered even by the experts."	The individual components – language promotion within content teaching, professional development, teacher competence (development) – are not new. Nevertheless, the combination of carrying out design-based research in professional development of vocational teachers in language-sensitive content teaching by crossing borders and involving other European countries in the framework of a study visit. In addition, the present understanding of language-sensitive content teaching is rather new, i.e., the concept is to be defined for the present study and classified into the vocational context. Due to the lack of conceptual clarity, a careful dealing with the implementation and evaluation of the design is required. Although study visits abroad "are part of the oldest programs in the field of cooperations in education" (PAD KMK, 2013, p. 2), these are known only by few education specialists and it is not common that vocational teachers take part in these. (Empirical) literature findings about study visits are very scarce.
"When how to teach the content is unclear: pedagogical content knowledge is poor."	There are a few approaches (mostly in the form of state-funded regional projects) of how to develop teacher competences, e.g., in Germany theoretically-driven professional development about how to design teaching material. In France or Sweden, there exist, e.g., team-teaching approaches. However, considering the complexity of the problem, there is no consensus or broadly-applied professional development about a successful teacher competence development in language-sensitive content teaching. Especially, there is no transnational approach including more than one country into an intervention.
"When the instructional materials are poor or not available."	(Empirical) Literature findings are not available, in particular not by means of applying the design-based research approach in this research field. It has to be determined within this research study how vocational teachers´ competence in language-sensitive content teaching can be developed through their participation in an exchange of experience (study visit) abroad. There is no empirical study about this concrete subject matter. The instructional materials are poor and differ in their focus, since it is not possible to make assumptions about the optimal professional development measure for teachers in this regard.
"When the teachers' knowledge and skills are unsatisfactory."	In the course of the design-based research study, the participating teachers as well as other interested individuals gain knowledge about the competence development by means of the study visits abroad with respect to how to teach learners with language problems at the school-to-work transition phase. In addition, teaching second language learner refugees or migrants involves linguistic and cultural sensitivity on the teachers´ side

	which is uncertain and not developed due to a variety of reasons which results in an unsatisfactory situation. These knowledge and skills shall be gained in the course of the present research process.
"When the educational researchers' knowledge of the content and instructional strategies or instructional materials are poor."	There is in general little knowledge about the potential of study visits in other European countries serving as professional development of vocational teachers to develop LSCT competences. This knowledge will be expanded. Moreover, the knowledge about teaching and learning research and how the design-based research approach can contribute to generating new theories and practical recommendations will be developed in the course of the process. The researcher will learn to adjust to the design if the evaluation suggests this.
"When complex societal, policy or political factors may negatively affect progress."	As stated above, the research study becomes more complex which leaves the DBRA as an adequate approach in the present case as it welcomes changes in the research process and involves emergent goals which have not been considered in the beginning. However, the progress could be negatively affected for instance by political factors such as bans on leaving the country or budget cuts in European grant funds. In the present study, this did not occur. Finally, there is the risk of the reluctance of vocational schools to send teachers to transnational study visits.

Source: own research

As emphasized above, certain factors justify the DBRA as an adequate research access. A discussion about these beneficial factors as well as the approach´s limitations are the subject of the following section.

1.6 Quality Criteria

1.6.1 Potentials of the Design-Based Research Approach – Quality Criteria

The DBR has been developed within teaching and learning research as pointed out above. This is the reason why the majority of justifications can be found there. Nevertheless, the approach is not limited to application in this field. If teaching and learning research is carried out by only applying quantitative methods such as experiments, limitations can quickly be reached. Too many variables render a controlled study impossible.

In design-based research, the quality criteria are primarily not based on objectivity, reliability and validity such as is a common procedure in quantitative research (cf. Jahn, 2014, p. 6). However, they are taken into account as will be explained in the subsequent chapter (Chapter

III.2). Summarizing the prior considerations about DBR, it can be emphasized that results (cycle results) are evaluated on the basis of their usefulness and second, their ability to explain causes and consequences (ibid.). Apart from usefulness, Reinmann (2005, p. 63) adds novelty and sustainable innovation (cf. also Bell, 2004) as further quality criteria. As key criteria for evaluating the didactic design (intervention), Plomp (2013) mentions the validity of the objectives and evaluation criteria.

Strictly respecting quality criteria is not one of the prior goals of the DBRA as it is the case in traditional research approaches. In contrast, design-based research pursues the rather modest requirement of producing results which cannot fully be transferred. Instead, it strives for a continuous improvement of a specific practical object (Jahn, 2017).

Bakker and van Eerde (2015, p. 444-445) widen the scope of the discussion about the quality criteria by emphasizing validity (internal and external) and reliability (internal and external). This is in contrast to the rather low prioritization of the two factors by other scientists.

The following Table 10 provides an overview of aggregated quality criteria from the literature (Plomp, 2013; Bakker & van Eerde, 2015; Jahn, 2014; Nieveen, 1999; Euler, 2011). In order to understand *which* criterion is important in which part of the DBR study, the quality criteria are classified to process parts (left column) and the elements of DBR (middle column).

Table 10 - Overview of quality criteria of DBR along the research process parts

DBR process part	Potential quality criteria	Literature reference
① Analysis of initial situation and development of design principles	• Content validity (relevance)	Bakker & van Eerde, 2015; Jahn, 2014; Nieveen, 1999; Plomp, 2013
② Development of prototype(s)	• Construction validity (consistency) • Practicality	Nieveen, 1999
③ Testing, evaluation, modification cycles	• Achievement of objectives • Relevance • Practicality • Sustainability • Efficiency • Reflected use of methods of qualitative social research	Jahn, 2014; Plomp, 2013

④ Documentation	• Design with the intention to give other researchers impulses • Scope of cycle result validity	Bakker, 2019; Euler, 2011

Source: own research

Table 10 highlights that different quality criteria are relevant for the phases within the DBR process. The content validity increases in its importance from the analysis of the initial situation and creation of the design principles over the development of the prototype(s) to the testing, evaluation and modification phases. The consistency, in turn, is particularly important in the prototype development phase. The documentation has to focus on developing and presenting a design with the intention to give other researchers impulses. In addition, it is essential to document the scope in which the cycle results are valid.

1.6.2 Limitations of the Design-Based Research Approach

There is an ongoing discourse on the limitations for education of the DBRA (cf. Bakker & van Eerde, 2015, p. 433-434; Engeström, 2011; Olson, 2004). A detailed argumentation about these can be found, e.g., in Kelly (2004) in the article “Yes, but is it methodical?”. Moreover, Dede (2004) entitles his study “If DBR is the answer, what is the question?” and in one of the chapters of his dissertation, Jahn (2012) asks whether DBR might be a methodical approach or not.

One of the critical aspects regarding the DBR is characterized by the decoupling of development and research. This describes the ambiguous role of the researcher who is as well the designer (solving a problem of educational practice versus epistemological interest). Reeves (2000, p. 12) discusses this critical aspect of the decoupling with respect to two different worlds by stating as follows:

> “It requires what Thomas Kuhn (1970) identified as a paradigm shift. Instructional technology research has long been dominated by positivist epistemology that regards learning theory apart from and above instructional practice. The overall goal of research within the empirical tradition is to develop long-lasting theories and unambiguous principles that can be handed off to practitioners for implementation. Development research, on the other hand, requires a pragmatic epistemology that regards learning theory as being collaboratively shaped by researchers and practitioners. The overall goal of development research is to solve real problems while at the same time constructing design principles that can inform future decisions. In Kuhn’s terms, these are different worlds.“

As formulated by Phillips and Dolle (2006), this is associated with the accusation that the demand for both design evaluation and the generation of new theories is difficult or not to be

satisfied in DBR. Nevertheless, the above-mentioned discrepancy between the two worlds, science and practice, can be overcome by a prosperous cooperation between researchers and teachers.

A further critical aspect is argued by Sandoval (2014, p. 19), stating that there might be a lack of rigor or as well missing clear standards where the researcher can adhere to.

A common problem in DBR exists if the evaluation criteria are not strong enough. This can occur in the case of a (too) high degree of openness of the objective. However, the openness of the question and objective is important so that the practice partners cooperate. The problem might be avoided by setting clear boundary conditions and quality criteria (cf. Plomp, 2013, p. 42).

Regarding the *product* (principles for how to construct the didactic design) having emerged at the end of each cycle, these design principles apply for the specific context they have been designed for and tested in. Following Jahn (2014, p. 7), they must be considered with respect to their field of application, i.e., their context. Nonetheless, the DBRA does not allow them to be applied in other contexts without a thorough examination.

With respect to the design principles having been identified as the focal points for the design of the practice (cf. Euler, 2014b), a further controversial aspect of the discussion about the pro and con of the DBR is the generalization of the design principles. Generalization is strived for by means of the design principles. According to Euler (2014b), this implies discussing the two questions of 1) which quality of the findings is included in statements available in the form of principles and 2) which elements and structure are included within the design principles?

Concerning principles in didactics, as argued by Euler (2014b, p. 99), there is always a limited opportunity to collect data in social systems which are characterized by a certain degree of complexity. This leads to the creation of principles in the form of an *approach* of recommendations of action, suggestions, indications or hints for acting which is oriented towards a specific goal (heuristic principles) (Plomp, 2013, p. 34). Transferred to design principles within the DBR, the basic understanding of the implications of general principles can be adopted (ibid.). Design principles are not considered a legal provision. As concluded by Plomp (2013, p. 34), “they provide guidance and direction, but do not give ´certainties´”. The quality of the findings can, however, be attributed to the precisely explained context in which they are assumed valid.

With regard to the generalization debate, van den Akker (2013, p. 67) discusses the second question and describes the elements and structure of design principles in the DBR as follows:

> “If you want to design intervention X [for purpose/function Y in context Z] → then you are best advised to give that intervention the characteristics C_1, C_2,…, C_m [substantive

> emphasis] → and to do that via procedures P_1, P_2, …, P_n [methodological emphasis] → because of theoretical arguments T_1, T_2, …, T_p and empirical arguments E_1, E_2, …, E_q."

Defining the design principles structure like this, offers a justification for a specific degree of generalization or for the quality in the related findings. Van den Akker (2013) emphasizes in this context that design principles can:

- be the answer to the question of *How should an intervention be characterized?*, thereby referring to the particular *subject area*
- be the answer to the question of *How should an intervention be developed?*, thereby referring to the *process of development*.

Jahn (2017, p. 17) calls the attention to an additional potential point of criticism by educational researchers and/or teachers as follows:

> "A multitude of educational researchers requiring a higher degree of evidence-based impact research based on the natural science model, and as well many teachers requiring general practical tips independent from the context will not like it – also because their own position is challenged by this approach."[59]

Researchers have furthermore to accept that there is a multitude of variables which cannot be controlled. For the author, this was one of the most difficult learning processes during her design-based research project as it always implies a certain feeling of guilt or pressure.

By means of the design, an intervention in the sense of a specific teaching and learning situation shall be developed for and with teachers (Jahn, 2014). This shall offer various impulses for them (i.e., for their LSCT) and support to realize this later on. The didactic design acts as a driving force for achieving a learning effect (= objective of the research model). Still, this does not *ensure* a learning effect (and which) at the teacher side (research subject, participants, coworkers) as the high complexity and the contingency might lead to results which remain open (ibid.). Teachers are seen as responsible, critical and reflective co-designers of (their) learning processes that take place within a professional development which is an example of a constructivist perspective. Transferring the conclusions about student learners by Heidenreich (2009, p. 100) to teacher learners, three factors are a necessary prerequisite that an educational design will take effect: Apart from having designed a high-quality learning environment, responsibility and motivation of the teacher learners are furthermore of great importance. In the present study, the teachers and further practitioners cooperating on the DBR project will be encouraged to learn (by the design of the intervention), however, their responsibility and motivation during their participation cannot be controlled.

[59] Original German quotation translated by the author.

As argued by Plomp (2013) and McKenney et al. (2006, p. 130-131), three dilemmas with regard to the quality of research exist as a consequence of the close relationship between science and practice described above.

1. The identification as scientific project coordinator is both a moral conflict and conflict of interest. The scientific project coordinator (researcher, author) determined her role as scientific project coordinator. By this assigned role, the researcher consciously allows herself to be subject to criticism. This is essential in order to achieve valuable results that are useful for third parties. Scientific project coordinator involves the combination of two functions, two fields and motivations of interest, two different types of thinking and reflecting. In principle, the two dimensions of the author´s role reflect the two major motivations of DBR in general (cf. Figure 17 on p. 175, based on Euler & Sloane, 2014; Plomp, 2013). Usually, researchers in DBR simultaneously are designers of the intervention and those responsible for the implementation and its evaluation. Hence, they have the ambiguous motivation and task to find a practical solution for the identified problem on the one hand and to provide answers to meet the need for theoretical assumptions on the other hand. Thus, there might be a moral interest and a conflict of interest. The researcher has to be aware of this dilemma, however, she can react to it or even prevent to let it become a dilemma by constantly incurring censure (self-criticism). DBR has to be open for this professional criticism. As the author understands the respective claim by Plomp (2013), it is suggested that, in the course of research process, the researcher (here: scientific project coordinator) evolves from the creative designer of the intervention to become a critical researcher. Criticism will refer to the research intervention (research objects) and to herself.

2. Realistic or naturalistic settings or contexts can represent a second dilemma highlighted by McKenney et al. (2006) or Plomp (2013). They can involve personal conditions, opinions or reservations on the participants´ side from the context or even on the researchers´ sides. This might hamper the research process.

3. Finally, there is one potential dilemma in view of the dynamics, flexibility and adaptability of DBR (ibid). It has to be noted that this characteristic is one of the key potentials, as well, since it is the change, modification, and adaptation which yields the design´s improvement directly in the research process. This is also the reason for having iterative cycles. If such a flexible and changing research design shows weaknesses, the researcher can face this challenge by a sound planning of the cycles.

Despite the justified criticism of the DBRA, it is an appropriate approach in order to investigate the problem setting and find solutions within the course of this thesis. The critical aspects are

outweighed by the significance for the practice, the content validity and the step-by-step development and improvement process which is highly recommendable. A continuous reflection of the developed concept of the study visit abroad including the selected sampling and other persons involved, the selected evaluation techniques and criteria and the cooperation with actors from practice and science have contributed to balancing out the critical aspects.

This reflection process took place taking the assessment and opinions of further actors into account such as the supervising professor at the university regarding the theoretical foundation, practitioners from the EU mobility project management regarding the project process parts, and finally a teacher expert in language-sensitive content teaching of non-native speakers in VET regarding the concrete didactic elements of the design. To sum up, there was a continuous exchange and reflection about the author´s ideas and decisions and the input was integrated into the research process.

Last but not least, it should be noted that the DBRA is one approach in educational science. Nonetheless, for the reasons set forth above, it is an adequate approach for the present research purposes.

The present research model has two components. Apart from DBR as the approach which this study follows, techniques of qualitative social research are employed in order to ensure the correct and adequate process of collecting, preparing and analyzing/interpreting data of the design. The following chapter will shed light on the relevant elements of qualitative social science such as its research tools applied in the DBR study.

2 Qualitative Social Research as Further Component of the Research Model

2.1 Characteristic Features of Qualitative Social Research

> „[Q]ualitative researchers investigate meanings, interpretations, symbols, and the processes and relations of social life. What this type of research produces is descriptive data that the researcher must then interpret using rigorous and systematic methods of transcribing, coding, and analysis of trends and themes.“
>
> *Williams, 2019, p. 11*

The DBRA uses methods of qualitative social research, the second key component of the present research study.[60] One of the features of design-based research is the freedom to use any scientific method or instrument (cf. Chapter III.1). In the following, we will identify the reasons for having chosen specific instruments of qualitative research, and present key characteristics of the approach.

Apart from political science or social work, educational science is the third major field where qualitative research is employed, in particular due to reasons stated in the quotation above (cf. Williams, 2019, p. 11). Williams manages – although summarized in a compact form – to exactly locate the core of qualitative research: the interpretative paradigm (cf. Lamnek & Krell, 2016, p. 46). The interpretative paradigm is simultaneously a basic theory-driven position which holds the opinion that social reality is set up by the act of interpretation (ibid.).[61] The researcher here is interested in experiences (processes) which occur to people (relations) and their environments in social life, as well as in "meanings, interpretations, symbols" (ibid.). This definition or restriction, respectively, represents a justification for selecting it as an appropriate method for the present research project: meanings, interpretations, reactions of the vocational teachers (research subjects) and the processes and relations connected with the study visit program abroad (intervention) will be examined. Moreover, the investigation of these aspects will produce descriptive data. In the sense of the DBR, this means descriptive data about the degree to which the intervention in each cycle functions.

A high degree of heterogeneity characterizes the approach, a variety without the right uniformity (cf. Reichertz, 2007, p. 70). Typological and chronological criteria are used to decrease the confusion of varying positions and methods as an attempt to determine a heuristic system (Lamnek & Krell, 2016).

Qualitative research has received a substantial appreciation in the field of sociology and education (Reichertz, 2014). The increasing widespread of applications of qualitative research methods is correlated with radical changes in social science and can be attributed to the years beginning in the 1970s. For instance, more and more benefits are seen in the inclusion of quantitative elements into qualitative research (cf. Mayring, 2002b, p. 117). With regard to the European perspective, Knoblauch et al. (2005, p. 3) emphasize the differences in the lan-

[60] In Anglo-American science (publications), qualitative research is a more common term compared to the term *Qualitative Sozialforschung* in the German-speaking parts of the world. For this reason and for simplification purposes, the term qualitative research is utilized in the following.
[61] On the contrary, the normative paradigm "constitutes quantitative-standardized research and assumes an objective reality which is located outside the interpretation" (Lamnek & Krell, 2010, p. 47).

guage, the institutional development and situation of qualitative sociology in the different countries, with Germany having a “boundary between qualitative and quantitative research [which] is not as distinct as it is in most other countries”.

Difference to quantitative research: Quantitative analysis involves collecting measurable data, and the preparation and evaluation of these data may take place via statistical methods. In contrast, in qualitative analysis, data are acquired which describe features of phenomena, perceptions, feelings or connotations that are impossible to distinguish in a metrical way. This is why in qualitative research, data are generally not gathered through standardized questionnaires. Instead, as mentioned before in Chapter III.1.3, e.g., participatory observations, interviews or group discussions are appropriate and typical tools employed.[62] Note that this procedure limits the analysis to be an assessment of subjective opinions and perceptions.

To conclude, Lamnek and Krell (2016, p. 45) assess the difference as follows[63]: “Quantitative and qualitative methods have a principal authorization, independent of still existing, mutual prejudices.“ As claimed by Lamnek and Krell (2016, p. 19), qualitative research can be better understood when considered an alternative concept to quantitative approaches in social science. The principles of qualitative research have resulted from the critical look on traditional methods.

2.2 Presentation of the Applied Research Techniques in this Study

One of the major questions in view of methods of qualitative research is how to avoid low rigor (cf. Tracy, 2010, p. 840 et seqq.; Davies & Dodd, 2002; Mayring, 2014). Rigorous research is necessary in order to collect data and deliver results that are trustworthy. Rigor plays a central role when selecting adequate techniques of qualitative social research since these techniques lead to the data collection required to answer the research questions. The standards of rigor can be respected for instance by addressing the questions about the “range and scope of qualitative data collection and analysis methods”, prior to the data collection (Ryan, 2005, p. 28).

Applying the appropriate research techniques supports achieving the objectives of the empirical study´s interventions and supports yielding a high level of rigor. The research techniques which were selected from the multitude of possible methods are the ones which were useful

[62] Details on methods of qualitative research used in this study can be found in Chapter III.2.2.
[63] The German original quotation was translated by the author.

and practical with respect to the context and which do not distract the participants or any other item of the didactic design, but rather support the persistence of the realistic, naturalistic setting as best as possible. The research techniques were chosen so that they can provide insight and give information about the features[64] of a study visit abroad which shall contribute to developing the competence dimensions associated with language-sensitive content teaching (cf. Chapter II.3).

Following Mayring (2014), similar to the requirements of quantitative research, it is essential to precisely systemize and document the research process. With the aim of understanding the selection, use and preparation of the research techniques in this study´s phases of development, testing and evaluation of the didactic design, the techniques will be briefly presented and reflected in the following. In concrete terms, these are:

- Research diary
- Participatory observation
- Qualitative interviews
- Semi-structured written questionnaires

Each will be explained with respect to its strengths and limitations and the type of application in view of the research goal. Three of the developed instruments are shown in Appendix I-III[65]. The focus lies on the description of the interview as an appropriate qualitative research tool. The reference to the specific intervention and the findings of the two cycles resulting from the research technique application are described in the evaluation parts of Chapters IV.2.2.1.2 (first intervention) and IV.2.2.2.4 (second intervention).

2.2.1 Research Diary

The following description of the research diary as one adequate tool is mainly based on Jahn (2012, p. 335-336). Research diaries are instruments of documentation and reflection used by the researcher and thus, accompany and support the research process. Research diaries within the field of action research play a special role (cf. Altrichter & Holly, 2005; Sá, 2002). Their particular feature is the flexibility in its design as well as the desired conscious perception and processing of the research activities, although guidelines on how to keep these diaries

[64] Note that the features can thereby include the expected competence (content / intention), methods and activities and finally further conditions of teaching and learning.
[65] The research technique documents are in German as they have been used in this language due to the participants´ and researcher´s common language of communication.

exist (cf., e.g., Altrichter & Holly, 2005; and Holly, 2002; Fischer, 2003 quoted in Altrichter et al., 2018, p. 27 et seqq.).

The aim of writing a research diary is supporting and monitoring the research process and soundly assessing the research activity. In the present thesis, the research diary consists of notes from conversations with the participants during the intervention, findings and conclusions from observations. The writing style can thereby be neglected (Altrichter & Holly, 2005).

Researchers can profit from advantages provided by research diaries such as clarifying one´s thoughts by means of a constant written discourse with the research object, taking field notes about the findings of spontaneous observations or conversations, or writing memory minutes in order to analyze the process or line of thoughts. Consequently, there is a knowledge gain resulting from keeping a research diary.

In the present thesis, the research diary was written between Winter 2017 and Spring 2020. During the implementation phase, it was connected to the observation sheet (cf. Appendix I). It involved a digital document, frequently enriched by prior handwritten notes. The concrete design varies thereupon from written thinking, formulating plans and goals, taking methodical and theoretical notes about one´s own research (results), interpreting empirical findings etc. By doing this, the researcher´s ability to reflect was enhanced.

2.2.2 Participatory Observation

Scientific observations of individuals´ activities or behavior, in contrast to general observations, follow a specific research objective (Reichertz, 2019), and are systemically documented, prepared, recorded and the findings are summarized in a scientific report (cf. Thierbach & Petschick, 2014, p. 856; Williams, 2019; Schnell et al., 2013). Thus, Cranach and Frentz call the scientific observation the “systematic observation” (Cranach & Frenz, 1969, p. 269 et seqq. quoted in Schnell et al., 2013, p. 381).

The benefit of this research instrument is that the observer can develop a holistic perspective since he or she is able to understand the “context within which the project operates” (Williams, 2019, p. xvi). As a researcher in the role of an observer, you “become the instrument for data collection and analysis through your own experience” (Bernard, 2006, p. 359) representing one of the research tool´s strengths. Experience means that the observer might learn “things the participants or staff may be unaware of or that they are unwilling or unable to discuss in an interview or focus group” (Williams, 2019, p. xvi), which denotes a significantly important aspect during qualitative research.

Hence, the research technique can involve human behavior, linguistic utterance, non-verbal reactions such as facial expressions or gestures, or social features such as certain customs or habits, noise, symbols, etc. Individual actions or action patterns as well as relational structures are collected in view of their process and meaning.

The differentiation between various types of observation procedures takes place according to specific criteria (cf. Schnell et al., 2013). For instance, it has to be determined whether the participants are aware of the fact that they are observed, or whether the observer participates in the interaction of the participants among others. Therefore, different types of observation can be distinguished, also with respect to the observer´s role in the process, as follows (cf. Flick, 2011; Friedrichs, 1990):

- In view of the situation of observation
    - Open versus hidden observation, depending on whether the observed individuals know about being observed or not.
    - Observations in naturalistic versus artificial settings, depending on whether the individuals to be observed are in their natural environment or within a laboratory situation.
- In view of the data collection method
    - Unsystematic versus systematic observation depending on whether a formulated system of observation exists or not.
- In view of the observer´s position
    - Self- versus third-party observations, depending on whether the observation refers to oneself or another person.
    - Non-participatory versus participatory observation, depending on whether the observer actively takes part in the observed situation or not. In qualitative research, the participatory is a particularly widespread instrument. It has been dealt with extensively in the literature.

The types of observation can be mixed by combining two or more. In this thesis, the researcher selected the participatory observation which was also open and carried out in a naturalistic setting. The observation was rather systematic due to an existing observation sheet prepared prior to the observation, however the observation was expanded by observed aspects which were not part of the observation sheet.

As defined by Mayring (2002b, p. 80), “[p]articipatory observation is a standard method within field research […]. The observer does not stand outside the subject area in a passively-noticing way, instead participates themselves in the social situation, which the subject area is embedded in”. The observer has thereby a direct or personal relation with the observed persons. As was highlighted above, the observer collects data while participating in their natural life situation and thus, manages to experience it from an inner perspective. There are many research objects which are not accessible at all if investigated from an outside perspective (ibid.).

Similar to other qualitative techniques, the participatory observation is not completely standardized. Instead, this semi-standardized tool uses observation sheets which should be applied openly, the observer has to comment on all aspects in detail and also has to be able to identify new aspects (Mayring, 2002b, p. 81). If the observer works with an observation guideline, it is not necessary to have a printed copy available. Instead, it can be available in internalized form (ibid.).

The developed observation pattern of the observation sheet for this thesis focuses on the aspects purpose and intention of the contents (and implementation through activities and methods by moderators and trainers), and the conditions of teaching and learning (motivation, attention, participation of the teacher participants, atmosphere organization). Photos taken by the observer can additionally help for documentation (analysis) of the didactic design, provided they do not show the persons´ identities or their approval for use is available.

For the successful conduction of participatory observation, the observer has to be included in the group of observed persons, accepted, participate, without acting as a disruptive factor (Mayring, 2002b). For achieving this, he or she precisely plans the process, and carefully approaches the observation. Afterwards, the actual observation phase starts with active participation of the researcher (observer).

As concluded by (Mayring, 2002b), the semi-standardized participatory observation is a well-suited method for explorative questions generating hypotheses, i.e., when it involves structuring new terrority, which is the case in the present study.

A further challenge the participatory observation faces is characterized by its representativeness (Bachmann, 2009, p. 267). Due to the individual cases being observed, it is essential to avoid a mere generalization. Moreover, it is an elaborate and complex method (ibid.).

With respect to the quality criterion of the participatory observation as qualitative research technique, it is important to be as objective as possible, a difficult, however, manageable task for the researcher. Bernard (2006, p. 370) comments on objectivity during participatory observation as follows:

> "[O]bjectivity is a skill, like language fluency, and you can build it if you work at it. Some people build more of it, others less. More is better. If an objective measurement is one made by a robot […], then no human being can ever be completely objective. We can't rid ourselves of our experiences, and I don't know anyone who thinks it would be a good idea even to try. We can, however, become aware of our experiences, our opinions, our values. We can hold our field observations up to a cold light and ask whether we've seen what we wanted to see, or what is really out there. The goal is not for us, as humans, to become objective machines; it is for us to achieve objective – that is, accurate – knowledge by transcending our biases."

Transcending the biases is important in each data collection procedure during qualitative research. Possibilities and limitations of participatory observation cannot clearly be determined. Nevertheless, it has to be noted that it is a valuable method. Following Bachmann (2009, p. 267), there is no other method which is as adequate as participatory observation in order to discover something that has not been known before, i.e., to develop a question that was not known to be an important question before. The data generated from participatory observation are strongly embedded into its context, can be ambivalent and contradictory, and can both deal with extraordinary events and daily routine (ibid.). In conclusion, this research instrument is "irreplaceable" as it serves to investigate what brings organizations to life in practice (Bachmann, 2009, p. 267).

As suggested by Häberlein (2014), the participatory observation should take place in a consolidated way requiring the observer to act both closely and distanced in order to analyze as precisely as possible and moreover adhere to the quality criteria as best as he or she can. This is essential for conducting reflective science (ibid.).

Already in early studies and still valid today, the participatory observation was used as a part of a widely dispersed method mix including interviews, group discussions among others (Bachmann, 2009, p. 266). Conducting interviews as a further part of the method mix is subject matter of the following section.

2.2.3 Qualitative Interviews

> « I knew what I wanted to do and then looked around for tools and strategies that would help me achieve my goals. For me, part of the answer lay in in-depth interviewing. Before you begin your own research, you will need to consider your personal goals and interests that will affect how you conduct the study. »
>
> *Lunsford Mears, 2009, p. 16*

In empirical social science, surveys are the most frequently applied data collection method (Bortz & Döring, 2006) and considered a standard tool of data collection (Schnell et al., 2013). Any method in which the research question is transmitted to the interviewed person by different kinds of questions is part of the survey methods (Gläser & Laudel, 2009, p. 39).

With the aim of gathering estimations, experiences, knowledge, perceptions or opinions of individuals, researchers apply different forms of surveys. They can be written (see Section 2.2.4 for more details) or oral. Over time, "interview" has been established as the common term for oral survey (cf. Gläser & Laudel, 2009). The survey situation determines the most important difference between written and oral surveys (Bortz & Döring, 2006, p. 237), as oral surveys (interviews) are communicative situations in which a text is generated interactively (Helfferich, 2014).

Moreover, surveys can include questions that vary between completely open and completely closed. The terms are used inconsistently and the systematics are based on diverse criteria (Helfferich, 2011). Atteslander (2010) distinguishes the survey situation in structured, unstructured and semi-structured. *Standardization* is as well used as terminology with respect to interviews and is a synonym of *structure*. They can be divided into different degrees of standardization (standardized, semi-standardized (guideline-based) and non-standardized (open) interviews (cf. Bogner et al., 2009; Mason, 2002). The qualitative interview is non-standardized and unstructured or semi-structured. Depending on how the structure of the survey is designed, the researcher can navigate the degree of the answer matching their specific questions. Following (Mayring, 2002b), the more closed and structured the design of a survey, the more precise the answer will be. Nevertheless, and this is one of the advantages and goals in qualitative research, a highly structured design excludes the possibility of obtaining response alternatives and limits the field of deliberation and reflection of the respondent and thus, the research field (ibid.).

The aim of the qualitative interview is to collect the above-mentioned aspects (experiences, opinion etc.) of actors by conducting an oral conversation, the course of which is controlled and designed by the interviewee rather than the interviewer (Bortz & Döring, 2006). This is done very deliberately to achieve broader and deeper insights into the research topic (ibid.). Considering generalizable knowledge as primary and general goal of interviews, Legewie (2003, p. 2) emphasizes additional subgoals:

- gather knowledge (expert interviews)
- investigate subjective meaning structures and means of dealing with specific situations
- investigate latent meaning structures

- investigate development and educational processes
- investigate lifeworlds, social systems, organizational cultures
- qualitative evaluation of programs
- qualitative theory formation

In particular, the qualitative evaluation of programs and the investigation of development and educational processes match the epistemological interest and purpose of using interviews as an adequate research method in this study.

In contrast to the aspired generalizable knowledge stated above, data from interviews cannot be generalized due to specific influence factors of the participants on both sides (Nathan et al., 2019, p. 391). The major influence factor is caused by the fact that both researcher (here: the interviewer) and interviewees are human beings which involves the existence of subjectivity. Nevertheless, due to its "exploratory nature", interviews allow for gathering "rich data which can answer questions about which little is already known" (ibid.). As is valid for design-based research processes, qualitative interviews are embedded in an interpretative framework. It is highly important to note that the result cannot prove a situation´s reality or truth, "but rather a context-bound subjective insight from the participants" (ibid.). This, in turn, offers valuable findings on questions which have not (sufficiently) been answered so far.

With respect to the subjectivity, it is important to note that interview data are collected within a highly complex communicative situation which always involves the participants´ subjectivity (Helfferich, 2011, p. 9). The interviewee´s task is to actively reconstruct events, actions, and knowledge (cf. Honer, 2003). Of key importance are which aspects they consider relevant, how they observe the respective situation and how their lifeworld is characterized (cf. Froschauer & Lueger, 2020, p. 14).

There is an enormous variety of interview types (cf. Bortz & Döring, 2006; Gläser & Laudel, 2009; Lamnek & Krell, 2016) and literature on qualitative interviews (cf. Nathan et al., 2019). Due to this variety and the lack of consistent systematics pointed out above, only the features of the interview types applied in this study will be presented in the following. Following Helfferich (2014, p. 559), qualitative, guideline-based interviews are a common, differentiated and relatively elaborate method in order to generate data. Guideline-based interviews (Section 2.2.3.1) organize the guidance during the interview by means of a previously prepared guideline.

To sum up, in order to be able to classify the present interview situation, following Bortz and Döring (2006, p. 238), it should be noted that interviews can be divided according to:

- the degree of standardization (here: semi-structured)
- the contact type (here: direct, face-to-face)
- the number of interviewed persons (here: individual interviews)
- the number of interviewers (here: one interviewer who is the author of the study)
- the function (here: investigate rather than impart)

Guideline-based interviews

Guideline-based interviews are defined as interviews which design the interview process by means of a guideline (Helfferich, 2014, p. 560). The guideline is created taking the principle "as open as possible, as structured as necessary" into account (ibid.).

The interviews with teacher participants of both interventions (first iteration and refinement phase) have been carried out by a guideline-based interview which was designed in a semi-structured form. This involves the researcher preparing specific questions. The questions are oriented on a guideline which, in turn, are based on the design principles which have been generated as recommendations for the didactic design. Since the interview primarily serves as evaluation of the functioning of the developed didactic design in view of the competence development of the participating teachers, the interview questions focus on these design principles.

Criteria which were adhered to during the development of the guideline follow the criteria catalog suggested by Stigler and Felbinger (2012). Among these, it is stated that the questions have to show a clear reference to the subject matter, whereas they should prevent the interviewees from straying from it. Moreover, the questions should refer to the interviewee´s lifeworld, i.e., formulations are chosen that enable them to answer the questions by reporting their observations and experiences. Then, apart from a logical order of the questions, they should be linked with each other in view of their content. Finally, it is recommended to formulate questions according to the target group. This is essential since it contributes to the success of the interview. For instance, a variation in the type of questions can induce different types of answers. Invitations to report something, to tell their opinion, evaluate, or explain a situation serve as examples. The core element is represented by content-related questions, after an introductory part, and followed by evaluation and concluding remark questions. A detailed description of the design of the guidelines in this study is provided in Chapters IV.2.2.1.2.1 (interviews of intervention 1) or IV.2.2.2.4.1 (interviews of intervention 2).

Despite the fact that prepared questions are available (guideline), the interview leaves the door open for the movement into an unprepared and unforeseen direction (Lodico et al., 2006). The interviewed person can freely chose the scope, contents and formulation of their response at their own discretion. Nevertheless, the guideline supports the interviewer in her orientation and as a reminder. It contains the entirety of questions, extended by notes, e.g., on potential further requests, explanations, examples, transition to next sections etc. Moreover, with respect to the contents, the maximum openness faces a certain degree of structure which facilitates the analysis of the data and thus, enables subtopics to be pursued across all interviews (Helfferich, 2011). It is important to take into account that there is no given chronological order of the questions being asked, since this will enable the interview process to develop openly (Bortz & Döring, 2006; Helfferich, 2014).

Planning and implementing a guideline-based interviews requires the consideration of several methodological aspects. Following Lamnek and Krell (2016, p. 328 et seqq.), some principles are recommended to be complied with: The first principle is openness, which was already pointed out above. Apart from that, they suggest that the interview and the interviewer are accessible for unexpected information. This is related to the fact that the interviewer shows restraint to prevent influencing the situation. The interviewed persons do not only provide the researcher with data, but rather determine the conversation as subjects. Being a subject also involves the interviewer to react flexibly to them and their needs, prevailing conditions and statements. As highlighted above, the interviewer is a human being rather than a “robot” (Braun & Clarke, 2013, p. 80). Being aware of the fact that any interviewer or researcher has their own individual style (e.g., use of social skills), it is their task to flexibly follow the “guidance on good interview practice to conduct an interview that is appropriate to the needs and demands of the research question and methodological approach, the context of the interview and the individual participant” (ibid.). The purpose is here to guarantee a constant expansion and consolidation of information during the interview. Although an interview is an artificially created situation of conversation, it should be considered to create a situation of an everyday conversation in order to motivate the interviewee´s flow of speech (cf. Lamnek & Krell, 2016).

The conception of the guidelines for the present study is based on the formal structure and requirements of guidelines by (Helfferich, 2014, p. 566-567). Along with her principle “as open as possible, as structured as necessary” (see above), the guideline is suggested to be structured by the following three parts: First, the interviewee is enabled to express themselves as openly as possible. The open invitation to talk is formulated in such a way that as many interesting and relevant aspects for research as possible are spontaneously stated. The second step involves asking explicitly for those aspects which have not been answered (sufficiently)

before in view of the research interest. Both steps can be applied repeatedly. Then, in the final part of the interview, questions that have been structured and of given formulation are asked.

The above-listed combination of openness (invitation to talk) and structured questions supports complying with three requirements as argued by (Helfferich, 2014, p. 567):

- Openness takes priority. Interventions by the interviewer are only carried out when necessary due to the research interest and are as open as possible.
- Clarity in the layout and design is essential. Optimally, the guideline is clearly arranged to the extent that the interviewer has the questions on her mind. Being familiar with the guideline is vital. In addition, too many questions limit the time for interviewees to talk.
- It should be clung to the narrative continuity. The structure of the guideline should be based on the reminder or argumentative flow rather than include sudden leaps or switches of the topics. Questions on the evaluation belong to a different interview part than the invitation to talk about experiences. Furthermore, the interviewer should allow the interviewees to add statements, e.g., by asking “shall I say a word about that” or if they indirectly indicate their wish to speak by dropping a hint or hesitating[66].

Apart from the features regarding the interviewer and the interviewees, as well as the interaction between them, the actual implementation of the interview influence its results (Bortz & Döring, 2006).

To sum up the above aspects, the usual process of preparing and carrying out the interview is based on five process steps:

1. Interviewees have to be selected.

   In the present study, the participating vocational teachers of the two iterations of the empirical study all took part in the interviews. No additional selection was necessary.

2. Preparation of the interview by means of the methods illustrated above (contents of the interview via guideline and organizational preparation).

   The interview was determined to take place as a face-to-face interview. The participants were willing to take their time and meet at their workplace which enabled the

[66] There is an intensive, however ambivalent range of literature on the influence of the interviewing person on the results of the interview (Bortz & Döring, 2006, p. 246 and references therein). Bortz and Döring (2006, p. 246-248) discuss about the role of the interviewer and suggest some features a “good interviewer” should show.

interviewer to conduct in-depth and thorough conversations, while simultaneously analyzing body language. It is furthermore easy to react to responses or ask further questions. The face-to-face situation might contribute to a lighthearted atmosphere and a higher flow of speech.

On the other hand, from the researcher´s (interviewer´s) perspective, a face-to-face interview involves cost, time and efforts in view of the subsequent transcription. The presence of the interviewer can influence the interviewee´s responses and thus, the validity.

With respect to the design of the guideline and its feasibility, the guidelines of each iteration (n = 2) cycle has been pretested by an expert teacher being involved in the preparation of the study in view of comprehensibility and feasibility, and, moreover, in the form of a discussion with the author´s supervising professor.

3. Making contact (here: has been managed already before the intervention started by means of asking the participating teachers for their consent to taking part in an interview subsequent to the intervention. The appointments for carrying out the interviews have been organized during the last day of the intervention with each single participant to take place at their working space (vocational school) in the week after the intervention).

4. Any interviewee has to provide his or her declaration of consent before the interview can be carried out. If not available, the interview must not be conducted. Statements by the respondents are collected, prepared and analyzed in an anonymous form, i.e., their names will not appear anywhere in the research process. However, other personal information that is important for conclusions or correlations to the research field are utilized. It is of legal necessity and transparent to inform the participants about this utilization as well as the purpose of use (= research purpose, epistemological interest). In the consent form, they are informed about the usage of the collected data and how these are prepared and analyzed. Thus, as the interviewee shares sensitive information during the interview, their written consent has to be required/available in advance.

5. The implementation of the interview takes place according to the rules highlighted above.

2.2.4 Semi-Structured Written Questionnaire

With the aim of evaluating the interventions, in particular from the foreign project partner´s perspectives, written questionnaires were applied. Including the written questionnaire represents a further development from the first to the second intervention, as it was introduced in the second evaluation cycle in order to expand the perspectives (see Chapters IV.2.2.1.2.1 or Chapter IV.2.2.2.4.1 for the precise reference to the respective questionnaires). By doing this, the foreign project partners´ opinion and assessment on how the didactic design worked out was included into the research process – an important enhancement compared to the evaluation of the first prototype.

As an amendment of the method triangulation, the written surveys are applied in the form of a questionnaire. On the one hand, written questionnaires have the advantage of avoiding mistakes that are linked to the interview situation (Schnell et al., 2013). On the other hand, they are beneficial as they provide the respondent with anonymity and quiet when completing the questions which is not given in an interview situation (ibid.). Hence, they are perceived as more anonymous leading to an increased willingness to answer in an honest manner and a more thorough discussion about the issue being asked about (Bortz & Döring, 2006, p. 237). In the present thesis, they were particularly used due to the aspects above and, additionally, for reasons of time and cost (as the respondents live and work in a foreign country), and their better possibility to get access to the foreign project partners after the intervention (via e-mail).

Written questionnaires have their limitations. As argued by Barth (1998, p. 2), the survey situation cannot be controlled, so that answers might be influenced by other persons. There is a risk of a poor response rate which might lead to a low number of total respondents (ibid.). The lack of mutual reactions, follow-up questions or questions of understanding have to be accepted (Hussy et al., 2013). However, these shortcomings of the research method can partly be prevented by carefully planning the questionnaire according to specific rules, e.g., by formulating clear and understandable questions. Questionnaires can be divided according to their degree of structure into qualitative (only open) and quantitative (only closed) questionnaires (cf. Döring & Bortz, 2016).

For this study, the written questionnaire was designed in a semi-structured manner (cf. Appendix III.). Closed questions with given response options (selection) were expanded by open questions leaving empty boxes in which the respondent can enter their own thoughts, perceptions, reasons and justifications etc. By means of integrating open questions, the answers were expected to be more extensive and differentiated (cf. Klöckner & Friedrichs, 2014). Moreover,

following Züll and Menold (2014), open questions serve to avoid that respondents are channeled into a specific direction and that they are given the chance to express themselves freely and in their own words.

The contents of the questionnaire should be designed as structured as possible (cf. Brake, 2009). This means, e.g., presenting content-related questions in a coherent way, where the questions are built upon one another, and are linked to each other where possible (ibid.). Personal or further sensitive issues are recommended to be set in the last third of the questionnaire to avoid the respondents´ demotivation or discourage in the beginning of the questionnaire (ibid.).

With respect to the design of the structure of the questionnaire, short, understandable and precise formulations should be applied (Klöckner & Friedrichs, 2014). Double negation and incomprehensible terms should be avoided, and the statements or questions should be concrete (Brake, 2009). Where possible, the questions should involve only one train of thought (Schnell et al., 2013).

The layout of the questionnaire has to be designed as clearly as possible. Small details are suggested to be considered, such as using a clear font, distinguishing the design between the different components of the questionnaire (questions, answers, instruction for filling the answers etc.), avoiding too much information on one page, applying visual support (arrows, symbols, smileys etc.) (cf. Brake, 2009).

Regarding closed questions with given response options, these can, e.g., be prepared by offering response options by means of Likert scales (cf. Blasius, 2019). This involves five response alternatives, ranging from a strong agreement over a mean value up to a strong disapproval. For this study, two scales were applied. One refers to the assessment of the functioning of the didactic design by the project partner in France (very satisfied, satisfied, ok, dissatisfied, very dissatisfied). The other scale was used to measure the French teachers´ perception of the usefulness of the didactic design (very useful, useful, I don´t know, less useful, not useful at all). In order to obtain more detailed information, respondents might be asked to explain their answer.

Furthermore, questions were formulated in such a way that respondents could answer by selecting “yes”, “no”, or “under the condition that” and were as well asked to explain their answer in order to improve the value of the statements. The remaining questions were consciously developed as open questions for the reasons pointed out above.

As the sampling with respect to the written questionnaire was small, the analysis of both the open and closed questions was carried out by hand supported by the statistical data analysis

software MAXQDA (2020). The answers were analyzed by means of content analysis as an amendment to the analysis of the data taken from the interviews.

Concerning the small response return rate and the results from the content analysis, the written questionnaire reveals clear weaknesses. However, it is a useful expansion of the interview analyses and offers an additional perspective on the didactic design.

The step from collecting data to the preparation and analysis of the data is an important part of the entire research process. The following section explains the analysis and evaluation procedures which has been mentioned multiple times.

2.3 Presentation of Applied Qualitative Analysis and Evaluation Procedures

2.3.1 Data Preparation and Data Analysis

After the data have been collected by applying appropriate research tools, the analysis of qualitative data can generally be divided into three phases (Hussy et al., 2013): data preparation or transcription (cf. Kuckartz & Rädiker, 2019), analysis and systematization of the analysis´ results. The data preparing phase is required in the case of data in verbal form which exist in audio formats such as the interviews. Following Hussy et al. (2013), a systematization such as by means of classifications can be used in the case of extensive results which are difficult to quantify. This is not relevant for the present study as the data stem from a small-scale research project. It should be noted that both the preparation and systematization do not represent necessary components of qualitative investigations (ibid.). Hence, the following discussion primarily refers to the analysis part.

In the literature on methods, a systemized classification of qualitative data analysis techniques has not yet been established (Döring & Bortz, 2016). The reason for this might be the multitude of different disciplines using the analysis technique by adjusting it to their specific requirements. It should be noted, however, that the qualitative data analysis is perceived as living up to the scientific character of the quantitative methods (cf. Bogner et al., 2009; Hussy et al., 2013).

Qualitative material such as interview transcripts or protocols from observation can be analyzed by means of qualitative content analysis (QCA) which was developed by the psychological methodologist Mayring at the end of the 1970s (Bortz & Döring, 2015; Mayring, 2020). Researchers still work with this method today (cf., e.g., Gläser & Laudel, 2009; Mayring &

Fenzl, 2014; Mayring & Gläser-Zikuda, 2008)[67]. The *Forum: Qualitative Social Research* journal has recently published an issue with the focus on Qualitative Content Analysis (cf. Schreier et al., 2020), with special focus on discipline-specific approaches to qualitative content analysis (for educational approaches, see, e.g., Gläser-Zikuda et al., 2020; Keller-Schneider, 2020; Muslic et al., 2020).

Content analysis is thus a method to analyze data in qualitative social research. As defined by Mayring and Fenzl (2014, p. 543), this method deals with texts that arise in the course of collecting data in research projects in social science. Transcripts of guideline-based interviews (Helfferich, 2014) or protocols from observations (Thierbach & Petschick, 2014) are examples of such texts.

The aim of the QCA is to interpret both the manifest and latent contents of the material in its social context and semantic field with the special focus on the different actors´ perspectives (Bortz & Döring, 2015, p. 329). Interpretations are frequently on the agenda when dealing with understanding individuals´ actions and verbal expressions (ibid.). This is carried out by taking prior experiences or knowledge into account as well as the attempts to consider other persons´ positions. Hence, for the present study, the content analysis developed by Mayring was selected as adequate since it strives for interpretations which are understandable from the intersubjective perspective (valid from more than one researcher´s view) and as rigorous as possible content (ibid.). It moreover is a systemized technique and provides the researcher with comprehensive steps of analysis.

As highlighted by (Mayring, 2020, p. 3), the “distinguishing feature” of the QCA approach is that it is based on categories, i.e., “aspects within the text, which put the meaning of those aspects in a nutshell”. The evaluation of the texts is hence limited to the categories which have been selected.

The systematic nature of the analysis is characterized by the technique following rules and theories (Mayring, 2002b). The material is broken down by building categories or categorization. In addition, the communicative situation in which the material was collected, is considered in the analysis (Gläser-Zikuda et al., 2020).

Nevertheless, despite the fact that the qualitative content analysis is oriented on a specific systematics, it is not a strictly standardized method. Instead, it is important to adjust the method to a) the existing material and b) the respective research question. The systematics is represented by the decision on how the data is prepared and analyzed, in which chronological order

[67] For a current reflective discussion on criticism and misunderstandings in view of the QCA approach by Mayring himself, see Mayring (2020, p. 5-7).

and under which conditions of the categorization (Mayring, 2010). Mayring (2020, p. 1) comments as follows: “[In] qualitative content analysis the assignment of categories to text passages always remains an act of interpretation. But this process strictly follows rules of interpretation.”

The data preparation is a phase which takes place between the collection and the analysis of the data (Kuckartz & Rädiker, 2019). The exact and adequate description of the object is of particular concern in qualitative research (Mayring, 2002b). After information has been collected from reality, these must be recorded, prepared and structured before the analysis can begin. As argued by Mayring (2002b), there is no value in a perfect data collection if the preparation is not carried out properly, a field which is not sufficiently considered. The literal transcription of the interviews (audio files) in the present study were created along the rules of transcription by Mayring (2002b, p. 89-94). More detailed information about the transcripts of the present study can be found in Chapters IV.2.2.1.2.1 and Chapter IV.2.2.2.4.1.

In this thesis, almost all collected data (protocols from observation, interviews, written questionnaires) were analyzed and interpreted by means of QCA after the interventions in the two cycles (Kuckartz, 2018; Lamnek & Krell, 2016; Mayring, 2002b, 2010, 2020). Following Mayring (2002b), the analysis was thereby based on the two methods of:

- deductive category formation applying the summarizing content analysis (cf. Mayring & Fenzl, 2014, p. 547) combined with a subsequent
- inductive category formation applying the structuring content analysis (cf. Mayring, 2002b, p. 115).

The category system is the core of content analysis. Under consideration of the research question(s), the category system is determined after having identified the relevant text meanings (Hussy et al., 2013; Mayring, 2010). The statistical data analysis software MAXQDA was used to carry out both categorization and the analysis. Based on the data having been recorded or minuted, literal transcripts were generated by the author. Afterwards, the procedure of the structuring QCA was applied, justified by the principles of openness as well as the systematic and theory-based technique closely on the material (Mayring, 2020). *Figure 21* illustrates the step model of deductive category application (Mayring, 2014).

Deductive categorization

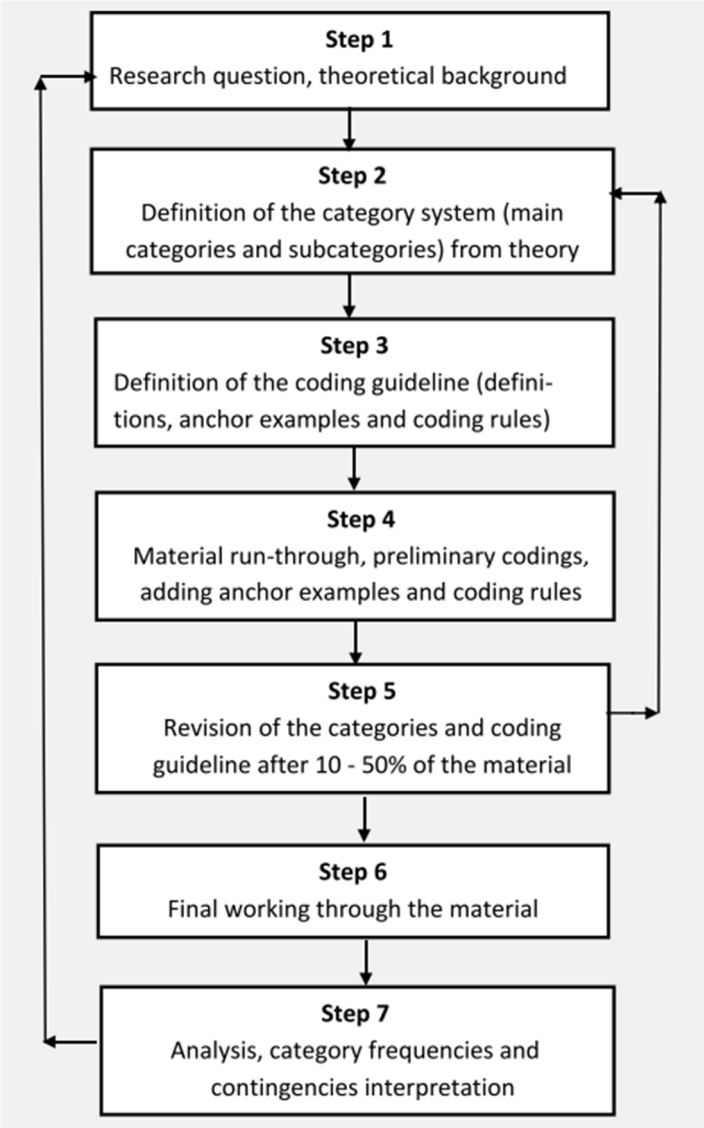


Figure 21 - Step model of deductive category application (Mayring, 2014, p. 96)

Structuring QCA deals with the application of deductive categories, focusing on a prior, theory-based development of a category system which can be applied to the text afterwards (Mayring & Fenzl, 2014). A coding guideline (see Appendix II.c) serves as a resource offering (1) a definition, (2) typical text passages as examples and (3) coding rules for each category. This coding guideline is developed in a theory-based manner, while being expanded when working through the text material (cf. Figure 21). The rules are usually compiled in an agenda. The classification of categories into text passages is determined through consulting the coding guideline. Following the step model above, the revision of categories and the coding agenda

is followed by a first formative check of reliability. A summative check of reliability takes place subsequent to having finally worked through the texts. Then, the interpretative process of the results can be started (cf. Figure 21).

Inductive categorization

Compared to the deductive category formation, the inductive categorization yields definitions for the categories directly from the text material which enables a more open analysis. The step model of inductive category application is shown in the following Figure 22:

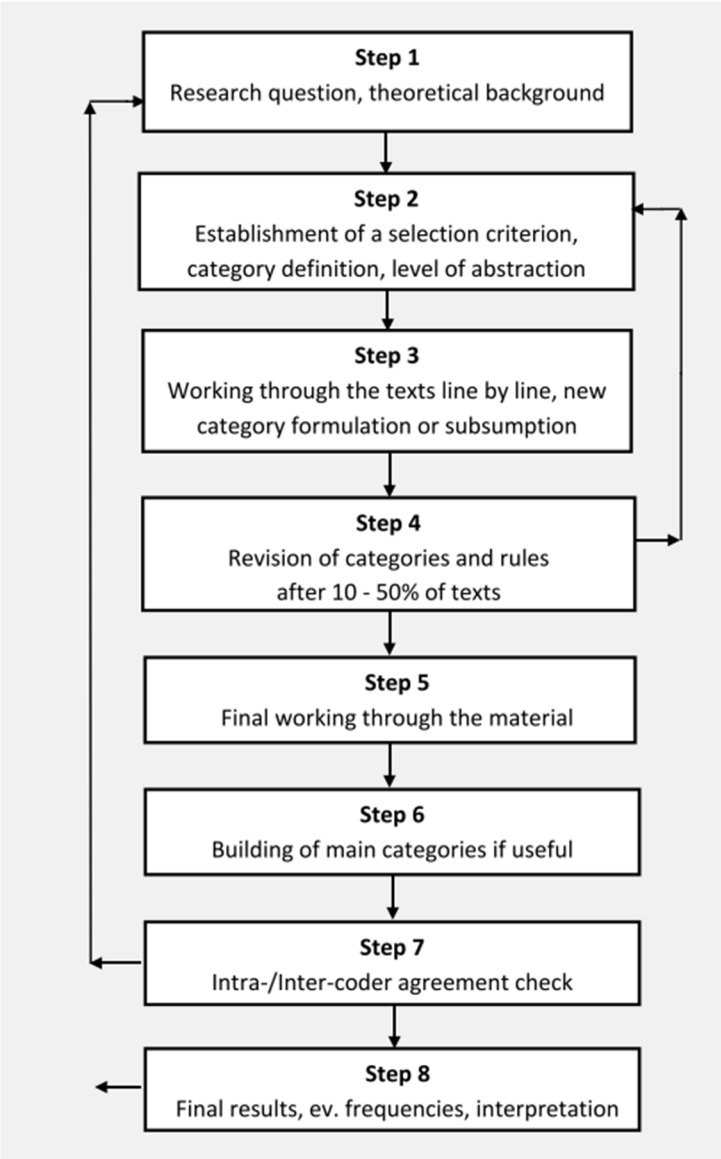


Figure 22 - Step model of inductive category application (Mayring, 2014, p. 80)

By means of the structuring QCA, categories are developed in an inductive manner. As pointed out by Mayring and Fenzl (2014), the material is rephrased into paraphrases containing essential contents and then progressively reduced. If the paraphrasing step is omitted and a selection criterion for the summarizing analysis is introduced, this is defined as inductive categorization.

This type of categorization aims at a preferably naturalistic presentation of the material which is close to the object and without distortion caused by presuppositions of the researcher (Mayring, 2010). This means capturing the object by means of the language and expression of the text material (ibid.). Following the step model suggests (cf. Figure 22), at first, a criterion of selection was determined as a reference of those passages of the material which were considered relevant. Afterwards, the level of abstraction was defined by specifying the generality of a category. This level is based on the research question. The subsequent coding will then involve the formation of new categories for relevant text passages or subsumed under existing categories, depending on the material. Following the model in Figure 22, the process of working through the material by ten to fifty percent is followed by a revision and a formative check of reliability. On the basis of the existing categories, it is verified whether the definitions of selection and abstraction were chosen appropriately. Usually, as was the case in the present study, adjustments of categories are necessary in order to guarantee clearer and more selective categories. Finally, the entire material is worked through and step by step, categories can be summarized or generalized to main categories. The categorization has to be checked once more in view of reliability, before the interpretation of the results are carried out.

No consensus has been reached with respect to the quality criteria of a category system. In the present thesis, the coding was carried out by the author herself. With the aim of achieving a certain degree of stability in view of categorization, the material was coded twice within a period of several months in between. Dealing with this intracoded reliability is important, as stressed by Züll and Menold (2014) for effects of habituation or learning can occur on the coder´s side during the process of coding. Intracoded reliability can thus be measured in terms of having the same text coded by one coder at the beginning and end of the research project.

Deductive and inductive categorization in view of the present study´s QCA

In the present study, due to the previously developed guideline, categories were developed and defined deductively, whereupon the entire data material was processed in view of the determined structure. By using the categories and the data material, conclusions were drawn

in view of the research questions set up in the beginning. Thus, on the one hand, the category system arose from key questions in the interview. On the other hand, by means of a summarizing QCA, categories were developed inductively. Since the interviews were deliberately designed to be open, the category system was implicitly enhanced by additional statements by the participants. The analysis was therefore carried out both deductively and inductively (cf. Mayring, 2007; Lamnek & Krell, 2016). The coding guidelines for deductive and inductive category formation of the two research cycles developed by the author can be found in the Appendix (Appendix II.c). All transcripts had to undergo a structuring which lead to the deductive creation and definition of categories. These categories and the data material that was analyzed by determining examples for the specific categories (quotations from the text) served to draw conclusions with respect to the research question. In view of the interpretation of the data and the presentation of the results, it should be critically noted that apart from the researcher´s assessment and the inclusion of the perspective of the project partners and teachers abroad, the German vocational teachers´ perspective is in the focus.

The following section introduces the evaluation procedure and reveals further links between research tools, the design process and the objective of the study.

2.3.2 Evaluation

In line with the DBR, the evaluation procedures take place via formative evaluation of each cycle intervention and finally, a summative evaluation. The summative evaluation is equal to setting up consolidated design principles.

The researcher evaluates the intervention according to the data collected and analyzed by means of different research techniques. It is thereby taken into account that diverse perspectives are included. This means perspectives of the researcher herself (a highly complex aspect since it must be considered that the researcher switches between different roles within the research process which has an influence on her thinking and interpretation), and experts and persons involved in the intervention. From a conceptual perspective, subject-matter experts, teacher experts from Germany and the other European countries involved, or the cooperators of developing and implementing the didactic design (cf. Nieveen, 2010). From the presentation-mode perspective, presenters of talks are to be evaluated, too.

Due to the complexity of the intervention, and to the fact that the German vocational teachers were determined to be the research subject in focus (also the research question focuses on

this group), they are the reference point of evaluation. This means, the evaluation of the different dimensions of the professional development intervention places the German vocational teachers at centre stage. The evaluation constantly refers to the research question about how and why the didactic design might support the German vocational teachers´ LSCT competence. As pointed out above, the didactic design has three major elements which the LSCT competence development is oriented on.

This emphasizes that different levels have to be included in the evaluation:

- The expected competence: Here, the intention and purpose of the content items are evaluated in view of the cognitive level of the participants. Has there been an increase in the knowledge and skills of the participants? Can any change in their attitude (motivation, willingness, appreciation) or disposition (feeling, thinking, mood) be observed?
- Activities and methods: Which influence on the participants´ participation and learning did the resources that were used during the intervention have?
- Conditions of teaching and learning: How did the organization, social conditions of the intervention influence the design? What can be identified at the interpersonal level of the individuals involved?

As the list above indicates, the researcher has to ensure an adequate access to the research subject in order to sufficiently assess the elements. As the researcher participated and accompanied the German vocational teachers during the whole intervention, this facilitated the access.

As underlined by Monk et al. (1993, p. 5), cooperating mainly with teachers rather than school managements or researchers from the respective fields is necessary: “It requires access to people typical of those who will actually use the system, not their representatives or management”. Involving the German teachers into both further developing and evaluating the design is advantageous as the researcher obtains information about the problem´s complexity in more detail (cf. Moonen, 1996; Nieveen, 2010; Shneiderman & Plaisant, 2010). Furthermore, the participants perceive their role and participation as more committed (Nieveen, 2010). They know they are co-workers in the solution process for a practice problem that is of high importance to them. In general, this favors the achievement of objectives and improves the result of the final didactic design. Nieveen (2010) moreover states that external evaluators can be integrated into the research process in order to yield scientific rigor. However, Nieveen (2010, p. 98-99) argues as follows:

> "[I]n the early stages of a design research project it seems legitimate or even advisable that design researchers *themselves* carry out the formative evaluation of the prototype. Engaging in formative evaluation activities tend to lead to important learning experiences of the design researchers. They will experience themselves the problems that occur and hear out of first hand the suggestions for improvement that respondents come up with during their use of a prototype (for example, by observing or interviewing teachers or students). This usually has stronger and more an introduction to educational design research direct impact on their thinking and design activities, compared to cases where external evaluators report the results to the developers."

It is important – and this concerns again the critical switch of the researcher between being the designer and one the evaluators –to be as objective as possible towards occurring problems and comments made by the participants. It is also important that the participants do not feel obliged to evaluate the intervention as positive. If they know how much effort was put into the didactic design, they might not be as critical as otherwise (cf. Scriven, 1991).

The multi-perspective procedure by methodological triangulation is one method to reduce the above-mentioned biases of the researcher and the participants. Moreover, each step of the development process (conception and implementation phase) should be formatively evaluated (Nieveen & Folmer, 2013). Apart from the data sources and methods, different theoretical frameworks should be included into the evaluation.

As pointed out by George and Cowan (1999, p. 1-2), evaluation is described as formative, if the intention is to find whether there are factors of improvement. Summative evaluation is characterized by judgments (design principles according to the DBRA in the present study) at the time of conclusion. This concerns the conclusion of the tested, evaluated and redeveloped prototypes, which is used as the basis of a certain number of decisions resulting from the judgements (design principles). As a conclusion, summative evaluation can only take place after formative evaluation was carried out.

The quality criteria with which research techniques of qualitative social research should be applied, are explained in the subsequent section.

2.4 Quality Criteria and Critical Evaluation of Qualitative Social Research

Following Reinmann (2019), finding suitable criteria to assess the quality of qualitative research is not new. However, it has always been subject to ongoing debates. This results from the particular challenge that there is no single correct approach of qualitative research but rather it is a term covering a pool of specific research strategies.

A lack of transparency and the missing systematics of these, which leads to the difficulty in generalizing the findings, are examples of critical assessment with respect to the research procedures of qualitative social research. Following Flick (2019) and Mayring (2002), six typical quality criteria of a qualitative social research (QSR) are listed in the following and briefly explained. Afterwards, the extent to which these are considered in the present research study is discussed.

Documentation of the procedure

There has to be precise documentation of the procedure for acquiring the scientific findings. This has been realized in the present study by revealing the methodological procedure including the transparency of unexpected or undesired impacts or further possible inconsistencies.

Validation of interpretation by argumentation

Interpretations are of high significance within QSR and DBR. However, there is no possibility to actually prove these. This is associated with one of the major potentials of the DBR, the explanative power. It is thus essential to explain what has been the result of interpretation. In this study, both the conceptional framework and the pre-study of the intervention, i.e., the precise description of the context´s nature, have been created according to a literature review and the inclusion of findings from a prior research project. The latter aspect served as additional justification for conducting this study as it demonstrated the need for research in this field. In the implementation procedure, direct quotations from the collected data (text basis / evaluation basis) have been incorporated. The Appendix presents (exemplary) data collection products such as the coding guideline for the content analysis of the interview transcripts, the guideline for the interviews, or the written questionnaire form, in order to help the reader better understand the line of argumentation or the basis on which the interpretations refer to.

Orientation towards rules

The research procedure should be characterized as systematic, despite the requirement of openness. In the present study, data collection, preparation and analysis require the orientation to the rules and process models of DBR and QSR (w.r.t. research techniques). This concerns for instance adhering to the rules of transcription (Mayring, 2010, p. 55) or categorization (Flick, 2019).

Proximity to the research object

Research in qualitative social science should take place in a naturalistic setting. This was realized in the present study by following the design-based research approach, testing the didactic design in a real-world professional development intervention, and scientifically accompanying the research subject during the whole intervention.

Communicative validation

Communicative validation involves providing the research subject with the opportunity to review the research findings. This aspect aims at the validation of the findings by assessing the individuals´ level of identification with the results. Regarding this study, the participants were given the opportunity to view the study results (results of data collection, interpretation of results within the final documentation). After the follow-up meeting including the interview, approaching the participants was difficult due to the teachers´ other obligations.

Methodological triangulation

As highlighted above, methodological triangulation has the objective to include a variety of research methods (of qualitative or quantitative type) into the data collection, preparation and analysis process. The findings derived from these different sources needto be compared. In this study, different research techniques have been applied to collect data. The context analysis (theoretical framework) has mainly taken place via a profound literature review enriched by the results from prior research projects through development meetings (focus groups). The implementtion phase of this study integrated the application of (participatory) observation, interviews and written surveys. The observation and interviews are of higher relevance than the other methods, due to the low response rate of the data collected (low participation of the respondents of the written surveys).

Considering the qualitative social research´s characteristic features, its potential research techniques and their analysis as well as quality criteria and a concluding critical evaluation above, this approach is appropriate for the present research project.

Taking the DBR into account (first element of this thesis´ methodological access), the research techniques including data collection and interpretation/analysis are used in combination with the methodological triangulation (mixed-methods approach) (second element of the research

model). By applying these methods, different perspectives enter the text base (cf. Figure 25 on p. 232) which leads to reducing the negative effects of qualitative methods (critical evaluation).

IV Empirical Investigation on a Transnational Study Visit serving as Professional Development Intervention for German Vocational Teachers on Language-Sensitive Content Teaching

> « Less well developed, however, are methods for answering the question of "what works where, when, and for whom" […] to understand the conditions under which designs can improve learning. »
>
> *Means & Penuel, 2005 quoted in Fishman, Penuel, Allen, Cheng, & Sabelli, 2013, p. 137-138*

1. Underlying Research Concept following the Design-Based Research Cycle

After having introduced the methodological access including the reasons its choice, the underlying research model of this study will be presented.

Fishman et al. (2013, following Means & Penuel, 2005) cut right to the chase, as quoted above: The existing methodical suggestions of how to investigate the PD program are applied in order to answer the questions above as exactly as possible. In addition to answering the questions of "what" , "where", "when" and "for whom" the PD program abroad functions, understanding the results, i.e., the answers to the questions, is as well of vital importance. "[U]nderstand[ing] the conditions under which [the present PD design] can improve learning" (Fishman et al., 2013, p. 138) is essential for the author in her researcher position. This will limit the results in that they depend on these specific conditions, since the results (e.g., in the form of design principles showing other researchers and practitioners *what to do*) only apply in this environment. By examining the issue in a careful, precise manner – which involves adhering to the suggestions by the design-based research approach and following its quality criteria – in the end, drawing conclusions from the results is justified.

The aim of the research project of the present thesis is to:
1) develop and test a study visit abroad which has specific features in order to let vocational teachers, the target group of the PD concept, develop their language-sensitive content teaching competence, and 2) to evaluate and comment its impacts* on the teachers´ competence profile. *Note that the impact is characterized by objectives (= intended impact) and unexpected impact.

The research model on which the present study is based aims at implementing the further development of vocational teachers in the form of a study visit abroad. The objective of the intervention is to promote the LSCT competence of participating German vocational teachers. Describing the impact of the interventions leads to examining whether the objective could be achieved. Additionally, this will point to failures during or undesired effects of the intervention. Note that as an alternative to utilizing the term intervention, the terms “study visit abroad”, “professional development intervention / concept” and “didactic design” are used to describe the measurement.

In order to achieve this aim, theories from the field of language-sensitive content teaching concept are combined with a practical approach of teacher PD and two methodological approaches, the DBRA and methods of qualitative social research. The combination yields a particular research model which is graphically illustrated in Figure 23. Figure 23 involves all elements of the previous chapters which are necessary in order to adequately carry out the design-based investigation, as well as understand the process and the results from the research cycles.

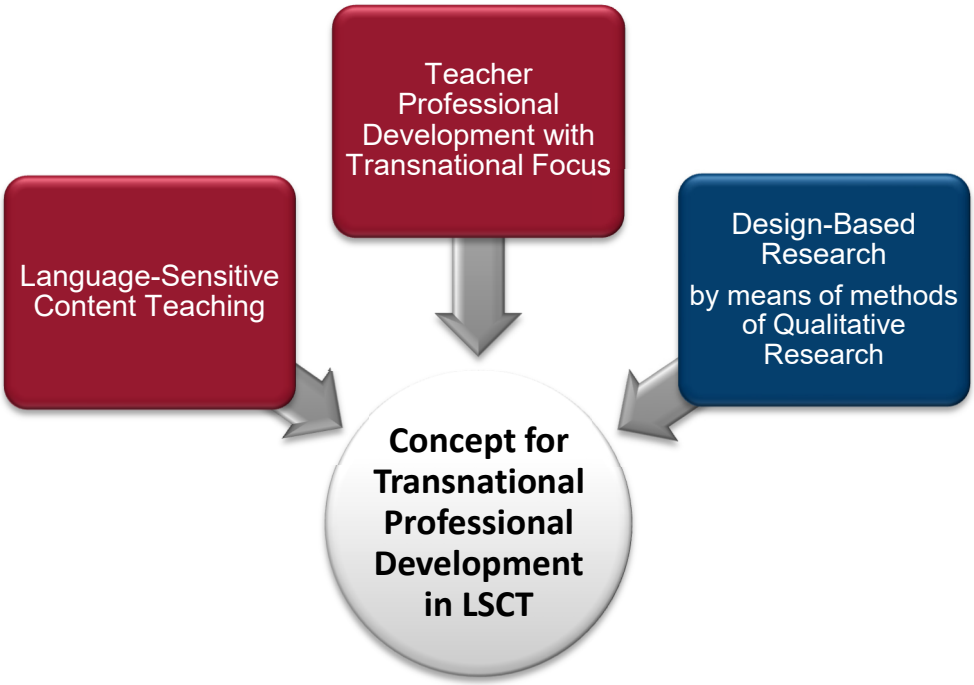


Figure 23 - Research fields combined for the present research concept (own diagram)

Figure 23 provides an overview of the research fields which have been combined to carry out the intervention. It involves the current research status in view of all relevant characteristics and examples of LSCT and regarding approaches of current PD measures for vocational teachers (cf. Chapter I.1.1). In addition, the research concept involves the orientation towards design-based research (Chapter III.1) and selected methods of qualitative social research (Chapter III.2). The design of the interventions, i.e., the implementation of the two study visits abroad, is based on the theoretical framework and the researcher´s previous experience in the field (Chapter II).

On the one hand, the theoretical framework mainly consists of considerations and a discussion of the LSCT concept including an examination of the competence concept (with regard to teacher competences and from the perspective of how business and vocational educationists understand it) (cf. Figure 23). On the other hand, the current status of implementation of professional development for teachers builds the second principal part of the theoretical framework. The literature review was carried out on a regional (in particular taking Bavaria and NRW, Germany, into account), national (German) and international basis. This leads to including a more transnational (European) view on the broader topic of language promotion in VET, PD,

and the combination of both: PD for enhancing the competence on promoting language skills during content teaching (cf. Figure 1 in Chapter I.1.1.3).

The development, implementation (testing, evaluation) and re-development process of the research model are carried out along the design-based research approach by means of selected methods of qualitative social research (cf. Figure 23). Hence, these two elements are added to the concept serving as the methodological foundation which the whole research process is aligned to.

The context (teacher PD) is characterized by the current state of research. A more precise view on the context can be found both in the preparation and development of the research concept in this chapter. The didactic design or PD program is developed based on selected elements combining theory (literature) and practice (findings from a DBR project on LSCT and the author´s own experience of classroom observation in International Classes completed prior to the present project). The author´s two informal visits in the International Classes aimed at gaining an impression of how teaching actually takes places in a naturalistic setting.[68] In addition, it enabled taking a look at the behavior and actions of the teacher, the interaction and communication between the teacher and learners, a rough assessment of the language levels in class, cultural aspects. The didactic (teaching), multilingualism (learning) and specialist register (language) dimension were considered (cf. Köker et al., 2015, p. 184). The purpose of these International Class visits is justified by Scheiermann and Walter (2016, p. 1). With respect to the knowledge of “the local situation” which means the way everyday life is organized at the micro (classroom) and meso (institutional) level, they found considerable information gaps both in institutions and among researchers.

The organizational framework has been developed by the researcher herself in cooperation and coordination with a teacher expert of LSCT and collaborators (researchers and project managers) from abroad. The continuous (re-)development is graphically illustrated in Figure 24. Each step of this stairway represents one cycle of the development process. In each cycle (after the pre-study has been completed), the design-testing-analysis-evaluation-redesign procedure takes place. The dots at the fourth step in Figure 24 mark the potential continuation of the development process which is not part of the present thesis. However, as was pointed out in Chapter III.1, design-based research can be considered as an interminable process. In the present research project, the dots may also represent the formulation of consolidated design

[68] Observational notes were taken in a research diary and the experiences were directly used for the conception phase.

principles resulting from a summative evaluation of the two iterations. A final consideration (summative evaluation) within the research project is necessary in order to yield a useful practical concept for the educational practice.

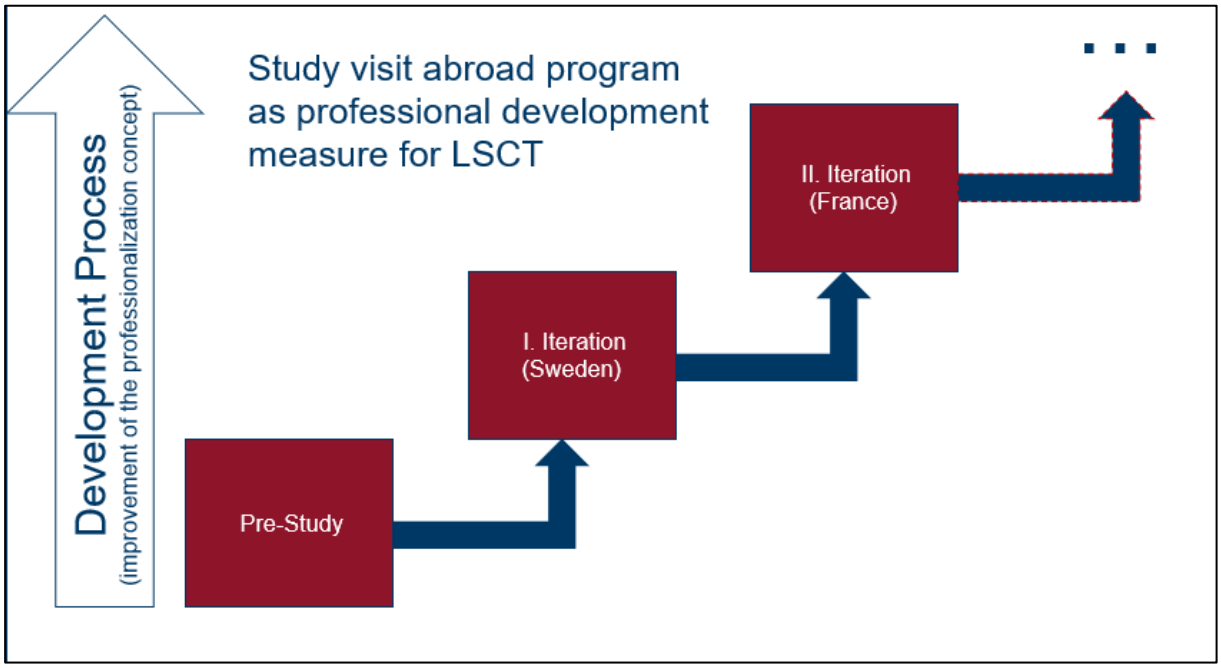


Figure 24 - Development process of this study as a multi-step process of n iterations (with n = 2) (own diagram)

Following the structure of the DBR model by Wilbers (2013a), the research question is generated in a design-based manner: Which features (*design principles*) does the transnational study visit (*intervention*) have to promote the language-sensitive content teaching competence of vocational teachers (*specific objectives*) at the school-to-work transition phase (*context*)?

Any element which helps answering the research question including its sub-questions is part of a complex research process which is illustrated graphically in the following overview (Figure 25):

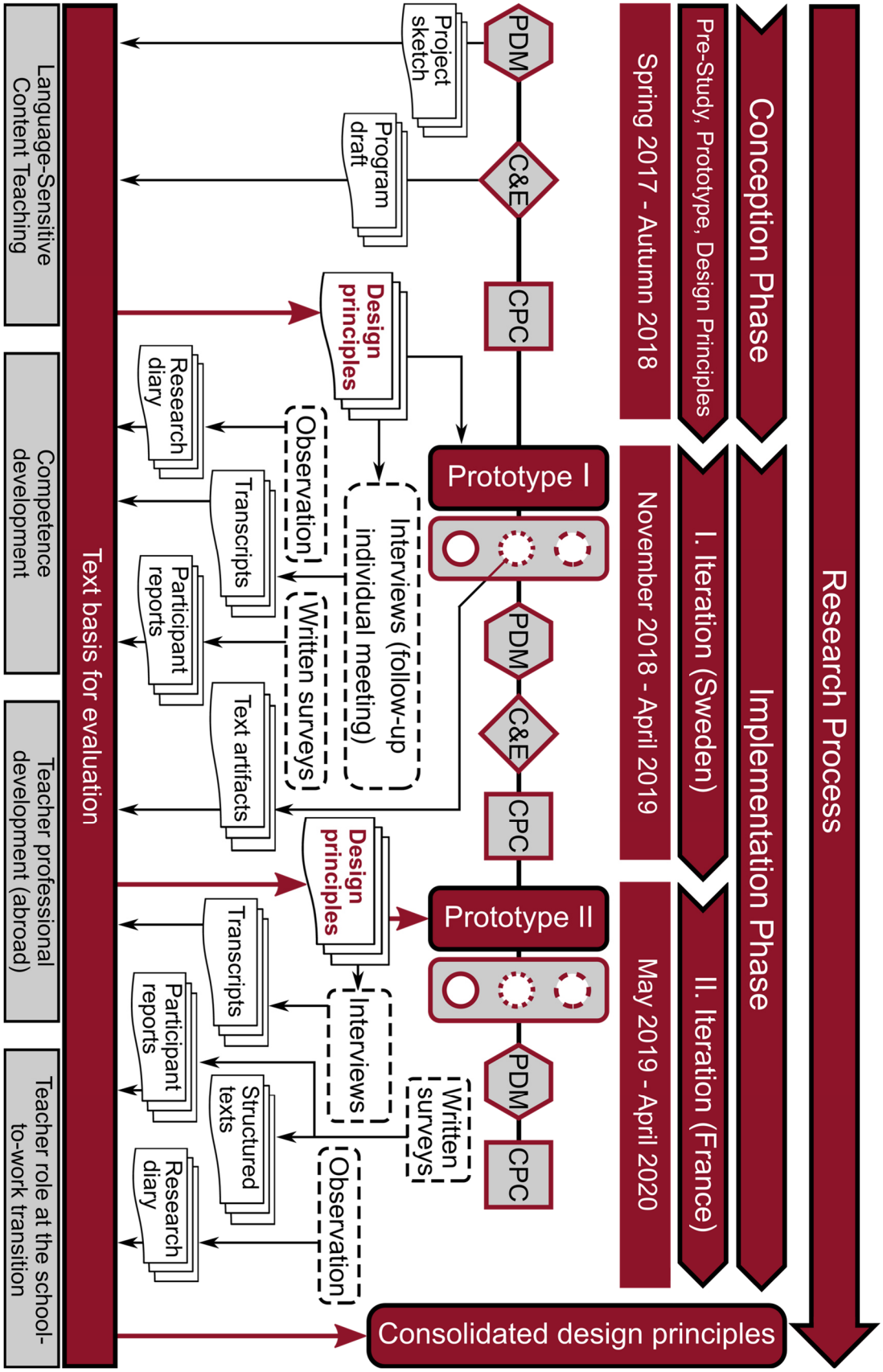
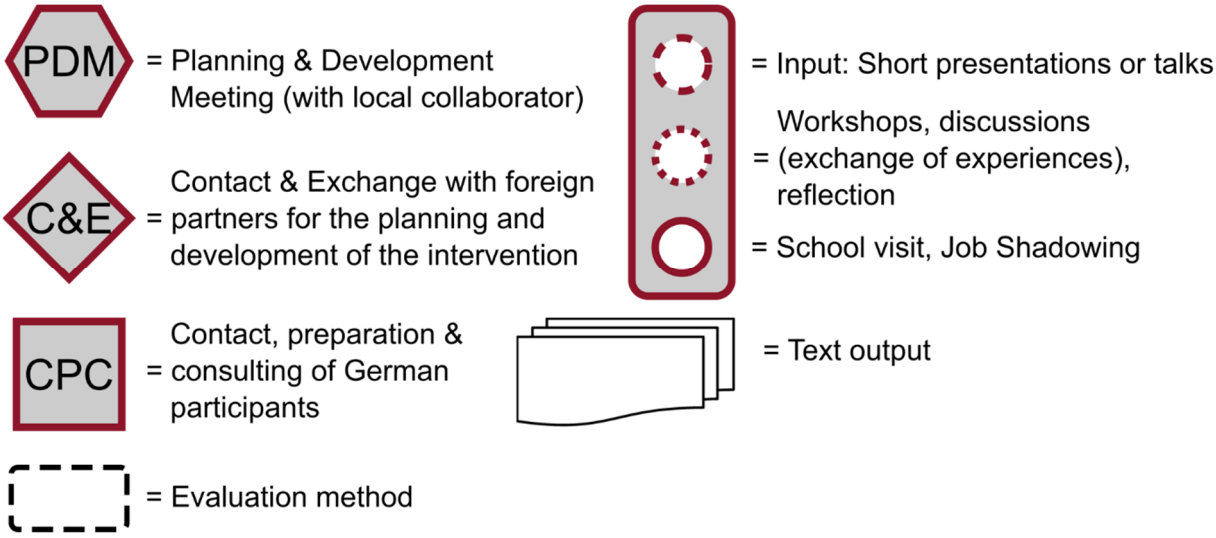


Figure 25 - Research process model including data basis for documentation (own diagram)



Following Figure 25, the research process is mainly divided into the conception phase and the implementation phase. Breaking these two major phases down, the conception phase is also called the pre-study, whereas the implementation phase consists of the first iteration and second iteration of the process.

As was emphasized in Chapter III, the pre-study forms an integral part of design-based research (cf. Plomp, 2013; Wilbers, 2013a). This pre-study considers the background theoretical information of all relevant details. It is thereby mainly based on Chapter II. In addition to what has been discussed in the theoretical framework, experiences from the field are included here. On the one hand, these experiences involve both the findings from the QBi project in the form of results from an analysis of needs and criteria for successful LSCT developed from the conception and implementation of working with vocational teachers. On the other hand, a variety of experiences was collected during the author´s project work in the EU Service Center in the Münster District Administration. Different factors were added to the development of the present study design of the PD intervention, such as:

- the existing network to vocational schools in the Münster District (NRW)
- visits to International Classes to get an insight into a naturalistic setting of teaching learners at the school-to-work transition
- discussions with a multitude of teacher experts working in this field.

Finally, due to the author´s project work in the EU initiative, she had access to a project in VET which induces learners to experience their specific vocational field during a stay abroad. The latter one is the learners´ own development measure in the sense of PD, personal (identity-

related) development, and linguistic (foreign language) development. Apart from learners, Erasmus+ programs promote teacher stays abroad for PD purposes. However, so far, it is not common at all that teachers carry out a stay, i.e., accept the offer.

All of these experiences from the field entered the author´s considerations on how to develop a design for PD combining the factors mentioned above (design principles for the first prototype). In addition, the PD required bundling the ideas in a concrete and intensive professional education program about experiencing language-sensitive teaching ways and the promotion of young learners with language problems in VET from another country´s perspective. The pre-study will thus be completed by developing first design principles for implementing the first prototype. The prototype is developed by the researcher with the support of a teacher expert working in the project management of the EU Service Center.

The pre-study is followed by two cycles of design implementation (= iterations). Two iterations form the parts of the DBR model which describe the implementation of the interventions by means of testing, evaluating and modifying. The teachers´ PD at the school-to-work transition context remains the same in the course of the iterations, but since the interventions take place in two different countries, the setting of iteration II (France) differs from the one of iteration I (Sweden). Thus, the context variables are different in the two iterations.

In the thesis, the selected design alternatives which are further developed step-by-step are referred to as design principles. It is essential to note that these are divided into three types of design principles which relate to specific questions (cf. Table 11).

Table 11 - Splitting the design principles into the categories expected competence, activities & methods and conditions of teaching and learning and generating questions (own diagram)

Type of design principles	Expected Competences	Activities & Methods	Conditions of Teaching and Learning
Related research questions:	Which contents of the intervention are important? What is their intention? What happened and why?	How does the organizational concept contribute to achieving the objective to promote the teachers´ LSCT competence?	Which recommendations can be provided w.r.t. the conditions of teaching and learning? Where did the didactic design take place and who attended it?

Source: own research

Taking the DBR map 2.0 into account once again, design principles can refer to two different phases (cf. Figure 12 on p. 162). Design principles I describe the features, whereas design

principles II model and explain the design process of the intervention. The latter ones demonstrate how the intervention is developed. All of the three dimensions of design principles illustrated in Table 11 can refer to both the features and the process.

Since design-based research projects assume and depend on progressively expanding, enhancing, and modifying or refining design principles, this progressive process is considered the actual outcome of the study. Within the course of the intervention, the design is hence tested, evaluated and modified according to the above-described design principles.

The specific aim of the intervention is to promote the LSCT competence of the participating German vocational teachers by getting a transnational perspective in a multi-day experience in Sweden and France, and ensure the transfer of the intervention to the teachers´ daily working life in German vocational training institutions. Whether and to what degree the intervention yields the desired aim is identified in the description of the impact after each iteration (cycle findings).

Pre-study activities included project development meetings (PDM in Figure 25 on p. 232) with a domestic project collaborator (teacher expert in LSCT and responsible for an International Class at VTI). The planning literature elaborated in Chapter II (theory foundation) and Chapter III (methodological procedure) was strictly followed. The project sketch was the text outcome which evolved from these development meetings.

After that, a process analysis took place with respect to finding adequate partners on-site who supported developing the didactic design and organizing the study visit on-site in Sweden or France, respectively. The corresponding activity was characterized by contact and exchange with foreign partners for the planning and development of the intervention (C&E in Figure 25). This phase resulted in the first program draft of the contents and activities of the first study visit. The program was further developed during the pre-phase of the intervention according to the progress, for instance including successful appointments with speakers from the practice, or regarding the school visits abroad.

Thirdly, the German participants, who were selected in a procedure that is described in Chapter IV.2.1.2.2.2.3, were individually contacted, prepared and consulted with respect to their participation in the program. The process element is illustrated as CPC in Figure 25 (cf. p. 232).

A guideline serves as text outcome which is influenced by the program draft and refers to important elements of the expected competence, methods and activities, as well the conditions

of teaching and learning (cf. literature analysis in Chapter III.2). This guideline, as illustrated in Figure 25, will also be used for the interviews (evaluation method) carried out with the German participants after the intervention.

The two cycle phases (iterations with interventions I_{1-2}) comprise the didactic design and its elements of input phases, workshop/discussion and school visits/job shadowing (cf. Figure 25 and its legend). The concrete design of the elements varies from the first to the second iteration. The two interventions are followed by evaluation phases. As Figure 25 shows, they both include the collection of data by applying different research techniques (see legend of the figure) which produce a certain text outcome. These text outcomes formed the text basis, equal to the evaluation base.

After the intervention, the evaluation phase was accompanied by development meetings with the domestic project collaborator. These meetings also served as redevelopment process meetings. Moreover, there was a phase of contacting, planning and development of the second prototype with the new partner, and similar to the preparation phase of the first intervention, the participant group was selected, contacted, prepared and consulted. The evaluation findings and the refinement process enter the formulation of design principles for the second prototype.

There are two main differences between the two cycles with respect to the research process (Figure 25).

1. After the second cycle, there was no further selection phase since the second cycle was the last one of this study. Instead, there was an additional process phase of contact, planning and development of the evaluation procedure, which included the partners and teachers from abroad.

2. The evaluation base of the second cycle was larger. It additionally included written surveys of the French project collaborators / organizers on-site and French teachers taking part in the job shadowing phase.

The evaluation base, i.e., the aggregated text basis, was built by assembling all texts that evolved in the course of the data collection and preparation (cf. Figure 25). Data such as project sketches, protocols from participatory observation, protocols and materials from workshop group work, specialist lectures, participant discussions, transcripts from interviews (main data base), written questionnaires and participant reports entered text basis and were used for evaluation purposes afterwards. As shown by the data compilation, the evaluation was built upon

data which had been generated by working together with teachers from different vocational institutions, one local project collaborator (VET expert from practice), external project partners from university (iteration I) and a social educational institution (iteration II). This cooperative team was united by the fact that all of them are concerned to a certain degree with teaching / learning at the school-to-work transition, and thus, with learners having language problems within VET. The particular procedure and cooperative generation of data – which is however, realized and controlled by the author – implied using the DBRA. In order to provide proof for the enhancement of the prototypes, mixed methods in the form of different techniques of qualitative social research are applied at different points of the research process. Figure 25 illustrates the techniques. They have been selected for application at the respective stage in the process due to the adequacy in view of the research object and the general conditions.

With regard to evaluation of the prototypes, the evaluation concept is oriented along the quality criteria of DBR (cf. Table 10 in Chapter III.1.6.1 on p. 194). The evaluation concept primarily focuses on interviews with the German participating teachers and the researcher´s participatory observation and her exchange with practice partners. While the first iteration is evaluated by only focusing on the participating teachers from Germany, the evaluation of the second iteration is – in the sense of a continuous improvement of the didactic design – expanded by including the perspectives of the active players from the social educational institution (organizational partner on-site in Bordeaux) and French teachers from two vocational schools (written questionnaires).

The research project is concluded by formulating consolidated design principles for the context the design was tested in. The research project lasted from spring 2017 to spring 2020. The pre-study and the development of the first prototype were completed by summer 2018, the first iteration lasted from autumn 2018 until spring 2019, whereas the second iteration took place from spring 2019 until winter 2019. In the remaining period until spring 2020, the consolidated design principles were developed and the documentation was completed.

2. Designing the Research Model as a Development Process

2.1 Conception Phase: Specification of the Problem and Development of a First Prototype

"Integrated language promotion shall take place! But *how*?" is one striking statement by a vocational teacher during an expert interview (05/2017, QBi project, cf. Peitz, 2018, p. 9) and a clear signal of the awareness for action, nevertheless of the helplessness and incapability to improve the situation. Also, it shows the indirect call for a support system addressing the organizational (school/institutional) conditions.

Considerations of this type are summarized in the pre-study, i.e., the conception phase, of the research project. Plomp (2013, p. 30) calls the pre-study "the first blueprint for the intervention". The following Figure 26 provides an overview of the pre-study of the development project. Its elements are illustrated in their chronological order from the process perspective.

Apart from its detailed theoretical framework and context analysis, the pre-study involves a short overview of the conditions of teaching and learning, i.e., information about individual learning conditions of the two groups of German participants, and the organizational, social framework conditions of both interventions (cf. Euler, 2014). Afterwards, the process of selection of the involved persons and the development of the expected competences, activities and methods is demonstrated, representing the way from a first project sketch over the program draft to the first prototype (Figure 26). The development of the first prototype is divided into two parts: first, the key objectives, and second, the development of the design. The pre-study phase is hence equal to the development or conception phase.

On the one hand, the pre-study strongly relates to the current state of research from the theoretical framework and context analysis. More precisely, the parts of the present pre-study have been laid out in detail in the following parts of Chapters II and III:

- The problem specification (Chapter IV.2.1.1) includes a summary of Chapter I.1 and Chapter II.1.3.
- The process analysis (Chapter IV.2.1.2) is based on Chapter II.4, Chapter III and the author´s practice experiences from the field of EU project management.
- The development part of the first prototype (Chapter IV.2.1.3) is based on the design recommendations for a study visit abroad (Chapter II.4.2.2.1) and for developing the LSCT competence of subject content teachers (Chapter II.4.2.2.2).

- The quality criterion evaluation (cf. Chapter IV.2.1.4) is based on Chapter III.1.6.1.

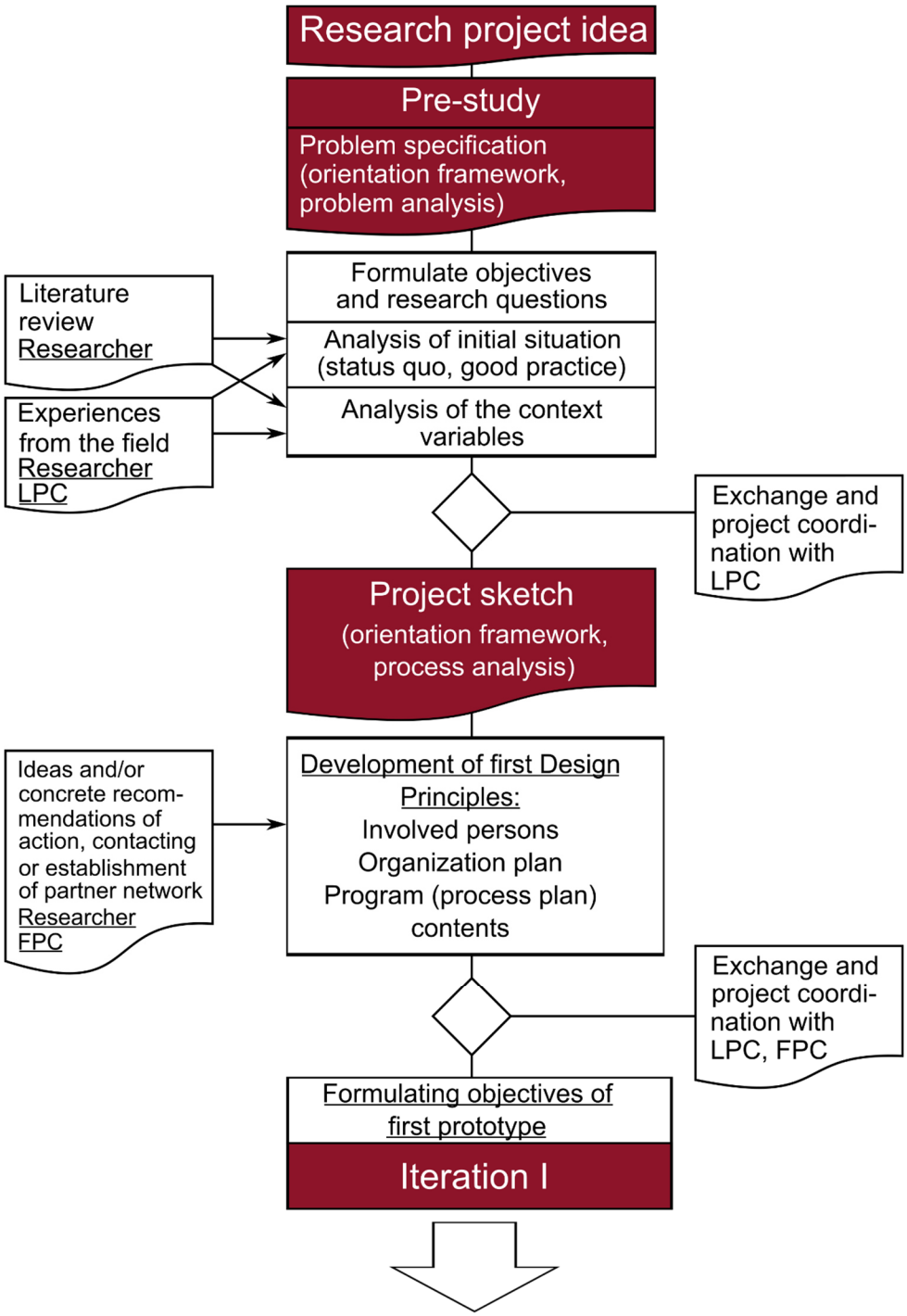


Figure 26 - Pre-study and development elements of the present DBR process (own diagram)

2.1.1 Problem Specification - Transnational Study Visit in View of Language-Sensitive Content Teaching as a Professional Development Intervention for Vocational Teachers

> « The important thing in science is not so much to obtain new facts as to discover new ways of thinking about them. »
>
> *Sir William Lawrence Bragg*

2.1.1.1 Developing the Approach including a Discussion of the Term Innovation

The idea is to develop and implement a transnational study visit as a professional development intervention (PDI) in view of language awareness, strategies and additional knowledge about language-sensitive content teaching. Figure 27 illustrates the motivation for designing the research model for the study visit in another European country.

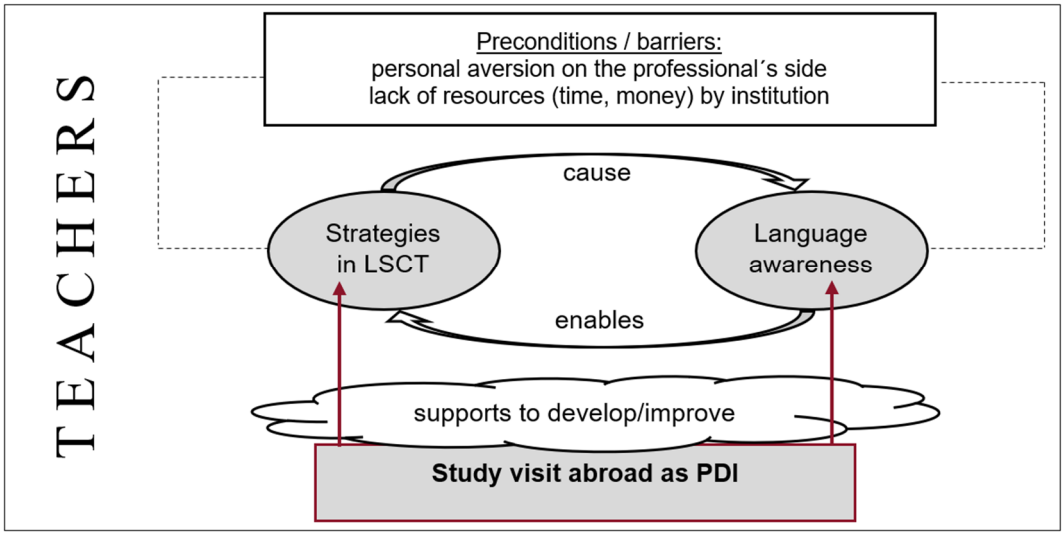


Figure 27 - Motivation for the study visit abroad (own diagram)

As discussed in Chapter II.3.2.3, the teachers´ language awareness (LA) thereby represents a central component in order to be able and willing to use strategies for language-sensitive content teaching (LSCT). LA and LSCT on the professionals´ side mutually define each other. If a teacher has a positive attitude towards their own use of language and the learners´ language and is aware of the impact that language has on the teaching outcome, they are more likely able to promote learners´ language development within the general or vocational subject

teaching lesson. On the other hand, a teacher will probably develop skills and knowledge about how to promote the learners´ language and professional skills simultaneously if he is aware of language. An adequate professional development intervention (PDI) can be one solution to improve LA and LSCT (cf. Figure 27 above).

Many scientists in educational and linguistic science (and recently also a few representatives from business and vocational education and training) have been engaging in research about the didactic advantages and the development of specific teaching material that is, with regard to the topics, oriented towards the needs and interests of non-native speakers. To a certain degree, the author also dedicated herself in a team of scientists and teachers from VET to this challenging task (Peitz & Kimmelmann, 2018). The gap, however, between this exemplary work on teaching material and the willingness, ability or opportunity to continue this work in daily school life, still existed after the project. What is more, there is indeed a rich and growing environment of language-sensitive didactic methods in educational science and some linguists and educationalists have published their study results in the field of “language and occupation”. After some years of experiences in both the scientific world and the author´s connection to practitioners in the field (VET institutions, social educational institutions), it can be conducted that there is a second gap: Teachers and further practitioners in VET often do not have access to the range of educational material, for various and often unclear reasons.

One striking observation was made in the course of the above-mentioned prior project: teacher language awareness was indeed the central factor in the debate on language-sensitive content teaching (cf. Kimmelmann & Peitz, 2018a; Peitz & Kimmelmann, 2018).

During the time of focusing on the didactic material, the author was working on the practice side, too. The project she was working in was an initiative of Erasmus+ aimed towards the enhancement and increase of mobility of young learners in view of their initial vocational training (mobinardo, 2020; Peitz, 2019). Internships in European foreign countries are supported financially and in a content-related manner by the advice and supervision of the project team which the author was a part of.

Obviously, almost all approaches in VET (with regard to language-sensitive content learning) focus on learners, whereas teachers are mostly addressed only indirectly through measurements for learners.

The above considerations and the demands of improvements in the quality of and internationalization of teacher professional development mentioned earlier (see Chapters II.3-4) led to

the author´s idea of developing a teacher stay abroad in a European country other than Germany (the home country of the participating teachers).

In the context of the author´s work in the project management of grants for internships and study periods in a European country abroad, she developed a new small-scale project: an intervention designed for in-service teachers[69] of the present learner target group in the form of a multi-day study visit abroad with the only focus on integrated language development in school-to-work transition systems. The idea of this concept involved trying to contribute to closing the research gap (how can teachers be promoted in developing their competence of teaching contents in a more language-sensitive way).

The first development phase of the design of a study visit with the focus on language-sensitive content teaching took place in cooperation with a colleague from the project management who is a teacher expert in the school-to-work transition system, responsible person for refugees, the International Classes, and language-sensitive content teaching at her school.

The idea of placing the professional development intervention (PDI) into another European country in order to contribute to the above-described problem has been a developmental process itself. It took place before the actual development design process started. It is, however, part of the general research design and can thus be associated with the pre-study of the intervention.

In the newly developed project having been developed by the author herself, the issue of promoting language skills of native and non-native speaker students that are relevant for the job/profession is addressed within the scope of a professionalization of vocational education staff. It is thus important to identify factors that are beneficial for language development integrated into vocational and general subject content lessons at vocational schools from the teachers´ perspective.

The literature review was an ongoing process that took place before and during the brainstorming process for the didactic design. As a result of this literature analysis and as indicated by the developmental process within the QBi project, it has become apparent that in particular two factors are essential for a successful processing in vocational subjects: First, a sensitization of teachers in view of the above-mentioned target learner group is important. Second,

[69] It is important to note that the design of this study can be adapted by teacher students during their studies as well, however, in modified form.

there is the need for a specific professional development associated with teachers´ own behavioral patterns and attitudes as well as experiences which often cannot be sufficiently achieved, e.g., by an in-house theoretical or practical further development. Factors such as one´s own experiences with a foreign language in the vocational subject or the teachers´ general appreciation of multilingualism and the learners play an important role.

The intervention within the program is financed by Erasmus+ grants in the form of a mobility project financial contribution that is partly intended for teacher mobilities (cf. mobinardo, 2020). There are usually only very few teachers who apply for a mobility in another European country, and if so, primarily for taking part in a language course abroad or as the accompanying person for a student group during an internship in the respective country. As the author was an active part in the project management of the *mobinardo* initiative, the administration as well as the access to the network of vocational schools and teachers were realized as a part of the responsibilities within this position. The orientation along design-based research is demonstrated already at this point, as the author represents the interface between science and practice. The reason for this is that she is both researcher with her scientific background and perspective and practitioner as project coordinator within the mobility project in vocational education and training with a European reference. The innovative idea of the present study – to promote LSCT competences by taking part in a design-based PDI in a European country – resulted from this combination.

Defining (educational) innovations as an introduction to and prerequisite for understanding the present project idea

The present research project is a new approach in the form that existing concepts, such as the interpretation of LSCT, transnational experiences of VET teacher, and a study visit as professional development format are creatively used, combined and extended. For instance, the advantages of the study visit concept and the design recommendations from studies investigating how language promotion can be subject to PD measures of subject content teachers (Chapter II.4), were combined. The creative use of existing concepts with the aim of combining the internationalization of PD in VET to enhance teachers´ competences by applying the design-based research process is new. Using an international exchange of experiences in a country where the language of communication during the PD is a second or foreign language for the teacher as a means to promote or develop teachers´ language awareness is equally innovative.

In general, some aspects must be taken into account when defining innovations (cf. Bester, 2000; Vahs & Burmester, 2002): 1) There are different definitions which share a joint core. 2) An innovation is not characterized only by a new idea, but this idea must be implemented and established so that there is a useful change through it (Hauschildt, 1997). Reinmann (2005, based on Reinmann-Rothmeier, 2003) determines a pedagogic or didactic innovation in educational science as "at best, under certain conditions, the *application* of new scientific findings, new concepts and new media" in connection with learning and teaching (p. 53-54).

In addition to this central element, it is possible to distinguish between a traditional and a modern understanding/concept of an innovation (ibid.). For innovations in educational science, one has to consider which of these concepts might be more appropriate and useful. Following Reinmann´s definition (2005, p. 54), the traditional understanding assumes that an innovation results from an individual idea and significant progress achieved by only few specialists, which is followed by a direct and dramatic effect. In line with Vahs and Burmester (2002), there is a radical change, e.g., during the industrialization when the railway or the assembly line were developed. Without doubt, a large success and revolutionary (*radical*) changes are associated with these innovations.

"Little strokes fell big oaks". In contrast, in the modern understanding of innovation, the incremental innovations are of similar importance. These are characterized by a higher degree of openness. The modern concept allows for unimpressive and less conspicuous effects of innovations (Reinmann, 2005, p. 54). This involves on the one hand that the innovation can be a product of a variety of small steps over an undefined amount of time. On the other hand, apart from specialists, anyone is considered a possible innovator. Incremental-evolutionary innovations is another term used for this type. The long-time development of a social system as well as the introduction of a specific style of leadership serve as best-practice example. Here, the effect might only be recognizable after years. The success of incremental innovations will rather be achieved by cooperation and teamwork. In line with the statement by Sir William Lawrence Bragg, this matches the concept of an innovation as the author understands it: Finding new ways of reflecting about (new) facts in science is important. Furthermore, existing theories and (the author´s) experiences about LSCT are taken and combined with concepts from theory and practice which leads to creating something new. The impact of this result (reactions during the implementation, the effectiveness and practicality) and the scientific knowledge that will evolve can show if it is an innovation.

The argumentation above reveals the modern concept of innovation as the more suitable one in the context of education. Thus, the present innovation will not pursue the goal to create a revolutionary change. Such an expectation would result in failure with prior notice. Instead, there is the idea of a European perspective on LSCT in view of PD and the concrete practical implementation of a PD intervention (the study visit abroad) that needs to be further improved and developed. On the long-term: This could – for instance in the form of obligatory study visits abroad for teachers working with non-native speakers as an integral part of curricula – become an innovation of evolutionary character. The growing perception of language-sensitive content teaching by school managements and their personnel, and the necessity to provide teachers with sufficient time and space to develop their LSCT competence might be a slow process. The aim is to raise a constant awareness for the importance of LSCT, also with respect to the European level. The aim is moreover to increase the awareness and draw the attention to letting teachers practically experience the LSCT issue by a measure that takes them away from their home and work base (time and space, external PD).

As concluded by Reinmann (2005, p. 55-56), whether a new concept in business and educational science is an innovation or not, depends on the context and the domain with its rules, standards, guidelines, practices, the social environment. It moreover depends on the individuals driving the innovation forward or benefiting from it. A constantly recurring barrier of pedagogic innovations is represented by the degree of noticeability and visibility (ibid.).

The discussion about innovations above already indicates the characteristics of the design-based research paradigm. According to Reinmann (2005, p. 63), the three factors innovation, practicality and sustainability of the innovation are, in summarized form, considered the major quality criteria of design-based research.

Lipowsky and Rzejak (2015, p. 7) recommend providing teachers with the chance to experience and perceive their own effectiveness. Following Timperley, Wilson, Barrar, and Fung (2007), this experience constitutes an essential prerequisite that teachers indeed integrate new knowledge and skills into their behavioral and activity repertoire (cf. Chapter II.3). Moreover, it is a prerequisite for potential sustainable changes with respect to classroom interaction. Knowledge and skills here include new methods/practices for teaching lessons, strategies, or ways of behavior that deal with LSCT.

This, in turn, leads to the aspects which have to be considered when developing the contents of a PDI. It is, for instance, important for researchers or trainers to stimulate and encourage teachers to reflect on relevant reactions of their learners as well as on changes in the learning

process (cf. Timperley et al., 2007). Teachers´ perceptions should be directed towards these aspects. This can lead to encouraging them to recognize the effects of their acting which is a highly complex requirement in the development process of a PDI.

As pointed out above, potential contents or intentions of the study visit are, for instance, the design of the STWT for learners with migration or refugee background, possibilities of their successful integration into the job market, interplay of educationists from theory and practice of different European countries, and support of teachers with respect to dealing with cultural and linguistic diversity of learners.

During the development of the project, the focus was put on supporting teachers who face challenges in their work at the school-to-work transition. In view of the learner target group, this priority will be supplemented by the highly relevant aspect of social inclusion. Current societal and vocational education-relevant trends are thereby incorporated.

The personnel of vocational education and training institutions (VTI) requires impulses and practice-oriented support and exchange in view of their daily teaching lessons as well as regarding the interaction with the learner group includes both non-native speakers and linguistically-weaker native speakers. This learner group is hence characterized by cultural, linguistic diversity and the diversity which refers to the learners´ lifeworld. In order to deal with this, teachers are required to have a specific LSCT competence which is added on their competence profile (cf. Chapter II.3.2) involving, e.g., language awareness, flexibility towards the learners´ use of language or different teaching techniques, or the ability to adapt to different learning levels.

The requirements emphasized above underline how wide-ranging the teacher´s role is (cf. Chapter II.3.1). In particular with regard to the school-to-work transition, the teacher acts by playing a “multi-faceted role” which can involve being a moderator, consultant, motivator, instructor as well as linguistic role model/assistant, apart from (general or vocational) subject teacher. The project in the form of the PDI addresses the need for action that arises from the above-mentioned “multi-faceted role”. The necessary LSCT competence factors (Chapter II.3.2) can be promoted through the PDI in a different European country and it is important to investigate to which extent these competences can be improved. To this end, an intervention will be

- developed
- planned
- tested

- evaluated
- refined
- tested and evaluated again (summatively) and
- documented.

This includes the joint contemplation, reflecting, discussion, or observing/experiencing of valuable, new teaching and learning processes and strategies for mastering the challenges with the described learner group in the teachers´ daily working life.

2.1.1.2 Objectives of the Approach

The overall objective of the developed professionalization concept is as follows: through a study visit abroad, an interactive, social exchange of experience with foreign teacher colleagues and external partners engaging in the LSCT topic shall enhance the respective competence of the German vocational teachers.

In order to clarify what this approach shall achieve, the concept of the professionalization program and its relation to the design-based research approach will be explained briefly. The design of the professionalization program contains two major objectives which will finally lead to recommendations for action, i.e., context-sensitive design principles..

Determining the objective of the approach is complex in light of its variables and influence factors. Both for the teachers concerned and for the author as a researcher, the entire spectrum of factors associated with LSCT and the discourse level in a foreign country for the participating teachers is challenging to comprehend.

The formulation of the objective is strongly motivated by the following quotation about teacher behavior by Döring (1992, p. 9)[70]:

> "Individuals engaged in ´delicate/sensitive´ social fields such as teachers should be aware of their ´overall impact´; they should undergo a constant self-critic reflection – and with this, their conscious acting as a teacher in general".

Thus, following Döring (1992, p. 9), the professionalization concept shall provide answers to the challenges related to the complex teaching practice – here related to the LSCT compe-

[70] The original quotation by Döring (1992) was translated into English by the author.

tences. At the same time, the quotation is an invitation (or even call) to teachers – the "responsible didactic person" (ibid.) to orient their acting on particular criteria which can also be referred to as standards of teaching (cf. Chapter II.3.2.1).

The approach combines the effort and ambition of developing a program concept for the context above that will generate recommendations – the first design principles. On the one hand, they shall involve factors dealing with how well the study visit program contributed to enhancing the teachers´ LSCT competence (activities and methods). On the other hand, they shall produce principles resulting from what has been learnt (knowledge increase) and revealed in view of LSCT now that the perspective has been widened from nationally-based to transnationally-based (expected learning outcomes). A third dimension of recommendations is addressed by testing, analyzing and evaluating the conditions of teaching and learning abroad, referring to location(s), the interrelation and interaction of all persons involved in the study visit and individual conditions in particular regarding the German vocational teachers.

Intention- and content-related considerations

The objective of the new approach is structured into four major parts as follows:

- "experience outside the box": gaining knowledge about LSCT and discussing the subject in a different geographic location increases focus, caution and mindfulness better than, e.g., a theoretical lecture or a team meeting with colleagues. This shall lead to better opportunities of thinking and reflection.
- learning from European neighbors regarding language promotion within content teaching means: knowledge expansion and exchange of experience in view of language development in vocational education and training. More precisely, teachers shall experience whether their European colleagues face the same or similar problems and how they solve them. Two sub-objectives are pursued thereby:
    - support and sensitize teachers in view of both linguistic and cultural diversity and
    - work and reflect on methods and/or material for the language promotion of learners with language difficulties
- language awareness development due to the necessity to use a language of communication other than their native language. The literature review and the findings from

the practice (Peitz & Kimmelmann, 2018) revealed that *understanding* the *role, importance and use* of language and communication within teaching (vocational) action competence to students is highly important and a prerequisite for teachers´ LSCT competence development. As highlighted by Shulman (2019, p. 69), "in addition to knowledge, teaching well requires understanding. Those who understand, then, teach."

- the transfer of what has been learnt and/or experienced during the training program into the daily school life.

Activities- and methods-related considerations

Besides the design of the actual content, a reasonable and practical organization contributes to the success of the intervention. Organizational considerations will include the format of the didactic design, the preparation, support, supervision, and follow-up of the participants, the partner selection at home and abroad. The activities and methods will be coordinated with the contents and intentions (expected competences) and diversified in the design. This means, following Huber (2009), there will be a combination of cognitive-theoretical activities for the transfer of knowledge (by presentations, talks) and phases of discussion, reflection and the teachers´ analysis of their own experiences with language problems and solutions in teaching. Second, cooperative methods such as group work or intercultural dialogues are linked to this. Third, school visits or job shadowing have a high practical effect and are included, where possible (depending on the cooperation with foreign partners on-site). Study visits possess the advantage of offering high levels of intercultural and linguistic communication, where the participants have the chance to exchange experiences. As the study visit takes place in another country, it is expected to be perceived as highly intensive.

Target groups of the approach

The personnel of vocational training institutions is the direct target group of the approach. This means vocational or general subject teachers at vocational schools in Germany (as participants of the study visit program), who, in their daily working life, deal with heterogeneous learners currently being enrolled in programs at the STWT. Heterogeneity is observed regarding language levels as well as cultural backgrounds. As pointed out before, in NRW, this mainly

concerns educational programs such as vocational training preparation (International Classes), whereas in Bavaria, it refers to vocational orientation (vocational integration classes). They are all part of the STWT system.

The solutions are intended to also affect institutions since they might enter the (school-based) curricula:

- on an activity-methodical level by offers of this professionalization concept by the school management to the personnel
- on a content-related level by the concrete transfer of didactic elements or elements dealing with the language awareness effect of the teacher. The transfer can be realized through two canals:
    - directly from teachers to their learners,
    - from the participant to colleagues or further related individuals, which in turn, can continue the transfer to their learners.

As a side effect, there might be a strengthening of European cooperation by the transnational discourse meetings of researchers, educational providers, and professionals (here: teachers, researchers, other related individuals from the practice) within VET. This is one of the indirect target groups.

Apart from the vocational teachers, the important indirect target group of the approach is the learners. As concluded by Heinemann, the expanded competences of teachers caused by PD shall positively influence learners´ performances (DVLfB, 2018, p. 18, 44). He furthermore argues, however, that it becomes apparent to those responsible that the precise degree of influence of the PD cannot be measured or identified due to the aggregate of influence factors on students´ learning.

The expected or desired impact on learners can, nevertheless, be formulated. Learners can benefit from potential project products (e.g., creative, newly-arranged methods, suggestions to behavioral patterns / understanding of roles / interaction of the teacher withing a lesson, or new opportunities of cooperation with further institutes regarding language development). For the learner target group, the access to the national or even European job market can be facilitated by means of improving language and professional skills, and thus, qualifications.

Why the approach is expected to be sustainable

The study visit program is assumed to be sustainable due to the fact that the focus is highly relevant from a social and an educational-policy perspective. The activities within the planned intervention shall have positive impacts on teachers and designers (e.g., of educational courses, programs, curricula): Teachers can contribute to the transfer of the professional development in that they discuss their transnational experience with colleagues at their work place or with learners during their lessons. Moreover, they are expected to import their ideas into their daily working life and report these at the institutional level (e.g., to the head of department, or as well to the school management).

This might 1) have an impact on the long-term design of vocational education and training institutions (for instance by higher prioritization of PDI), or 2) allow for an access to new strategies (e.g., team teaching with language and subject content teachers) or 3) simply enable and promote the exchange about LSCT and related topics in Germany, as well. School managements providing the appropriate absence times could be a further component of the sustainable effect, since they can recognize the additional value of the examination and dealing with the topic. The expected results might finally be sustainable in that the new strategies can be incorporated into the institutional curricula or educational course planning.

2.1.1.3 Challenges of the Approach for Vocational Training Institutions and the Professional Staff

Challenges that play a role before the start of any empirical procedure range primarily from finding cooperating partners in the respective European country of interest over the question about an appropriate sampling and the financing of the whole process.

If future questions about the teacher further development within VET shall be answered by a more international perspective, these issues need to be solved. This requires decision-makers´ support, and vocational education and training institutions have to provide the framework that enables their staff to take part in a professional development measure involving another country. Financially, this includes drawing from resources from the school management site, concerning the release of staff for the duration of the intervention and utilizing and paying for the intervention. Nonetheless, as demonstrated in this thesis, there is a pool of funding opportunities such as, e.g., by the European Union. Hence, it is important to draw

the attention to the existing initiatives and combine this with pilot research projects such as in the present study.

This is also highlighted by Esser (2017, p. 5) in the following extract from his introduction into future questions of VET:

> "The programmes and strategic processes of the European Union are playing a central role in this regard. Firstly, they provide a framework to learn from and with one another at the various system levels. They are also facilitating the reaching of agreement on transnational educational policy objectives and their implementation. For many EU citizens, learning across borders is becoming a reality via the mobility programmes offered within the scope of Erasmus+. These enable learners and teachers from the member states to undertake a stay abroad. Funding numbers in vocational education and training have more than doubled since 2009 and have even increased six fold compared to 2006. From a domestic point of view, this is a welcome tendency which needs to be continued. Nevertheless, it should be stated that vocational education and training still has a lot of catching up to do compared to other educational areas. For this reason, targeted incentives need to be put in place with regard to all three learning venues – companies, schools and inter-company institutions – in order to lend greater emphasis to networking."

There might exist – or also even evolve in the course of the research process – challenges on different levels, e.g., with respect to organization, the content-related design, or also the methodological access. The latter would include challenges regarding the sampling (Can participants be found? Are they an adequate choice for the purposes? Are the partners in the European countries willing to cooperate?) or regarding the criteria of the design-based research approach.

The extent to which such a study visit makes sense to which type of teachers, i.e., teachers with (how much) or without prior experience in language-sensitive content teaching represents a question left open at this point in time. Another interesting aspect would be to consider a combination of teachers with different competence levels in the field of language development and LSCT in a PD participant group.

One further potential challenge could be represented by the sustainability of the approach. In the subsequent chapter, the sustainability feature of the project will also be reflected in terms of being a quality criterion of the design-based research process.

The question about sustainability is complex from a researcher´s perspective. As highlighted above, it is important to deal with this factor when studying or developing innovations. Sustainability is one desirable outcome in the context of an innovation. In particular, a new approach for PD on language-sensitive content teaching within teaching and learning research would be classified into the modern concept of innovations. Addressing the question how sustainable

the measure is, i.e., which results will remain, is an important procedure in the research process.

2.1.1.4 Analysis of the Context Variables

As highlighted by Jahn (2014, p. 7), the contexts of implementation need to be described by means of relevant features (context variables) in such a way that practitioners can compare them to the conditions of their particular context.

Following Euler (2014b), the conditions of teaching and learning of a didactic design can consist of two major aspects: variables describing the individual learning conditions (a), and organizational and social framework conditions (b). In the present thesis, (a) means, e.g., the conditions related to the specialist, professional, demographic, job-related background of the German participants. Moreover, their specific need for PD, problems or challenges at the school-to-work transition are also part of this conditional aspect. In contrast, (b) refers to the particular location (educational policy of the country, institutional conditions of the schools / universities which are included in the intervention) in which the designed concept shall be tested. It furthermore involves the specific organizational design of the concept, the duration of the measure, the instructor(s) and responsible persons involved in carrying out the intervention, or the selected country. For instance, in the present thesis, aspect (b) describes the multi-day study visit program for a group of German teachers carried out in cooperation with two vocational schools and the department of teacher education at Stockholm University, Stockholm, Sweden (first intervention).

The testing, evaluation and modification of the prototype in this study takes place via two iterations in one context. This context C_1 is mainly characterized by professional development of in-service teachers in the German vocational education and training system (STWT). It is vital to take into account that the context holds different variables which will have an impact on the implementation and/or outcomes.

The context C_1 differs in its variables over the iterations due to the framework (Sweden for serving as hosting country for the first iteration I_1 in contrast to France as target country of the study visit of the second iteration I_2).

With regard to the compilation of the research subject group, the participant group changes between the two interventions. However, the group of the second intervention shares a similar

or equal professional background while it differs in other variables such as gender or group size or the concrete combination of subjects they teach.

Context variables (a) referring to individual learning conditions or How to describe the research subject, the German vocational teachers?

With regard to a qualitative study, great attention is paid to the content-related representation (cf. Mayring, 2007; Reicher, 2012), which is achieved by a proper grouping of the sample (cf. Chapter III.1.3.2). In this study, the sampling is therefore determined by systematically selecting the participants.

The study visit abroad was tailored to participants fulfilling the following criteria:

- vocational or general subject teachers
- teaching heterogeneous learner groups
- in educational programs classified to the school-to-work transition
- in German vocational training institutions (limited to the Münster Administrative District; NRW, Germany, due to the regional scope of the funding of this research project)
- who wish to learn new and practical aspects of language-sensitive content teaching and exchange experiences with colleagues from another culture.

Literature research and experiences from the field have identified individuals having the above-described features as the target group in need of support. A more detailed overview of the participant information (institutional affiliation, interest in languages, working experience etc.) will be provided prior to each implementation in the two cycles (Chapter IV.2.1.3.1.3 for the first iteration, Chapter IV.2.2.2.1.3 for the second iteration).

All in all, the participant structure can be illustrated as follows:

Table 12 - Aggregated structure of participants for iterations I_{1-2} in C_1

No.	Gender	Specialist field / discipline	Type of teacher	Itera-tion:
P_1	female	Dual System: Opticians, German as Second Language (SL)	Practical work	I_1
P_2	female	Education and Social Care; Personnel Management and Process Organization, German as SL in IC	Vocational/ general subject	I_1
P_3	female	English, Religion, German, Mathematics in the fields of business, cosmetics and health care	Vocational/ general subject	I_1
P_4	female	Economics, Business Administration, Accounting, Politics, Marketing	Vocational/ general subject	I_1
P_5	female	German / German as SL in IC Economics, Politics	Vocational/ general subject	I_1
P_6	male	English, Dutch, Social Science, French, Economics, Administration, Office Management in STWT	Vocational/ general subject	I_1
P_1	male	English, German in STWT, commercial college and upper secondary level	Vocational/ general subject	I_2
P_2	male	Commercial subjects, Spanish in STWT, technical college (*Berufsfachschule*)	Vocational/ general subject	I_2
P_3	male	English, German, Politics in VTP, technical college (*Fachoberschule*), upper secondary level	Vocational/ general subject	I_2
P_4	female	English, Spanish, German as SL in IC, technical college, vocational college	Vocational/ general subject	I_2

Source: own research

Context variables (b) referring to organizational/social conditions or How to select an appropriate country and project for carrying out the implementation?

In the process of modeling and describing context variables, one question is important: Which features of the context are most important? The analysis of the context variables (b) was carried out in a three-step process: After a first discussion between the researcher and the local project coordinator, the researcher carried out a country-specific literature analysis as well as an analysis based on results from presentations and talks at the “VII Stockholm International Conference on Vocational Education & Training” conference in Stockholm, Sweden, in May, 2018, with scientists from the field of VET, teacher education and their interpretations of the LSCT concept. The findings from the analysis taking into account the initial discussion led to

the third step, the final discussion and preference list of potential partner countries for the planned PDI. This final discussion involved the researcher and the local project coordinator.

The teacher professional development in VET context has different variables depending on the country the intervention takes place in. Sweden, Italy, France, Czech Republic, and United Kingdom are European countries which were investigated for suitability and were among the countries where potential partners were available. Becoming a partner would include cooperating with the researcher and her local project team, being a host for the German teachers and cooperating as an on-site collaborator for implementing the designed program of the PDI, among others. Considering all factors combined, Sweden and France became the partner countries of this project.

Elements relating to the LSCT concept are also part of the VET teacher training in Sweden and France. For France, it is regulated that the promotion of learning French as one of the key competences in VET across all curricula. How are the teachers prepared for this requirement? The Centre Inffo (2016, p. 6) states that "[t]o become a teacher in upper secondary VET candidates should pass a national exam". Afterwards, teacher trainees undergo a practical preparatory phase, similar to the second phase of teacher training in Germany, by means of school traineeships. During this period, the teacher trainees "learn teaching strategies for coping with problems and situations where students are facing difficulties in understanding" (ibid.).

As was pointed in out in Chapter II.2.2.2.2.3, the Swedish VET system includes for the upper secondary schools that Swedish "has the status of cross-curricular objective" (Skolverket, 2016, p. 5). With respect to training teachers for learning Swedish as one of the key competences, one central element of the VET teacher program is the communication ability development (ibid.). The teacher training prepares "for interaction with learners: how to communicate, to give feedback and to help reflecting upon learning process" (Skolverket, 2016).

The interface between problem specification and process analysis (illustrated in a first project sketch) is represented by a planning and development meeting between the researcher – who now goes back and forth between the scientific and the practice world – and the local project collaborator.

2.1.2 Process Analysis including Project Sketch

The preparation of the research project involved three major elements to be carefully planned, analyzed and monitored in order to develop an appropriate didactic design. The following project sketch illustrates the elements of this orientation framework (Figure 28):

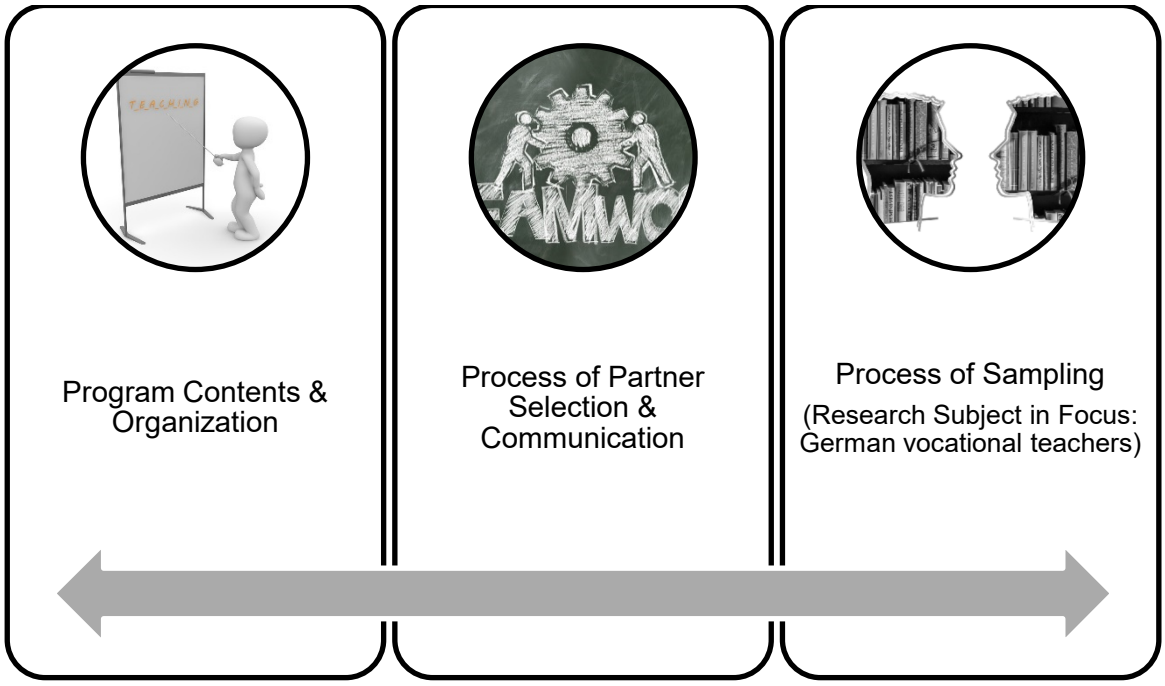


Figure 28 - Project sketch - orientation framework (own diagram)

After the criteria essential for the design of the content of the intervention as well as organizational considerations have been gathered in a first project sketch, the process of partner selection in Europe started followed by the sampling of German participants.

2.1.2.1 Orientation Framework: Expected Competences, Activities and Methods of the Program

Expected competences are the intentions or objectives of what is to be achieved in the form of a future learning result (cf. Chapter III.1.4.2). Following Heimann (1976a, p. 105), these intentions represent the purpose of teaching actions and giving these teaching actions a meaning. By determining the intention of the teaching situation, the question of *what* and *why* should the program abroad teach is answered. As argued by Wilbers (2019), apart from – and also as

a consequence of – having a specific intention, the expected competences require developing ideas regarding the subject matter and the contents.

In the present case, several didactic items are developed and assembled, each of these having its own specific objective which together illustrate the entire intention. According to the results from the summarized problem specification (Chapter IV.2.1.1) and thus, literature findings, the following potential content-criteria for the didactic design have been derived:

1. Insight into the country´s VET system with a particular focus on educational formats (teaching practice) of language promotion for (second language) learners with a lack of language proficiency in the country´s official language
2. Opportunity for a personal exchange of experience between teacher colleagues within the VET school system of the specific country in order to increase language awareness
3. Gather information on cooperation forms between VET institutions, companies or external institutions such as employment offices
4. Additional activities which contribute to learning country-specific aspects of the issue

The criteria result from the theoretical and practical findings in the pre-study, and are aligned with the conclusion about how the elements of the LSCT competence are theoretically defined (cf. Chapter II.2). Methods chosen for the design are mainly based on the recommended principles associated with studies by Lipowsky and Rzejak (2015, 2018), Huber (2009), and Pasternack et al. (2017) (cf. Chapter II.4). In view of the design of expected competences, i.e., the intention of the didactic design, Kalinowski et al. (2019) and Swart et al. (2018) provided valuable recommendations (cf. Chapter II.4.2.2.2). An overview of these pre-study considerations is illustrated in the following Table 13:

Table 13 - Pre-considerations on the elements of the didactic design

Description of the LSCT competence element: (cf. Kimmelmann, 2010a, Table 7 on p. 122)	**Parts of competence referred to:**	**Potential didactic methods:** (cf., e.g., Huber, 2009; Lipowsky & Rzejak, 2015, 2018; Kalinowski et al., 2019)	**Advantageous content-related features:** (following Kalinowski et al., 2019)
The teacher becomes (more) open, aware and sensitive towards the linguistic skills of their learners.	Attitude, Value, Interest	• Group work with exchange of experience or cooperative work on tasks / questions) • Joint discussions / discourses with foreign teachers on the teaching practice and the meaning of LSCT • Job shadowing with foreign teachers and subsequent reflection and dialogue • Cognitive-theoretical forms (presentations, talks)	• Research- and theory-based approaches to fostering students' language proficiency • Application-oriented knowledge • Valuing and involving students' home languages and cultures • Focus on student learning
The teacher becomes (more) willing to teach in a language-sensitive manner with respect to (vocational/subject) contents.	Attitude, Value, Motivation, Volition		
The teacher knows and understands the LSCT concept, i.e., what language promotion within content teaching means (according to the interpretation of the Swedish or French VET system)	Knowledge, Understanding		
The teacher knows where to obtain and/or how to use LSCT techniques and strategies.	Skills		

Source: own research

As the expected competences, activities and methods of each intervention were planned, prepared and carried out in cooperation with diverse partners, the persons involved in the project and the process of preparing the intervention are presented subsequently.

2.1.2.2 Orientation Framework: Elements of Teaching and Learning Conditions

> « It goes without saying that design researchers need to work closely with practitioners. It is also obvious that the practitioners need to be ones who are receptive to innovation and willing to experiment with unproven methods. These are the requirements for a willing participant, but some practitioners can be much more than this – can in fact contribute significantly to sustained innovation. »
>
> *Bereiter, 2002, p. 326*

The conditions of teaching and learning (Euler, 2014b) involve organizational and social framework conditions which concern, in particular, the organization of the format and the process of cooperation with partners from abroad. Therefore, it is necessary to include all the actors involved in a structured manner (Section 2.1.2.2.1). Furthermore, the conditions of teaching and learning describe the individual learning conditions of the German vocational teachers including the selection method of the participants group (Section 2.1.2.2.2).

2.1.2.2.1 Actors Involved in the Research Project

Planning the cooperation network of the project (who is involved and responsible for what) and determining the selection process of the cooperative partners and the German teacher participants (research subject in focus) plays an important role. Following Bereiter (2002) in his quotation above, building the network of cooperation partners involves detecting and selecting individuals who strive for new approaches, form them into practical and preferably sustainable outcomes (cf. Reinmann, 2005). It involves as well individuals who are willing to test the didactic design by using new or additional methods, or planning and carrying out new activities. With regard to Bereiter´s statement, practitioners are here understood as all the persons involved from the practice (the German vocational teacher participants, the local project collaborator/teacher expert, the foreign experts from networks, foreign teacher colleagues etc.).

In order to derive the process of partner selection as well as the selection of the sampling, it is necessary to consider the aggregate of participants in the project (stakeholders). Since the cooperation is characterized by a multitude of different actors, Figure 29 aims at providing an overview of the persons involved. The exact number of persons is not yet determined in this phase of the research process, thus, Figure 29 only represents a sketch and the amount of stick figures is exemplary.

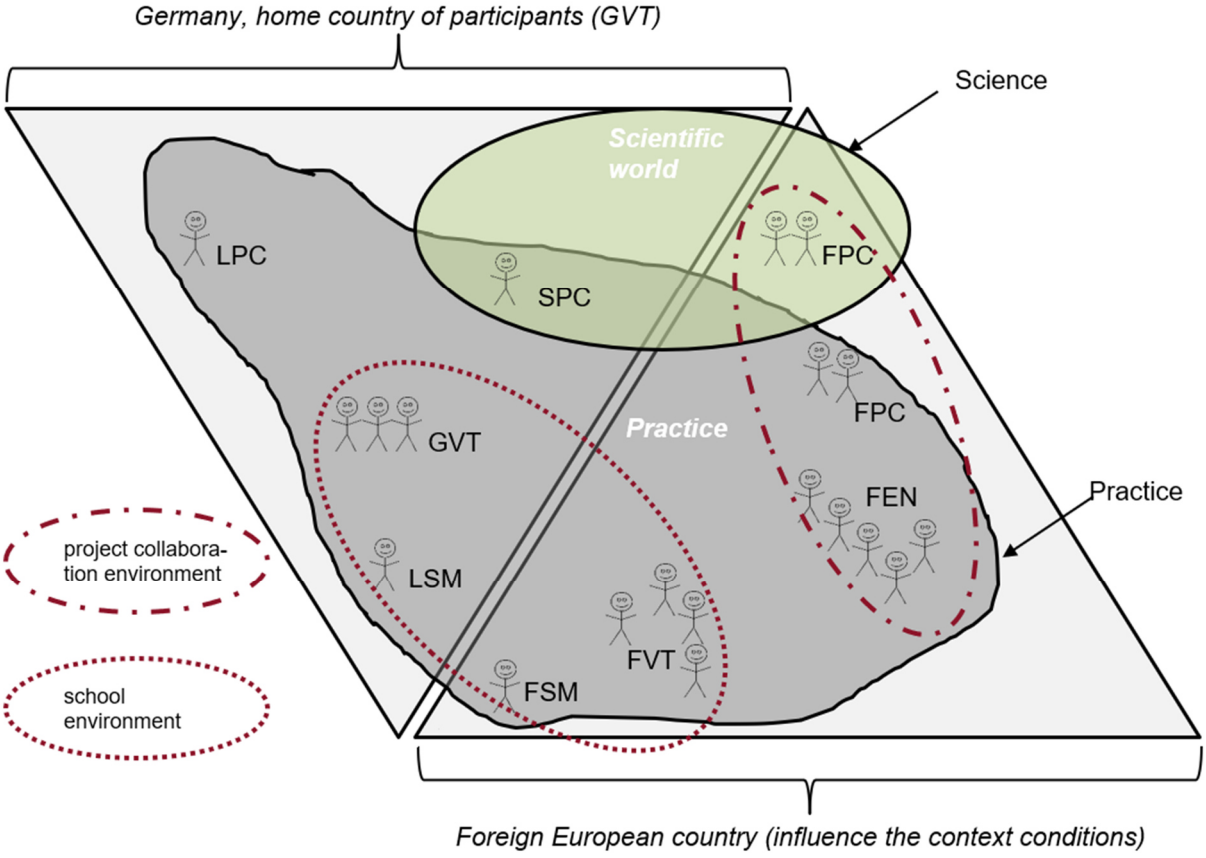


Figure 29 - Persons involved in the research project and their classification to science and practice (own diagram)

If divided by country, Figure 29 shows two groups of project participants who cooperate within the DBR project to *different* extents: scientists and practitioners from Germany come and work together with scientists and/or practitioners from a different European country in one intervention.

The researcher represents the interface between the two worlds of practice and science. Reference is frequently made to this special role, since it is essential for the quality of a DBR project to take it into account and critically reflect on this difficult two-sided role. In order to emphasize and underline this role, the researcher will be referred to as scientific project coordinator (SPC). The SPC´s role is characterized by showing a behavior and acting oriented on both the epistemological interest (how can new theories be built?) and solving a practical problem (how can the study visit concretely support teachers in their daily working life?). It is a challenge not only to determine an appropriate title for the role but as well to live up to both

parts. Scientific project coordinator was chosen in order to remind the reader that the author was the researcher and designer.

The local project collaborator (LPC) works together with the scientific project coordinator (SPC) (cf. Figure 29). The local project coordinator is simultaneously a vocational teacher with expertise in language-sensitive content teaching and the responsible person for International Classes at her educational institution. Both the LPC and the SPC are integrated into the EU mobility project as project coordinators for various application fields (administration, consultancy of trainee students and VET teachers etc.) under the umbrella of the EU Service Center for Business and Vocational Education. The responsibility for collaboration on the part of the LPC is limited to the preparatory phase of the intervention and the follow-up phase. Only the scientific project coordinator will attend and accompany the intervention abroad.

The German vocational teachers (GVT or also referred to as ´the participants´) are the focus of the study, i.e., represent the research subjects.

Foreign project collaborators (FPC, hereinafter also shortly referred to as `partners`) will be external partners from European countries other than Germany (cf. Figure 29). Their function is characterized as contact person on-site, collaborator in the concrete design of the planned intervention in the form of organization (= implementing the program contents by identifying participants in the determined context on-site, making appointments). There is a constant and frequent exchange and communication between the SPC and the foreign project collaborators as design-based research requires a close cooperation.

Foreign experts from networks (FEN) are represented by the group of individuals contributing to the intervention by providing input via short talks, presentations or workshops (e.g., the experts from the National Centre for Swedish as a Second Language (Sweden) or from CASNAV (France)).

Abroad, i.e., in Sweden or France, there are foreign vocational teachers (FVT) as a further part of the aggregate group (cf. Figure 29). The term “foreign vocational teachers” is here defined as all teachers from the participating vocational education institutions in Sweden or France who participated in the interventions to some degree. As the VET systems differ in European countries, the vocational schools in Germany differ from the ones in Sweden or France. However, all teachers participating in the intervention and contributing to the exchange of experience during the study visit, and who are employed at the foreign vocational education institutions are subsumed as FVT.

As illustrated in Figure 29, there are local school managements (LSM) and foreign school managements (FSM) who can be involved in different manners. While the LSM was an indirect part of the research process (decisive factor for permitting the participants to take part in the PDI), the school management of the foreign educational institutions can be actively involved. For instance, the FSM was responsible for thematic talks and discussions, and representing their institution to the German participants (GVT).

Table 14 shows how interests differ between scientists and practitioners (cf. Euler, 2014b, p. 20-21):

Table 14 - Different interests of science and practice within this DBR study

Different interests of scientists and practice …	
… in general (cf. Euler, 2014a, p. 20-21)	… in this study
"science is primarily interested in collecting and examining viable theories, whereas creating a field of practice is secondary"	The researcher is mainly interested in collecting and examining viable theories for a PD concept for teachers to develop the competence of being able to teach subject and vocational contents in a language-sensitive way, in the form of a study visit abroad.
"practice is primarily interested in developing solutions for problems considered relevant and urgent, and regards developing and formulating suitable everyday theories as secondary"	The teacher participants from the practice are primarily interested in solutions (new knowledge, motivation, methods and strategies) for their problem, i.e., learning to promote their students´ language skills combined with subject/vocational content teaching and overcoming mutual misunderstandings in class.

Source: own research

2.1.2.2.2 Selection Process and Organization of Partners and Participants

2.1.2.2.2.1 Process of Partner Selection

The choice of countries for the interventions resulted from the research on European countries in view of current trends about integration and language development of non-native young adults (refugees or migrants) within vocational education and training (cf. Chapters I.1 and II.1-2).

The criteria for the selection of foreign partner collaborators were: the current situation of VET (e.g., educational policy, forms and characteristics of VET schooling of migrant students and

refugees) and indications of educational activities in the field of language promotion in VET, the assessment of the performance and matching of the partner institution (e.g., Stockholm University) for the present purposes.

The selection of the foreign project collaborators took place in different ways. In view of the first intervention, the contact to the Department of Education (Teacher Education) at Stockholm University was established in the context of the scientific project coordinator´s participation in the research conference "Vocational Education & Training - Voices from Research. VII Stockholm International Conference on Vocational Education & Training" in May, 2018, Stockholm. The conference session “VET and language issues” lead to a productive and valuable exchange between the prior research project of the scientific project coordinator (QBi) and the Swedish research projects dealing with interpretations of LSCT. The focus of the Swedish research project was LSCT during teacher education at the university. The discussion showed that research for finding solutions for teachers had been initiated in both countries. Hence, a shared interest in LSCT as well as the desire to establish a potential network, exchange research concepts and find out about how LSCT can work for in-service teachers or teacher students, resulted in the author´s idea of a study visit in Sweden. To guarantee valuable assumptions, the focus in this study lies on the German participants.

For the second iteration, it appeared to be important to enhance the degree of practical relation for the participants. In addition, France was evaluated as an interesting country for an exchange of experiences regarding their high numbers of migrant and refugee students, the high value which people attribute to the French (= official) language and the specific features of their VET system (cf. also Chapter II.2.2.2). These three factors were considered as promising, but also stimulating preconditions for a PDI abroad.

The organization Association Odyssée is a social education institution in Bordeaux located in the south-west of France. Through the European partner network of the Erasmus+ project initiative in which the scientific project coordinator was working, she got into contact with this organization. They have been chosen as an adequate foreign project collaborator on-site due to their large extent of experiences in the field of “intercultural and language activities” in vocational education and training with (young) adults. Moreover, the organization is open for innovative projects (such as the present one) and provides the space to communicative exchange. In addition, they possess expertise in the field of teaching and learning relevant skills and competences for refugees and further second-language learners in the region for achieving a better access to vocational education and training and the qualification for as many young adults as possible.

In conclusion, different backgrounds, interests and fields of expertise (countries / project collaborators) are combined in pursuing objectives: finding answers to questions about language promotion integrated in VET environments and learning by exchanging experiences about this topic.

During the selection process, it was important for the scientific project coordinator to include foreign partners with distinct features. This means a broad network with diverse experiences in the above-described subject areas, different attitudes towards language, culture, interculturalism of active players in VET institutions and research or social education institutions. Finally, the partner should have been engaged in dealing with diverse strategies for solving challenges with non-native speaker students in VET and their integration into the VET system before. All of the listed factors have an impact on the design and the effects of the future intervention.

The local project team (scientific project coordinator and local project collaborator) and the foreign project collaborator (European partners) were united in their work about support mechanisms for teachers in VET. By selecting the research subject group from Germany (Central Europe), and partners for the intervention locations in Sweden (Northern Europe) and France (Western Europe), the network can be considered as strategic also with regard to the geographic distribution. Based on the VET systems, different experiences as well as diverse developments in view of migration and social change characterize the countries (cf. Hunger et al., 2008; Koehler & Schneider, 2019). As was highlighted in Chapter I.1 and Chapter II.1, these developments influence the teacher education and professional development in this field. By including different European countries, beneficial and useful results are expected.

Furthermore, with respect to the inclusion of the two foreign partner institutions and their participants within the cooperation network for the planned interventions, attention is paid to the fact that different actors possess different roles. This shall encourage and promote an exchange of experience as varied as possible. Thus, the following experts are included in the interventions (Figure 30):

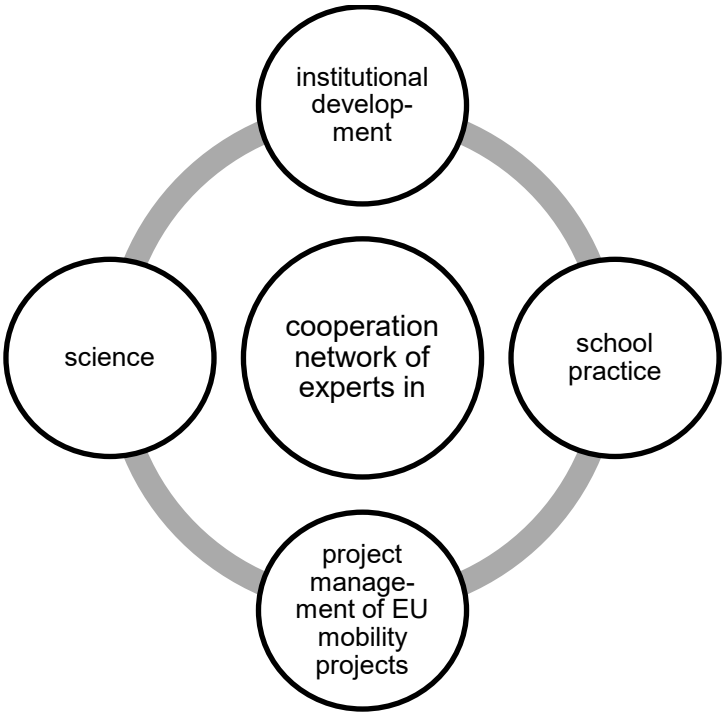


Figure 30 - Cooperation network of experts in four fields (own diagram)

- From the school practice (language teachers/specialist teachers from VET institutions in Germany and in the partner countries from the field of STWT)
- From the institutional development in view of STWT: International Classes (integration/inclusion of migrants/refugees) and preparatory programs in VET (combination of learning process which include both language competence and specialist knowledge in vocational or subject contents)
- From the project management of EU mobility or employment support projects
- From science (the scientific project coordinator´s expertise as both linguistic and vocational education scientist, VET systems in Europe, teacher professional development).

From an organizational and subject matter perspective, this cooperation of practitioners and scientists is expected to yield a productive and effective planning, implementation, evaluation, and transfer of the project contents.

2.1.2.2.2.2 Organization and Social Framework with Project Partners

The organizational planning with the foreign partners prior to the evolvement of the first prototype was part of the pre-study and included the process of contacting and determination of their tasks and responsibilities.

The communication took place via e-mail contact several times per week and regular telephone conferences undertaken by the scientific project coordinator with the partners (in Sweden and France). The cooperation included a joint strategy planning for the proposed project in view of planning, implementation and evaluation of the activities of the German vocational teachers who would be sent to Sweden (intervention I_1) or France (intervention I_2) to participate in the PDI.

The general range of tasks and responsibilities of the partners during the development phase was characterized by the following aspects (cf. cedefop, 2011a):

- Joint discussion of the project sketch in view of the quality criteria above
- Producing and including new ideas in the design
- Networking for the purpose of on-site activities: contacting local partners for participation (VET institutions including teachers, school management if available, agencies dealing with language promotion of non-native speakers or the support of VET teachers etc.) and coordinating appointments for compiling the scientific project coordinator´s theoretical program with concrete contents (expected competences), activities and methods
- Organization of the activities on-site: Supporting the scientific project coordinator with the information and coordination of accommodation for the German group of participants and providing conference rooms where some of the seminar components take place.

2.1.2.2.2.3 Process of German Teacher Participants Selection and Preparation

The process of the selection and preparation of German vocational teachers was developed along the guidelines of individual learning conditions (cf. Euler, 2014b in Chapters III.1.2.1.4 and III.1.4.2.3).

The sampling was carried out selectively (cf. Chapter III.1.3.2 for the sampling process theory). The invitation information and the announcement of the study visit abroad including a call for

applications was distributed via the existing network of vocational training institutions of the EU Service Center. The network comprises 38 public and 17 private vocational schools within the region of NRW associated with the EU Service Center. Via this network, school managements of all vocational schools were informed via e-mail about the planned study visit as professional development intervention including the respective thematic focus of this transnational mobility (LSCT). The criteria for participation determined before were clearly communicated within this announcement.

The participants handed in their application by means of specific documents sent to the EU Service Center. These were directly examined by the scientific project coordinator according to the participant a) fulfilling the established criteria for participation (cf. Section 2.1.1.4) and b) permission for participation by the respective school management. The selection took place by the scientific project coordinator in consultation with the local project collaborator.

By providing detailed information about the contents (expected competences), activities and organization of the study visit abroad (in Sweden or France) and the description of the program draft, it could be ensured that only those participants registered for participation who had an actual professional and/or personal interest in a participation. The objective was clearly expressed already in the title of the study visit: “Learning from European neighbors – Language-sensitive content teaching at the school-to-work transition system”[71]. For reasons of fairness and a limited group size due to organizability, feasibility and ensuring the quality of the study visit, the following decision was set up: one teacher per vocational school took part in the PDI. These individuals had to fulfil the criterion that they are actively engaged in a) working at the STWT (for instance in an International Class), b) dealing with the learner target group or c) with the subject matter of integrated language promotion / integration of migrant or refugee students” in any form.

With respect to the participants involved abroad, these were selected by the determined partners abroad (foreign project collaborators), by means of autonomous selection to the best of their knowledge and belief. However, it occurred in in consultation with the scientific project coordinator (author).

An important criterion for the participants abroad was that they come from the same or a similar professional field so that they can carry out the activities abroad together with the German participants.

[71] German: *Sprachförderung im Fachunterricht - Von europäischen Nachbarn lernen am Übergang Schule – Beruf.*

In summary, the preparation phase of the intervention (study visit abroad) comprised the following activities following cedefop (2011b):

- Announcement of the project within the network of vocational schools within the MS District Administration (the geographic limitation results from the validity of the project financing the interventions)
- Call for tenders and registration information
- Selection process of participants
- Administration process of participants with project coordinator
- Consultancy offer of project manager towards participants (contextual, organizational)
    - Travel organization
    - Contact between the group members
    - Contextual information about the program (the program was dynamically adjusted depending on the input of the participants in the preparation phase. This valuable information was passed on to the organizing partner abroad, discussed by the researcher/project coordinator and the partner, and afterwards included in the program if assessed as positive and plausible.)
    - Specification of objectives and expectations
    - Getting in contact – scientific project coordinator and participants
      → was offered to be realized face-to-face, via telephone or e-mail

2.1.2.3 Orientation Framework: Overview of Interventions in this Study

For the purpose of answering the research questions, two interventions have been carried out in the field of professional development for in-service vocational teachers in two different countries. The contexts share a variety of variables, whereas differ in country-specific particuliarities. Table 15 presents an overview of basic information about the intervention:

Table 15 - Overview of the interventions carried out in this study

Inter-ven-tion no.	Context (variables) of the intervention	Title	Period	Number of German vocational teachers	Number of par-ticipants in total
I_1	Study visit concept abroad about LSCT for German vocational teachers in Sweden	*Learning from European neighbors – Study visit on language-sensitive content teaching in Sweden*	13.-16. 11.2018	6	15-20
I_2	Study visit concept abroad about LSCT for German vocational teachers in France	*Learning from European neighbors – Study visit on language-sensitive content teaching in France*	21.-24. 05.2019	4	15-20

Source: own research

The structure of the documentation of the interventions in each intervention is equal in the two intervention cycles. At first, the research questions for the intervention are presented followed by the evaluation criteria relevant for the phase. Afterwards, the intervention´s conditions of teaching and learning are described, thereby characterizing its organization, social framework as well as the individual learning conditions of the (German) participants. Second, the professional development concept is presented by providing a general description of the study visit concept followed by the specific didactic design. The concept part also includes a description of the roles kept by the persons involved within this cycle and relevant information about the preparation, if necessary. Third, the implementation is documented. Fourth, the intervention is evaluated by briefly listing the evaluation techniques applied in the cycle, followed by the evaluation according to the criteria which have been determined before. Fifth, each cycle´s results are presented according to the classification of criteria. These include the achievement of objectives. The iteration is completed by discussing the findings and providing a conclusion which directly enters the next testing cycle by representing modified or additional design principles in the form of a refined prototype.

2.1.3 Development of the First Prototype

2.1.3.1 Objective of the First Prototype

It has been revealed that traditional or current implementations of supporting or promoting teachers with respect to LSCT has led to a variety of problems or did not yield the desired success (cf. Chapter II.4.3). For instance, further development programs are theory-driven and lack practicality, or teacher attitude towards language in general has been affected at all, although representing one of the most important competence parts regarding the language-sensitive content teaching competence as a whole.

A transnational study visit designed particularly to focus on this issue was assessed as a promising opportunity to enhance teachers´ qualification. To this end, it has to be determined which element(s) of the LSCT competence will be enhanced, how and to which degree. This has been tested by means of the present research model (here: prototype 1).

The prototype shall address all facets of the LSCT competences (knowledge, skills, attitudes). As the theoretical discussion about didactic designs and teaching and learning environments indicated, these environments were characterized by complexity and could only be controlled to a certain extent (cf. Chapter III.1.4.1). Hence, instead of controlling the didactic situation (study visit), careful attention has to be paid to the design and implementation of the situation.

Taking the above-mentioned aspects into account, the first prototype strives to answer the question of how to design a research model (in the form of a study visit) for developing or enhancing the LSCT competence of the present learner target group. It is important to note that the first prototype was not particularly designed for taking place in Sweden. The expected competences (contents of the didactic design) were developed for being applicable in any European country. However, with regard to the actual development process and the outcome (realization of the didactic design), the first prototype was influenced by the elements of the Swedish VET system, e.g., by the individual learning conditions of the Swedish partners or the contents in view of their specific interpretation of LSCT theory and practice.

To address the above-mentioned research question, the characteristic features of the prototype were structured into three areas: intentions of the prototype (expected competences), methods and activities (how is the design content organized by using which methods and media) and comprehensive conditions of the teaching and learning situation (social, institutional, person-related).

The study visit program was the research artifact. The long-term goal is to make the prototype "respectable and presentable" in order to let it reduce problems and enhance the situation within the specific context (cf. Plomp, 2013). This describes the value of the intervention. Finally, it is important to analyze the desired and undesired impact of the intervention, i.e., which implications evolve from letting teachers participate in the study visit in Sweden.

As emphasized in the methodological access chapter, the research question is generic within DBR. The principle research question (Which features does the transnational study visit have that aims at developing or enhancing the language-sensitive content teaching competence for German vocational teachers at the school-to-work transition?) resulted in a variety of sub-questions. Three sub-questions were answered in the course of Chapter II (theoretical framework and context analysis):

1. What is the nature of LSCT?
2. Format of the didactic design: How can diverse factors of the LSCT competence be promoted, developed or enhanced by means of a PDI with the particular focus on the target group?
3. Which design principles can be generalized?

In the course of the subsequent implementation phase, new research questions arose which were based on the principle question and the sub-questions, and which now relate to each intervention cycle. Thus, they were directed towards each of the two prototypes and describe the objectives and impact of the intervention.

2.1.3.1.1 Research Questions

The objectives (intended or desired outcome) of the first intervention as well as the potentially occurring unintended impact were addressed by a variety of research questions.

In the prototype development phase, different levels of questions have emerged:

Objective and impact

Expected competences

- Which contents are important / will help the participants:
    - to learn new aspects of LSCT (knowledge)?
    - to learn how to use methods and strategies for LSCT (skills)

- to develop a language awareness (attitude)?

Methods and activities

- How can the organization contribute to achieving the objective?
  - Format of the study visit components (type, order, length of activities, methods applied)
  - Partner selection
  - Scientific project coordinator accompanying the participants abroad as the guide, supporter, consultant during the whole process (application and preparation process, on-site during the intervention and in the follow-up).

Conditions of teaching and learning

- German participants
  - How many and which types of vocational teachers will participate in this new PD concept (in view of an initial planning of five to seven participants)?
  - How are they selected and prepared?

<u>Critical aspects / potential problems during the development phase</u>

- Which unexpected problems might occur during the development phase and how can they be avoided, e.g., regarding:
  - the reliability of the foreign partners
  - institutional conditions of the German participants (leave of absence, business trip permission etc.)
- Language of communication during the interventions is English (see also: SL/FL effect as one of the learning methods)

  This condition might represent an obstacle for some teachers to participate in the PDI at all since they have to communicate in a language that is not their first language. Hence, the condition resulting from one of the aims might turn into an obstacle for some, as well.

Research questions regarding the implementation phase of the intervention can be formulated as follows:

Objective and impact

Expected competence

- How does the transnational study visit (PDI concept) represent a beneficial starting point in view of a long-term establishment of such a program?
- Which effect does the content within the PDI abroad have on the German teachers?
- Which are the factors of interest or benefits from the teachers´ perspective?
- To which extent will the selected objectives (desired learning outcome) and the respective contents match the researcher´s (and the participants´) expectation?
- How do the participants perceive and react to the program of the design and the context conditions?

Methods and activities

- How do the teachers perceive the organization (methods and activities)?

Conditions of teaching and learning

- Which dynamics might develop within the group of German vocational teachers?
- How will the interaction between the German teachers and their colleagues from Sweden work?
- How does the intervention process work with the foreign project collaborators from science?

Optimization

- What can be recommended for the second testing of the prototype (refinement)?
    - Which design principles have contributed to achieving the objective?
    - Where are improvements/modifications of the design necessary?

- analyze to which degree the concept was successful in developing/enhancing the LSCT competence of the teachers
- effectiveness with regard to the future teaching practice and further impacts on their working life.

Critical aspects / potential problems during the development phase

- Which unexpected problems could occur?
- In the case of unexpected problems occurring, who can react to and/or solve these and how?

The prototype has to be designed and implemented in such a way that its contents / intention (**expected competences**), organization (**methods, activities**) and the organizational framework and persons involved (**conditions of teaching and learning**) in their interdependence support the development of the participants´ language-sensitive content teaching competence.

2.1.3.1.2 Evaluation Criteria

The evaluation criteria (ec) of the *prototype development* and the *implementation of prototype* are based on the objectives and further essential criteria. Based on selected quality criteria of the DBR (cf. Table 10 in Chapter III.1.6.1 on p. 194), the evaluation criteria of the development and implementation phase of the prototype are modeled for intervention I_1 as follows (Table 16):

Table 16 - Evaluation criteria of the development and implementation phase of the prototype

Part of the documentation	**Evaluation criterion ec**	**Description / type of evaluation criterion** (eo = evaluation objective)
Problem identification, sketch and specification of characteristics and process	ec_1	Content validity (the intervention is relevant and there is a need for doing it) cf. Chapter IV.2.1.4
Prototype development	ec_1	Practicality of the prototype
	ec_2	Consistency of the prototype
Implementation and evaluation	ec_{1-3}	eo_{1-3}: Achievement of objectives (formulated by questions and summarized to 4 major expected outcomes) (= effectiveness)
	ec_4	eo_4: Practicality and Relevance
	ec_5	eo_5: Sustainability
	ec_6	eo_6: Reflective application of the techniques of qualitative social research

Source: own research

The evaluation of the functionality of the didactic design (prototype 1-2) took place by analyzing the intervention through the text base in a multi-perspective manner and following the determined evaluation criteria for this phase of the research process. The text base is the aggregate of all documents which evolved from the data collection and preparation such as transcripts from interviews or the results of written surveys (cf. Figure 25 on p. 232). The evaluation elements and their relation are illustrated in the following Figure 31:

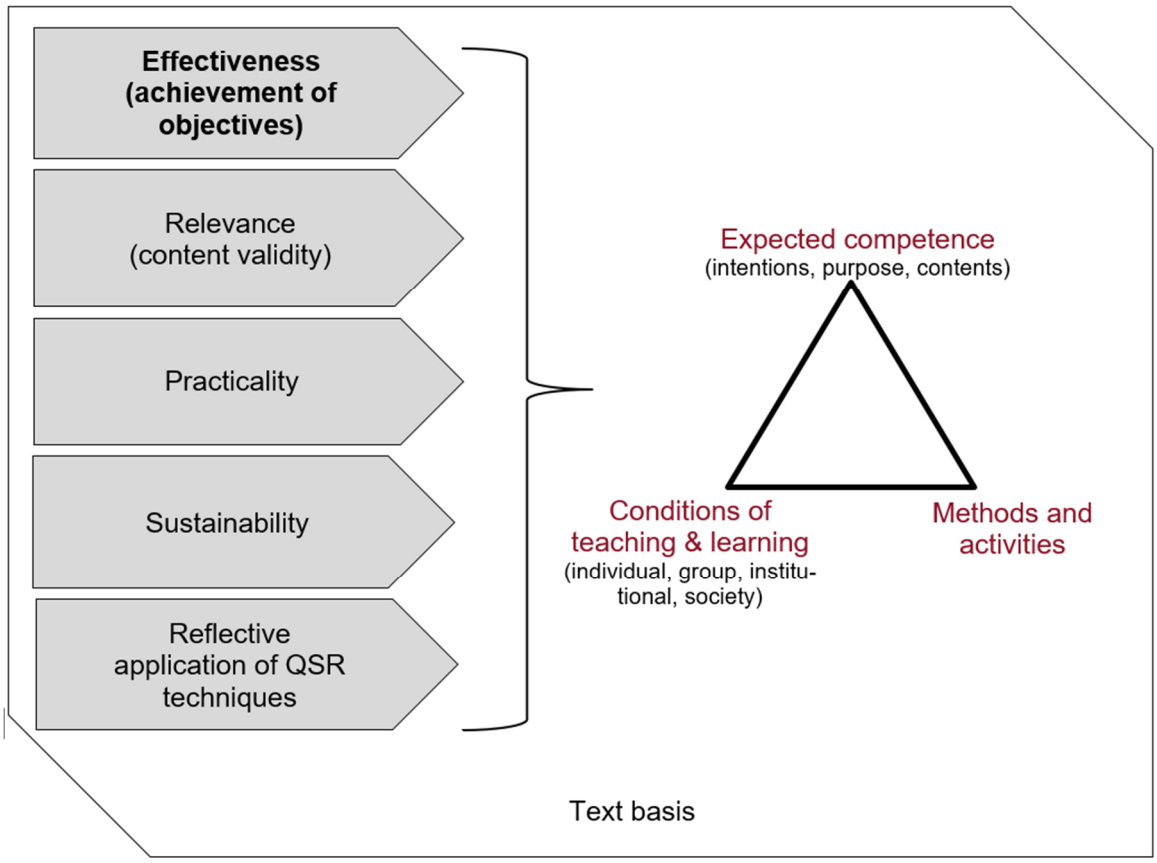


Figure 31 - Evaluation scheme of this study´s cycles of testing, evaluation, modification (elements and interrelation) (own diagram)

The criterion in bold notation in Figure 31 signifies the special emphasis put on the achievement of the objectives.

2.1.3.1.3 Context Conditions of the 1st Prototype: Organizational, Social Framework and Individual Learning Conditions

The general context in which the study visit was conducted was described in Chapter IV.2.1.1.4. Although many variables are similar, the interventions vary in their organizational framework (how LSCT is interpreted and included in the VET institutional structure, projects etc.) and regarding the precise characteristics of the individuals participating in the interventions.

In view of organizational / social framework conditions, the context in which the first prototype is tested and evaluated is characterized as follows:

- PD of vocational teachers (Chapter II.3) within VET aiming at developing their competences in view of language-sensitive content teaching (Chapter II.2) in the form of a study visit abroad in order to contribute to improving learner´s language proficiency and action competence, the target group at the school-to-work transition (Chapter II.1). This context variable is valid for I_1 and I_2.

- PD intervention is embedded into the Swedish vocational education and training system which has an influence on the didactic design

  In Sweden, similar to Germany, projects treating LSCT have started in recent years. Sweden, for instance, has similar issues and is recently involved in well-performing projects on the macro level (institutional) as well as new attempts in classroom interaction on the micro level (individual). One of the reasons for Sweden being the target country for the first professional development intervention (PDI) presented here is due to a project carried out by the research group of vocational education and training (cf. VETYL, 2020) at the Department of Education at Stockholm University. Serving as an example for PD in Sweden, teachers jointly worked with vocational students on their lack of language proficiency directly linked to certain job-related contexts. Nevertheless, apart from the project mentioned above, literature does not provide findings on Swedish internationally-oriented PDI directly linked to the development of language awareness.

  Moreover, the country faces similar challenges within the school-to-work transition phases, i.e., diversity and need for language promotion have to be addressed by professionals within VET (cf. Kuczera & Jeon, 2019). This follows from the fact that it is located in Northern Europe, the teaching culture is modern and open, and the country has undergone many changes with respect to language awareness, multilingualism and diversity of the society (cf. cedefop, 2016; Skans, 2007). Besides, programs dealing with this challenge are considerably more oriented towards the labor market than in Germany.

- Development and implementation of the study visit abroad was realized in cooperation with Swedish project partners (researchers) at the Department of Teacher Education at the University of Stockholm.

- Heterogeneous composition of the group of participants of the PDI (researchers from Stockholm University, school management / headmasters, subject or vocational content teachers from vocational institutions from different cities, partners from the Swedish National Agency) with various degrees of expertise of LSCT and diverse didactic know-how.
- Specific institutional or educational policy conditions in Sweden as influence factors on the content design (principal assumption in this study proven by theoretical and partly empirical findings: LSCT is interpreted and dealt with differently in Sweden compared to Germany).

Individual learning conditions of the context:

- Homogeneous composition of the German group of six participants in view of the LSCT competence levels, i.e., all of them have had some experience with LSCT due to their experiences with working with the target group so far.
- Homogeneous interest of all participants in the exchange of experience in language promotion within VET.
- Heterogeneity of the involved persons w.r.t. levels of work experience in vocational schools, prior other PD forms in LSCT, subjects they teach, or professional orientation of the vocational school they work in.

  Since the German vocational teachers as the research subject are in the focus of this investigation and their professional and personal characteristics will have an impact on the implementation results, they are characterized in more detail later on.

All in all, there were more than ten applicants from different vocational training institutions. However, due to institutional regulations (permission of only one participant per school as stated by the school management) or personal reasons, the final number of participants was six. This perfectly fits the goal of creating a group of five to seven participants for the first testing of the prototype. cedefop (2011a) assumes a group size of ten to fifteen persons in total by including all participants from the participating countries. Hence, five to seven participants from Germany was considered an adequate benchmark. The participant group of vocational teachers from Germany (from now on referred to as ´the group´) consisted of five female (83,33%) and one male participant (16,67%).

Table 17 provides an overview of the characteristics of the participants of the first intervention in Sweden. It is based on additional personal information sheets submitted by the participants after the interview within a follow-up meeting after the PDI.

Table 17 - Characteristics of the German teacher participants P_n with n = 1-6 in intervention I_1

Gender	Vocational orientation(s) of VTI	Teaching areas of P_n	Work experience in years	Interest in languages	P_n´s language skills	Attended LSCT-training
P1 / f	Engineering	Dual System: Opticians, German as Second Language (SL) for international remedial classes (IRC)	18	yes	English, French German	yes
P2 / f	Healthcare, Education / Social Care, Household Arts, Florists, Beauticians, Hairdressers	Education and Social Care; IRC: Personnel Management and Process Organization, German as SL in IRC	20	yes	English, French, German Italian, Persian, Portuguese, Spanish	yes
P3 / f	Economics, Cosmetics, Healthcare	English, Religion, German, Maths in the fields of business, cosmetics and health care and IRC	5	yes	English German	yes
P4 / f	Health Care, Social Care	Economics, Business Administration, Accounting, Politics, Marketing, IRC	2	yes	English German	yes
P5 / f	Business and Administration	German / German as SL in IRC Economics, Politics	5	yes	English, French, German Japanese	yes
P6 / m	Business and Administration, Catering / Food service	English, Dutch, Social Science, French, Economics, Administration, Office Management in vocational training preparation program	12	yes	Dutch, English, French, German Spanish, Swedish	yes

Source: own research

The most striking observation is that the six teachers differ widely in the orientation of the vocational training institution they work in within the Münster District. This is a positive or rather desired prerequisite since the PDI pursues the goal to develop the LSCT competence of teachers across the entire spectrum of subjects.

A second important fact is that all six participants state that they have attended a training in LSCT before. These trainings were nationally-based specialist lectures about the German interpretation of LSCT (cf. lectures on *Sprachsensibler Fachunterricht* by Leisen (2011, 2013)) or about German as a Second Language (SL), workshops such as German as a SL in the municipal integration center, or trainings related to the participant´s particular language that they teach (other than German).

None of them had attended a transnational PD before. Due to their interest in language, the learning conditions can be expected to be different from those of a group where participants have no experience with or interest in languages at all. However, it can be assumed that this group possesses a basic level of LSCT competence which might be the consequence from theory-driven lectures or as well by their experiences in the field so far. Most of them work with non-native speakers in the International Classes.

The distribution of the participants´ years of work experiences had a broad spectrum from rather *new* teachers within VTI (2 years) up to experienced teachers (20 years). The average work experience was for approximately 10 years.

2.1.3.2 Developing the Design: Prototype 1

2.1.3.2.1 The Study Visit Abroad Concept

2.1.3.2.1.1 Concept Description

The study visit took part in Sweden from November 13th to 16th, 2018. It focused on learning how LSCT is understood and implemented in Sweden in order to get a new or different perspective on the issue: How are teachers in VET supported in integrating language promotion into vocational teaching fields and how do teachers implement this in practice. As a central element of the LSCT concept, the study visit focused on the development of teachers´ language awareness (LA) by letting them experience the exact factors LA is composed of: multilingualism and the necessity to communicate in a second or foreign language (such as English in Sweden for a German teacher).

The intervention was developed and planned by the author in cooperation with three researchers from the teacher education research institute of Stockholm University (VETYL, 2020). Apart from that, from the Swedish´ side, school directors and teachers from vocational education institutes in the Stockholm region as well as a representative of a national research and development center for language development and a linguist / project manager from the practice presenting a best-practice example participated.

The teacher group from Germany participating in the project had the chance to personally meet Swedish teachers involved within VET and language development. In addition, researchers were present to consider ideas from the scientific perspective in accordance with design research. During the study visit in Sweden, a workshop, specialized lectures, exchange of experience in discussions and VET school visits took place. The language of conversation was English.

The intervention was designed in a modular way by a series of events with the group of study of participants. The *scientific project coordinator* attended the entire intervention as an observer from the researcher´s perspective (scientific). Nonetheless, in her position as *project coordinator*, she acted as guide for the group and contact person to her foreign project collaborators. The process set-up of the design is illustrated in Figure 32:

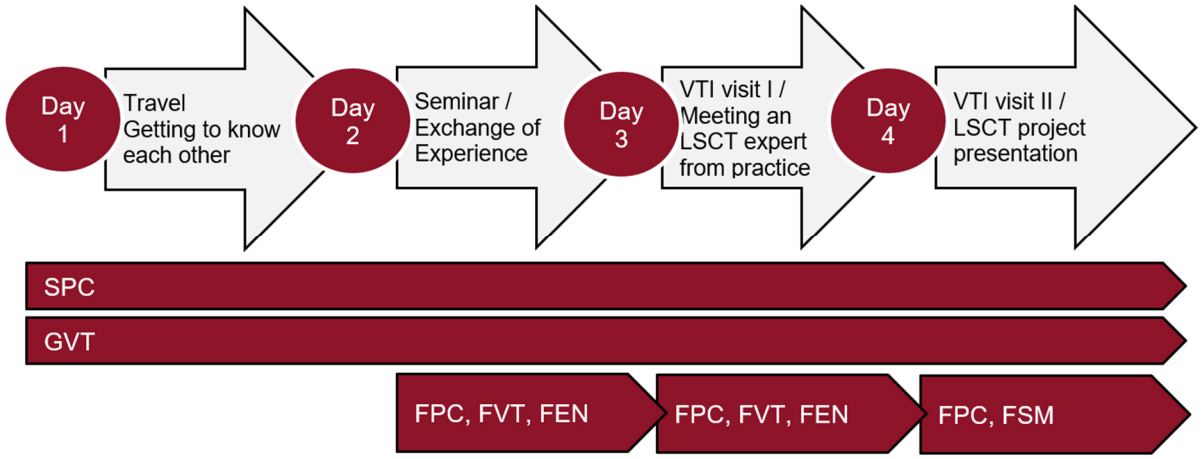


Figure 32 - Process set-up for the design of the first intervention (own diagram)

The development of the didactic design was based on the design recommendations from the theoretical literature review. It can be classified accordingly.

As pointed out by Huber (2009), the formats of PDI can generally be distinguished with respect to various criteria. The scope or the duration of the PD is assumed to be the most striking

feature. It has to be noted that these criteria are valid for the prototypes in both intervention cycles, however, the second will be refined after evaluation.

- duration: four-day study visit,
- structure / intensity in terms of time: block event,
- state of being organized: formal with potential informal elements,
- status: voluntary,
- mode: imparting of knowledge and exchange of experience,
- requirement for access: limited number of people, selection process according to previously defined criteria,
- financing: travel, accommodation and program financed by EU mobility project grant for learners and teachers in VET

Moreover, following the three format distinctions by Pasternack et al. (2017, p. 225), the PDI is demand-oriented, takes place outside the school and addresses more general, pedagogical-practical problems.

The duration of the intervention was four days, of which the first day was used for traveling. As a result of development meetings with the local project collaborator and of the feedback of preparatory talks with the teachers, traveling was conducted individually.

Setting the number of days to four was the result of considerations about a minimum recommended stay of two complete days abroad (cf. European Commission, 2020, p. 38), whereas it is less than a whole working week of absence from the teachers´ usual teaching obligations and increased the chances that school managements gave their permission for participation[72]. As found by Bachmaier (2008, p. 23) in her study about Bavarian teachers´ participation behavior in view of PD measures, due to a too high school organization effort, many teachers are discouraged from attending in-service PD interventions. The survey furthermore shows that half of all teachers of this sampling (50.2%) say that they would have like to participate in a certain in-service training, but were unable to do so due to reasons such as the need to be present at home due to private circumstances (27.4%), the unacceptable burden on colleagues

[72] This conclusion resulted from telephone conversations with different school directors in the conception phase.

in case of absence (24.3%) or the excessive loss of lessons (20.9%) and excessive absence from home (23.2%).

Finding an appropriate time slot for the PDI is thus a challenging and underestimated factor. It should be selected under consideration of the busy schedules and agendas filled with administrative and technical tasks, responsible subject matters, events (pedagogic days) etc. the teachers face. Coordinating and fixing the date for the PDI was the SPC´s responsibility. It should be kept in mind that this factor can be an obstacle for the sampling, since teachers are involved and engaged in their specific daily school work in different ways. Furthermore, VET institutions (schools) differ in their organization of the school year planning, as well.

2.1.3.2.1.2 Didactic Design

The development of the didactic design basically follows the Nürnberg Model (Wilbers, 2019) in its structure and process. In addition, during the development, apart from considering the organizational references in view of study visits in Europe by cedefop (2011a), the recommendations for the conception and implementation of PD courses from observations of an international comparative survey by Huber (2009) were taken into account. The present didactic design is:

- …oriented on the objective as it clearly refers to the research question and the expected competences are designed to meet the requirements.
- …focused on current developments in the school system in view of integrating LSCT as an integral part of VET across the curriculum and the resulting necessity to train all teachers in this respect.
- …science-oriented as it is based on current national and international findings with regard to teacher professional development measures, transnational study visits, language-sensitive content teaching and similar concepts, didactic design models and design-based research.
- …oriented on existing theory, but also,
- …oriented towards the (vocational) school practice or reality.

- …reflection-oriented since the participants are provided with opportunities to reflect on their specific competences and interests during various activities and by applying different methods, and to derive corresponding personal learning and action goals.
- …oriented towards the participants´ competences with respect to LSCT as defined in Chapter II.3.2.2 (Table 7 on p. 122). Knowledge, skills and attitude as elements of the competence are taken into account. The participants´ individual motivation is addressed, as well. Following the definition by Wilbers (2019, p. 61), in view of LSCT, these elements are considered a disposition which enables the teachers to manage subject content teaching situations independently and successfully in a language-sensitive way.
- …focused on the German vocational teacher participants, in the form that individual learning requirements such as learning time and learning speed are taken into account through different options w.r.t. the program.
- …activity-oriented since active participation and involvement of the participants is encouraged.
- …focused on cooperation and communication with colleagues from abroad.
- …method- and content-oriented as it strives for fulfilling the participants´ different learning requirements, learning habits and learning biographies by means of a varied and appropriately demanding teaching-learning arrangement.
- …transfer-oriented – despite the short time frame of the PDI – since the accompanying support through the scientific project coordinator promotes the implementation competence of the participants and thus tries to ensure the sustainability of the PD measure.
- …oriented on didactical quality which is demonstrated by the fact that the PDI nature is optimally designed considering didactic model features (cf. Chapter III.1.4).
- …sustainability-oriented as the design includes different aspects of possible effects on the participants and addresses the bridge between theory and practice or between knowledge and action.

- …instructor/speaker-oriented as the speakers and trainers abroad are carefully selected by the foreign project collaborators in coordination with the scientific project coordinator. They are responsible for the teaching-learning arrangement and are therefore of central importance for the quality of the PDI.
- …focused on evaluation since the design considers continuous scientific monitoring of the implementation by the scientific project coordinator in cooperation with researchers and practitioners, which assesses the quality of the intervention, identifies development and optimization possibilities on the basis of the evaluation results and evaluates the impact in terms of sustainability.

In a simplified scheme, Table 18 illustrates the results of the first prototype´s didactic design of the preparation phase prior to the actual study visit:

Table 18 - Didactic design of the preparation phase (1st prototype)

Phase (prior to study visit)	**Content item**	**Expected competence (intention, purpose)**	**Methods, activities**
3 months	Preparation of the participants (content-related and administrative)	Participants are informed about the contents of the program and the documents they have to provide as required by the Erasmus+ initiative	Methods: e-mail communication either bundled or individually Location: online
3 - 1 month(s)	Preparation of the participants (content-related, organizational process)	Participants are consulted w.r.t. content-related (language of communication) or organizational questions (travel, accommodation). Participants talk about their motivation. Participants talk about their expectations. Participants are invited to prepare for the study visit by reflecting on their understanding of LSCT and their own experiences with it, and to discuss this with their French colleagues.	Methods: communication via telephone or e-mail individually between SPC and the participant on request Location: online/telephone

1 week	Sending the final program to the participants	The participants are informed about important content-related and organizational elements: - dates and time of the appointments of study visit program elements - title and description of the program events - names of persons involved in each event - address of accommodation and principal location of the seminar (Department of Teacher Education at Stockholm University as ´main venue´ (reference location))	Methods: Sending an information package to each participant via e-mail Location: online

Source: own research

The following Table 19 shows the results of the first prototype´s didactic design of the actual study visit in a compact scheme:

Table 19 - Didactic design of the implementation phase (1st prototype)

Day$_n$ (with n = 1-4)	Content item	Expected competence (intention)	Implementation tools (via methods, activities, media)	Conditions of teaching and learning (organizational and social)
1	Travel *First group meeting* Getting to know each other Introduction into the program	Participants arrive at the study visit location. Participants get to know each other (start of the group dynamics with the German group). Participants pose and discuss open questions to the SPC.	Activity: Joint, cooperative dinner, informal get-to-know	Location: Restaurant in Stockholm. Total no. of participants (P): 7
2	9.00 – 9.15 *Welcome and presentation*	Participants from both Germany and Sweden get to know each other, start an intercultural dialogue by use of English language.	Methods: Short introductions of all participants Organization	Location: Stockholm University seminar room Total no. of P: 10
2	9.15 – 10.30 *Opening and theoretical introduction:*	Participants are informed about the Swedish VET system and get an insight into the LSCT interpretation	Methods: Presentation, information transfer	

	In which VET system is LSCT embedded in Sweden? How is LSCT interpreted in the Swedish VET? *Presentation of the research group:* An overview of Swedish VET and Swedish Vocational Teacher Education. Description of the Language Development Project 2017-18	and implementation examples in Sweden. Participants increase their knowledge regarding the meaning of LSCT. Participants discuss country-specific differences and similarities. They reflect on their own experiences with LSCT.	(cognitive-theoretical form) Talks/presentations by researchers with subsequent open discussions Media: Beamer, presentation slides, whiteboard for additional remarks	
2	10.30 - 11.00 *Coffee and tea*		informal exchange	
2	11.00 -12.00 Workshop with a SL expert from *The National Centre for Swedish as a Second Language*, Stockholm University, presents Language Development Projects initiated by The National Agency of Education	Participants increase their knowledge and understanding about the concept of language promotion in content teaching. Participants become (more) open and aware for the importance of language in VET contexts. They develop an awareness for dealing with their own use of language and the linguistic skills of learners.	Methods: Group discussion, four corner teaching method as cooperative work, intercultural dialogue by use of foreign language Media: Beamer, PPP, Whiteboard for additional remarks	Location: Seminar room Total no. of P: 13
2	12.30 – 13.45 *Lunch*		Joint lunch, informal exchange	
2	13.45 – 15.15 *Workshops with teachers / researchers*	Participants expand their repertoire of behavior and acting in view of LSCT. They develop their skills by learning where to obtain and how to use LSCT techniques. Participants exchange and reflect on their experiences with LSCT in daily teaching work. They describe situations where language problems exist in general or vocational content teaching,	Methods: Workshop with switching groups mixed with German and Swedish teachers, cooperative group work and intercultural dialogue, analysis and reflection of their own teaching, learning from experience or	Location: Seminar room Total no. of P: 17

		and give examples of successful or challenging situations. Participants increase their motivation to pay attention to and deal with LSCT.	expertise of Swedish colleagues Media: Beamer, PPP, Whiteboard with workshop task, time and room information for group work	
2	15.15 – 15.45 *Coffee and tea*		informal exchange	
2	15.45 – 16.00 *Summary*	Participants consolidate the new knowledge, find answers to potential open questions.	Methods: Group discussion, open communication Media: ./.	Location: Seminar room Total no. of P: 14
3	9.00 – 11.00 Study visit in vocational school	Participants get an insight into the LSCT implementation by a teacher of an exemplary vocational school in Sweden specialized on students with linguistic or cognitive difficulties (information transfer). Participants develop their openness, awareness, motivation for dealing with LSCT and linguistic heterogeneity.	Methods: Intercultural dialogue with a Swedish teacher at her real workplace (office, teaching classes) Media: Teachers´ exemplary teaching material	Location: Enskede gårds gymnasium Total no. of P: 12
3	11.00 – 13.30 *Travelling and Lunch*		informal exchange	
3	14.00 – 15.30 Talk (LSCT expert presents her work with language promotion of employees at the Centre of Dementia).	Participants are informed about a practice example of LSCT implementation by a second-language speaker in Sweden. They get an insight into her own experience with language development activities in education and working life. Participants increase their knowledge about the concept and how techniques can be applied.	Methods: Talk, group discussion, intercultural dialogue Media: Beamer, PPP, Whiteboard for additional Remarks Information sheet	Location: Seminar room Total no. of P: 12

		Participants develop their motivation and awareness for dealing with linguistic heterogeneity.		
3	15.30 – 16.00 *Summary*	Participants briefly reflect the day: similarities, differences between Germany and Sweden? Further ideas are stated.	Methods: Open discussion round Media: ./.	
4	9.00 – 11.30 Study visit in vocational school, project presentation ("Vocational training with integrated language learning for immigrants")	Participants are informed about LSCT implementation examples in VET. They increase their knowledge and learn about didactic techniques of LSCT.	Methods: VTI project presentation and group discussion (intercultural discourse) Media: Beamer, PPP including video of best-practice example of LSCT	Location: Åsö Adult Education School Total no. of P: 13
4	11.30 - 12.00 Summary *(What can we learn from each other in Europe?)* Goodbye	The participants express their overall perceptions and thoughts, as well as concluding remarks, thereby consolidating cognitively what they have learned.	Methods: Open discussion round Media: ./.	

Source: own research

The didactic design has been created under consideration of the first design principles derived from the pre-study phase results. As they have been assessed as practical and effective, they are assumed to ensure that the two quality criteria are fulfilled. That means, at this point in the research process, the researcher assumes that the objectives can be met and the design can be useful and applicable in practice provided.

Literature reviews and the analysis of experiences from the field revealed that there is a research need for offering practical solutions for vocational teachers in view of LSCT. External professional development has, as was pointed out in Chapter II.4, advantageous effects of being outside the common work environment. This directly leads us to the focus on language

awareness which can be achieved by switching into a student´s perspective who has to communicate in a language (here: English) that is not their first language (here: German). Language awareness as one central part of a teacher´s attitude within LSCT is mainly connected to a thinking process and discussions about language as a tool and a target (cf. Swart et al., 2018). This is why the participants should focus on the (oral) exchange of experiences with like-minded colleagues and furthermore on their thinking and reflecting process about what language-sensitive content teaching means to them (ibid.).

Thus, teachers were not told to produce artifacts, in order to influence them as little as possible in their behavior and acting and in the sense of a naturalistic setting (cf. Chapters III.1.2.1.2 and III.1.2.2). However, if they wanted to take notes, it was their free choice to do so. These texts have not been subject to the author´s analysis.

2.1.3.2.2 Persons Involved, their Roles and Preparation

Chapter IV.2.1.2.2 (*Orientation Framework: Elements of Teaching and Learning Conditions*) presented the information about the partner group required for a successful process. In the following, there is a brief description of the respective important groups of actors, including an outline of their role (position(s), function(s)) and specific preparatory measures taken. The usefulness of including different actors into a “research practice team” (Penuel et al., 2015) was also emphasized in the empirical study on PD effectiveness by Lipowsky & Rzejak (2018, p. 61). International PDI with a broad impact such as, e.g., the New Zealand Literacy Professional Development Project (Timperley & Parr, 2009) show that, apart from well-qualified further education trainers, scientists are involved. The cooperation is considered an important instrument for enhancing the dialogue between research and school practice (Penuel et al., 2015).

German vocational teachers

Due to the findings of the pre-study, the preparation phase for the German vocational teachers was characterized by as little theoretical input as possible and as much individual consultation by the scientific project coordinator as possible. Hence, following the theoretical framework analysis, there was no kick-off meeting.

Role: Voluntary participants whose interest was to get new (transnational) insights into the field of language promotion for learners with a lack of language proficiency regarding the integration into their own general or vocational subject teaching. Their role was coordinated with the focus of the PDI: active participation to get a practical understanding as competence extension on the so far rather theoretical basic knowledge and intuitive teaching behavior. It was assumed that the participants might also be interested in an intercultural exchange and getting to know European colleagues and broaden their minds with regard to the Swedish system with its particular solutions for LSCT problems addressed before. Their role could then be described as ambassador of the German way of teaching learners at the school-to-work transition.

From the researcher´s view, the group´s role was characterized by being the research subjects whose cooperation and participation in a naturalistic setting was important for answering the research question.

Preparation: The elements of preparation have been described in Chapter IV.2.1.2.2.

Foreign project collaborators in Sweden

Three researchers of the Department of Teacher Education at Stockholm University, Sweden, were chosen as partners for the first intervention due to their precise matching in view of the problem setting. Equal to the scientific project coordinator (SPC), these three attended the whole study visit program (day 2 to 4). A fourth researcher from the department and additional guest lecturer from Malaysia participated in day 2 of the seminar.

Role: Due to their job classification, the FPC primarily represented the science world. However, they also took the responsibility to organize the study visit on-site by making appointments and communicating with other actors involved. Moreover, there was a frequent and constant contact between them and the SPC for the purpose of coordination and success of the implementation. Their functions could be summarized as:

- Co-designers

- Collaborators with respect to the realization of the PDI
- Networkers in Sweden w.r.t the PDI
- Co-organizers of the activities on-site

Preparation: As they were experienced in the field of teacher education and development, research and development work as well as smaller projects about language promotion within VET teaching, they did not get a respective preparation. The participant partners had the corresponding skills and knowledge which were required.

Discussing questions about the LSCT issue in view of PD on a transnational basis were also new to them. For this reason, they were motivated and curious about the PDI outcome as was stated by them during prior telephone talks or e-mail communication. The preparation phase included a brief exchange between the FPC and the SPC for the purpose of identifying each one´s understanding of language-sensitive content teaching as the basis for determining and planning the contents of the program later-on.

All in all, the prerequisites were optimal from the scientific research perspective as the project collaboration team in Sweden brings a profound expertise in VET, teacher education, questions about general and specific competences for diverse occupations and how these competences can be learned, and the development of VET for young adults and adults. With regard to considerations about the study visit as the framework format of the didactic design for the objective, they were keen on testing this format. The SPC (author) prepared them by presenting the idea, discussing it with them and let them use their network to vocational colleges and agencies. They made the appointments and were responsible for the communication on-site.

Moreover, the SPC sent them the personal information about the German teacher participants which they included, if possible, into the program planning.

Foreign experts from networks in Sweden

The selection and coordination of further involved actors was carried out by the FPC (researchers from Stockholm University) after development discussions with the SPC and the LPC according to their determination of criteria for selection.

Role: Individuals from environment beyond teaching practice in schools: Mediators or agents of content-related input, e.g., by presenting their view on a specific aspect of LSCT practice or their project about LSCT as a best-practice example.

Swedish teachers from vocational schools: hosts who share their experience from teaching practice and/or show elements of their daily teaching practice with respect to LSCT practice implementation.

Preparation: is not considered here, as it was the responsibility of the foreign partners who were classified as trustworthy w.r.t. to an appropriate, necessary preparation.

2.1.4 Quality Criterion Evaluation of the Conception Phase: Content Validity

Questioning the quality criterion: content validity in the conception phase
Relevance (= content validity) is the most important quality criterion of the analysis phase (Plomp, 2013; Nieveen, 1999, 2013, quoted from Nieveen & Folmer, 2013, p. 160). The intervention is assessed to be relevant, i.e., there is a need for conducting the intervention which has been derived from the theoretical introduction and problem specification. Furthermore, the design of the intervention is "based on state-of-the-art (scientific) knowledge" (ibid.). Content validity can be ensured by thorough recording of the content including all relevant facets (cf. Plomp, 2013). Transferred to this study, the status quo has been treated by literature review expanded by the researcher´s own experiences in similar design project parts. In addition, only contents and cases similar to the present problem setting and the present context have been investigated in the pre-study literature analysis. This is important in order to relate them to the present context (ibid.). Due to the first design principles derived from the initial situation analysis, relevance is essential since these design principles are the decisive factor and basis for the development of the first prototype. The description of the context variables has to be valid, as well, in order to adequately record the important features.
Conclusion: The list of first design principles and a thorough description and explanation of the context (differences) lead to the finding that the content is valid.

As a consequence of the factors above, the multi-day study visit abroad was argued to offer a solution approach and to have the *potential* of contributing to teachers´ development of the language-sensitive content teaching competence – as the DBRA assumes.

2.2 Implementation Phase: The Iterative and Responsive Process of the Intervention

After the development of a didactic design of the first prototype as the result of a problem specification as well as process analysis in the prior conception phase, the implementation phase starts.

In line with Collins et al. (2004, p. 38-39), in the implementation phase, there has to be a design profile of each test and revision cycle which is written in such a way that:

- key aspects of the design are identified (*objectives of the prototype*, *developing the design* → previous Chapter IV.2.1.3 for I_1, Section 2.2.2.1 for I_2).
- it is shown how these key aspects have been implemented (*implementation* → Section 2.2.1.1 for I_1, Section 2.2.2.3 for I_2).
- it demonstrates which functions have been conducted and fulfilled by the implementation (*evaluation* → Section 2.2.1.2 for I_1, Section 2.2.2.4 for I_2) and
- it can be evaluated whether the objectives have been achieved findings have been achieved by this (*cycle results* → Section 2.2.1.3 for I_1, Section 2.2.2.5 for I_2)
- design principles can be derived from each cycle (*discussion* → Section 2.2.1.4 for I_1, Section 2.2.2.6 for I_2).

The documentation has to be written in a way that third parties (practitioners, researchers) may adopt and explain the design for their contexts of interest by means of the created design principles (cf. Jahn, 2014). In other words, findings are prepared in such a manner that they are practical and useful from a theoretical and practical point of view.

For this reason, the cycle results need to be prepared involving a profound description of the context. In addition, in line with the quality criterion of *relevance*, this relevance must be recognizable by third parties by clearly presenting the design principles of the interventions. Moreover, this includes identifying critical design factors emerging during the implementation and obtaining an understanding of how the discovered features potentially interact with each other (cf. Jahn, 2014).

2.2.1 First Iteration of the Research Process with Prototype 1 (Sweden, November 2018)

> « Education is the kindling of a flame, not the filling of a vessel. »
>
> *Socrates*

2.2.1.1 Implementation

The implementation of the first prototype was carried out along the planned process (cf. *Table 18*). No major adjusting was necessary, as all the registered German teachers participated from the beginning until the end. A more detailed description of the implementation is integrated into the following documentation of the evaluation where it is required.

2.2.1.2 Evaluation

2.2.1.2.1 Evaluation Base

The data collected take into account experiences and perceptions during the intervention across various perspectives primarily from the German teachers´ view, but also those of other participants involved. Furthermore, the experiences and observations indicate once more the high complexity of the subject matter. This signifies the need for embedding the subject matter more strongly into the German (and other countries´) VET system.

<u>(Participatory) observation (“PO”)</u>

Participatory observation by the scientific project coordinator was used as qualitative research technique due to <u>reasons of effectiveness</u> (see Chapter III.2.2.2 for more details). The instrument was applied at all four days throughout the whole intervention. The focus was laid on days two to four in the afternoon, i.e., during the program period, but without the travel and getting to know each other among the German participants. The <u>observation was hidden</u> in order to avoid influencing the participants in their behavior or actions, and to not confuse them or keep them from concentrating on the contents.

The protocol which evolved during the continuous process of participatory observation was written by the author. This means that the text created from observation involved a protocol part in which everything noteworthy in terms of content, time, sequence of the events and procedures of the intervention was reported in written form. On the other hand, the text included a second part in the form of a research diary (cf. Chapter III.2.2.1). This instrument is more of reflective character and has proven to be useful as it is a constant reminder and helpful tool to keep an eye on one´s own position. Hence, the SPC (author) could perceive as well as process what was observed with respect to research actions during the intervention by making field notes within this diary. From the author´s perspective, it was important to critically reflect her own research. It supports overcoming the risk of having indistinct scientific and practice perspectives. This has to be avoided since it might lead to misinterpretations of the findings with regard to the objectives.

Written surveys of the German vocational teacher participants (participant report, “PR”)

The standard written survey in educational programs funded by Erasmus+ Vocational Education and Training (cf. European Commission, 2020, p. 282-283), and developed and administered by the National Agency[73] was completed by every GVT. It is an online-based written survey provided on a mobility tool platform for which each participant receives individual access after they return home from the study visit abroad. The report form was required to be completed by the participants, and they were asked to complete it before the follow-up individual meeting including the interview took place. They could select the desired language in which the report and its questions are provided to them. Two participants (P5 and P6) selected the report in English language, the other participants chose the German language.

The survey form contains several parts. Apart from a first identification of the purpose of the report (1) and some personal identification and general information about the participant (2), there is one further interesting part for the purpose of this study: achievement and impact of the intervention (3).

Figure 33 shows an exemplary section of the survey form:

[73] The National Agency for Vocational Education and is the agency in German responsible for programs of action in the field of vocational education and training and adult education, as well as for the European and international cooperation in education. It is an agency working on behalf of the Federal Ministry of Education and Research (BMBF) (NABiBB, 2020).

Erasmus+

Participant Report Form – Call 2018 – KA1 – Learning Mobility of Individuals – Staff mobility in vocational education and training

*2.12 What were your main motivations for doing a mobility period abroad?

Multiple answers are possible.

- [x] To learn from good practice abroad
- [x] To experiment and develop new learning practices and teaching methods
- [x] To gain practical skills relevant for my current job and professional development
- [x] To reinforce or extend my professional network
- [x] To share my own knowledge and skills with learners and/or other persons
- [x] To reinforce the cooperation with a partner institution/organisation
- [ ] To build cooperation with players in the labour market
- [x] To create spin-off effects for the launch or development of new educational activities
- [x] To increase my social, linguistic and/or cultural competences
- [x] To increase my job satisfaction
- [x] To make new contacts
- [x] To increase my employment and career opportunities
- [ ] Other

3 Achievements and Impact

3.1 By participating in this Erasmus+ activity I believe I have developed the following competences:

	Strongly agree	Rather agree	Neither agree nor disagree	Rather disagree	Strongly disagree
*Competences in mathematics, science and technology	○	○	○	●	○
*Digital competence	○	●	○	○	○
*Learning to learn	●	○	○	○	○
*Social and civic competences	●	○	○	○	○
*Sense of initiative and entrepreneurship	●	○	○	○	○
*Cultural awareness and expression	●	○	○	○	○

*3.2 What was the main language used during your mobility activity?

English

Figure 33 - Section of an exemplary participant report form (non-public source)

All participant reports were completed by the participants and made available online (P_{1-6}). As they were available before the interviews with each participant took place, reference could be made directly in the interview with regard to specific striking or unclear statements of the reports. Furthermore, more focus could be laid on specific aspects the required further discussion. The reports´ contents are a smaller part of the discussion basis of the interview and were

consulted only as a supplement. A large part of the participant reports is designed by quantitative elements by using a rating scale determined between “strongly disagree – rather disagree – neither agree or disagree – rather agree – strongly agree”. The quality of the scale or the design of the survey in general can certainly be criticized for being not clear enough and addressing too many different aspects. However, as it was a standard instrument (considered as given) and only used additionally, the results of the questions that were assessed as appropriate to interpret by the scientific project coordinator are used for evaluation.

Guideline-based interviews with German vocational teacher participants (“I”)

By means of this type of evaluation, the participants had the chance to anonymously describe, reflect and assess in detail all of their experiences abroad (cf. Chapter III.2.2.3). This can involve their experiences with the project partners abroad, i.e., the project organization team, their colleagues in the schools abroad etc., and experiences with all the topics addressed (see expected competences → intentions and contents).

The interviews were conducted in follow-up individual meetings. They took place shortly after the return home from the study visit abroad. They allow for a qualitative thorough oral report which leaves space and time for questioning by the interviewer (understanding of contents and statements, clarification in the case of ambiguities or lack of clarity, deeper discussion of specific aspects etc.). Hence, they form the main basis for evaluation, apart from the observation instrument.

All interviews were conducted by the scientific project coordinator (author). Since the participants and the interviewer already knew each other from the joint participation in the study visit abroad, the preconditions were positive. Hence, this lead to a trustful atmosphere inducing open speech and the courage to express their opinion. This is also reflected by the results of the interviews.

Table 20 - Overview of conducted interviews with sampling in in the first cycle

Participant	Date of data collection	Interview no. (transcript no.)	Length of interview (in minutes)
P_1	20.11.2018	I1 (T1)	35:58
P_2	20.11.2018	I2 (T2)	54:35
P_3	22.11.2018	I3 (T3)	52:11
P_4	26.11.2018	I4 (T4)	45:22
P_5	26.11.2018	I5 (T5)	93:00
P_6	29.11.2018	I6 (T6)	87:13

Source: own research

All in all, the duration of six interviews accounted for 368:19 minutes, which represent an average duration of 1 hours 1 minute and 23 seconds per interview.

The design of the open, semi-structured guidelines for the interviews was oriented on Helfferich (2011, 2014), Lamnek and Krell (2016), Gläser and Laudel (2010), Liebold and Trinczek (2009) as well as Meuser and Nagel (2009). The guideline of the first cycle interviews resulted from the prior pre-study (problem analysis including subject matter and context analysis and further findings from experiences in the field, such as development meetings in a former project (QBi)).

In qualitative research, a systematic interpretation of the data is carried out by means of text analysis methods (cf. Atteslander, 2010). The interviews[74] were carried out at the respective workplace (VTI) of each participant. By this means, the participants were in a familiar environment that provided a positive atmosphere. Besides posing precise questions to acquire as much details as possible, the semi-structured interview guideline left as much speaking time as possible for the interviewees, which is essential (cf. Atteslander, 2010). After having received the permission of the interviewees, the interview was recorded by means of an audio recording device in mp3 format. The record was the basis for the development of text transcripts which entered the aggregate evaluation text basis (cf. Figure 25 on p. 232). The transcripts are denoted by “T”. For reasons of readability, the spoken language will be transmitted

[74] The interviews are available in the participants´ first language (German). With regard to what is being presented in the evaluation of the design´s functionality section of results, all relevant text passages were translated to English by the author.

directly into written language by simultaneously deleting mistakes of the syntax or speech disfluencies (cf. Mayring, 2002b).

The preparation and analysis of the transcripts followed along the rules established and recommended by Mayring (2010, 2014) and, in addition, by Mayring and Fenzl (2014). The precise process of this qualitative content analysis was described in Chapter III.2.3.1.

Additional personal information sheet

The additional personal information sheet was handed to each participant after the interview. The participants were asked whether they agreed to filling in personal information which could be used by the researcher to draw her conclusions on certain interrelations. These involved, e.g., the interrelation of working experience and the enhancement or motivation about absorbing and dealing with LSCT and the willingness to test a new LSCT method at the home institution, or a correlation between the vocational orientation of the participant´s institution and the perception of the contents of the study visit abroad etc. The personal information sheet can be found in the Appendix II.b.

2.2.1.2.2 Evaluation of the Design´s Elements[75]

The evaluation starts by questioning the effectiveness of the first study visit: *Which objectives could be achieved and how, or why not?* Some unexpected positive impacts as well as unintended factors occurred.

Expected competences

Which increase in the knowledge about language-sensitive content teaching can be recorded on the teachers´ side? Did their language awareness develop and thus, their attitude towards linguistic diversity?

The participants reflected on their attitude and beliefs. By means of the contents, they came to the conclusion that cooperation between teachers in view of LSCT is important. Furthermore, focusing on situated learning and students´ individual needs is often mentioned during

[75] A short summary of the results of the first study visit intervention was published in Peitz (2019).

the interviews with the participants as a factor they perceived as beneficial. A representative of the school management of the second vocational school that was visited emphasized vocational goals and language needs in his presentation. These are the two factors a teacher should pay attention to for a successful LSCT. This presentation of the project "Vocational training with integrated language learning for immigrants" perceptions (cf. YFI, 2018) and the subsequent discussion had a particular impact on the participants which several state explicitly.

The comparison of the approaches and methods of the Swedish way of integrating refugees yielded new knowledge for the participants. The integration of refugees in the field of VET involves the "same challenges in Sweden and Germany, but is handled in different ways", as one of the teachers discovered (T6). This is strongly related to the different school systems, as participants found out. Sweden, for instance, offers more practical approaches for a fast integration into the labor market. The teachers learned that refugees can quickly and directly apply for a specific vocational training course that is linked to a language support included within the subject teaching. "We run on a more theoretical platform, the Swedish do not. They have to provide the practice. Over here, the practice is rather provided by the companies. And accordingly, they have a considerably higher practical part there. And that is, of course, very motivating for migrants." (T6, par. 24).

"How do they do it? (…) Yes, of course, a perfectly clear language promotion (…). Actually, the educational courses are structured in such a way that […] they have a language promotion, Swedish […] in the regular courses. In fact, not only in one or two other subjects, but completely. In these, the vocational activities that are performed are reflected, prepared and processed again by anyone, explained from different perspectives, and – there are always two colleagues sitting there, one covering the linguistic area and one covering the vocational area. And, who also supplement each other. Obviously, that is a completely different approach compared to the one we have. We really just go there first and try to include them in our system […]. They really try to directly put the students into a vocational training with a very clear bilingual approach, rolled into one." [T6, par. 14]

In the interviews, the participants often mentioned the inspiration they got from what they experienced with regard to the Swedish colleagues´ cooperation with each other. Apart from organized team teaching as a method of implementing LSCT, the participants perceived a high collegiality in everyday life. This facilitates the exchange of teaching contents and methods and mutual support on how to integrate language promotion into general and vocational subjects.

A further impulse for expanding the participants´ repertoire of acting was characterized by learning about team teaching as a method of LSCT which is frequently applied in Sweden. Team teaching practice is associated with a close cooperation between language teachers and (vocational) subject teachers in Sweden. The participants perceived this as a highly beneficial component of LSCT and were impressed about what they experienced in Sweden. The opportunity to teach migrant learning groups in pairs was positively received ("a luxury" (PR6)). It is assessed as essential by all participants as the following examples show:

"What I severely keep in mind from Sweden is, at least from one of the schools (…) that there was a subject teacher (…) with the language colleague together in the classroom. and who generates or builds up his lessons, I would say, from the problems of the subject lessons, which is taken up again, takes notes, and that the whole thing is first of all derived visually using simple vocabulary and then later-on, the complexity of the teaching context is successively increased, as well as the things they have to write. It works from simple to complex." [T4, par. 12]

"They are [in class] in pairs. It is again to a high degree about the subject-matter knowledge, about illustrations, drawings, and there is no need to be a language expert here, but just to demonstrate, to show how to do it, ´look, now I lay this, now I take the trowel and work it´." [T6, par. 48]

Moreover, the close cooperation between teachers is perceived in a positive way (a "far-reaching experience", T1, par. 96) as the following statements points out:

"I was highly enthusiastic about the close cooperation between the language teachers and the subject- and vocational teachers. Unfortunately, this is different from my experiences here at home. That is actually one thing where I see a major shortcoming here [in Germany], but what greatly works there. And – for sure, the Swedes partly have improved conditions to provide those students with education who drop out of the regular education system. This has also fascinated me." [T1, par. 14]

From the scientific project coordinator´s observation and according to the participants´ feedback, some participants were disappointed with regard to the language-sensitive methods the Swedish colleagues presented. Thus, the design could not lead to a large increase in the skills component of the LSCT for every participant at first sight or by their own perception. This might be due to existing prior knowledge and the extent to which one or more dimensions of the LSCT competence have existed before or not. However, there was an indirect effect of learning

about additional skills by exchanging ideas. Moreover, the participants experienced a reassuring effect in that they realized after the study visit they already possessed a lot of useful knowledge with respect to language sensitivity, and that the challenge lies in creating a new way of teaching based on known and existing knowledge and skills which could enhance their teaching success with non-native speaker students.

An increase in motivation to deal with learners´ linguistic skills could be gained by the participants, e.g., in the form of reassurance that they are not alone with problems concerning a successful teaching progress with respect to the target learner group. Instead, they learned from their European colleagues about similar challenges and developed a feeling of social acceptance, solidarity or shared identity about their roles.

“Different ways for the same challenge” and taking impulses from these new insights to design the lessons in a more learner-centered way was a motivational gain of the participants. An example is provided in one participant´s report: “The Swedes face the same challenges as the German teachers do. Most of all, this was reassuring, because they also do not have a universal remedy. The approaches that I learned in Sweden help me in designing my lessons in a more learner-centered and problem-oriented way” (PR3).

On the other hand, they found it highly motivating to see and learn about the Swedish teachers´ positive attitude towards their learners – despite the fact that there was a large heterogeneity and that teaching was certainly not easy for them, too. This finding stems from both the individual interviews and from the scientific project coordinator´s observation. The most striking result is that all participants perceive a very open, interested attitude by the Swedish teachers they met by which they feel inspired. This is what they state they want to transfer in their own lessons towards their students as demonstrated by the following examples from the interviews:

“Teachers have a very positive attitude towards students with a migrant background and towards "students who failed".“ [PR1]. “Well, it has been a fundamental openness. It can also be just a coincidence, who we got to know there. But I really felt that there was no one among the people having been there who would respond to a person and say ´Hey you, I can´t be bothered now, if I´m being totally honest´, and by making that face. This is something I have often experienced here.” [T5, par. 52] “Speaking of attitude once again. And that just was different for me in Sweden. The teachers who work there, have shown an appropriate attitude and appreciation towards the students. And it was also clear to see how good the relationship is between students and teacher.” [T1, par.16] “And – what also struck me was the fact that they can communicate much more openly with the students, about the problems. In my lesson, it is rather a situation of 2, 3 having a High School Certificate, while the others rather always feel like ´I am not that good´ and it is communicated not as openly as it is in Sweden.” [T4, par. 12]

The contents had a positive impact on the participants´ thinking as was exposed from the interviews. The participants revealed emotional aspects with regard to what they experienced. For instance, this concerns their attitude, i.e., how they react on observations during a class visit in a hairdresser´s teaching class:

“For example, when we were at the hairdressers´, when the young woman presented something, it was a worksheet, I believe, how good, how trustful this relationship was. Of course, a professional relationship between teacher and student, but also close. And I really liked it.” [T1, par.18]

The close relationship between vocational teachers and vocational students in Sweden was as well one of the outcomes of the study by Köpsén (2014, p. 200-201). The participants perceived the strong link between language learning and practical aspects of the future profession of the students as positive:

“Language promotion in Sweden was highly oriented towards the practice. That means mostly linked to the profession. Also very craft-oriented. It wasn´t at all like ´We are all IT people´ or ´the auditor´, but it was about craftsman’s trade, that are great from a haptic perspective, of course, because students can (…) directly use this type of language within practice lessons. Or you could just notice, where are the problems, there is a catch somewhere, I found this great. Well, language teaching oriented towards the practice, that is, what

we need as well, this language teaching in the form of situations. (…) It is connected to situations, and in such a situation, I would always try to remove the difficulties of language by means of Scaffolding." [T3, par. 20]

With regard to this transferability, some participants expressed their intention to motivate colleagues at their domestic vocational schools as the following statements demonstrates:

"Not only in Germany, but also in other countries, many colleagues find it difficult to take a stand for their own system. This unfortunately results in a high level of dissatisfaction, which can have an impact on teachers' health. This is the reason why I would like to have the opportunity to make colleagues curious about the work in our field and to motivate him or her to face new challenges more openly." [PR1]

Other states that they wanted to integrate situated learning into their teaching lessons to a higher degree (P5). Situated learning[76] is considered as extremely relevant in Sweden as the participants argue ("…what attracted my attention was that they make a big point of situational learning, which is also justifiable. To learn within situations" (T2, par.16). This is important in particular with regard to the different types of competences professionals shall teach the students. Sometimes, it seems an adequate approach to present a certain subject-didactic problem and think about the linguistic obstacles this task might include. That is, professionals could emphasize that the task represents a specific situation and communicate how to deal with the situation. By this, professionals can easily perform an integrated language promotion:

"I thought it was very, very important to create situations in which the students talk about it in groups, of course with other languages, as well […] about how do they now deal with the situation they are thrown into? Because so many linguistic skills are required. And I found that, just to have such a list, actually you know that, but you don't realize it, and I found this list very good. (…) All the competences that are required This is really important and I directly thought about including this more within the subject lessons. To make them talk more." [T2, par.46]

After reflecting on different German and Swedish features in subject-integrated language promotion, participants considered whether and how factors of what they have experienced in Sweden could be transferred into the German system. While they agree that some aspects

[76] For more information on situated learning, see, e.g., Anderson et al. (1996), w.r.t. adult education, see Stein (1998).

cannot be transferred due to the differences in the VET and its orientation on the labor market systems, it is particularly aspects such as the experiences and knowledge about the teacher attitude and organizational aspects they have learned from and want to share with their colleagues and school managements. Besides, including more language promotion techniques within practical situations might also be an approach to adopt.

Above all, the participants´ responses show that they reflect on how to improve an integrated language promotion or language development in general within their respective VTI – another impact of the PDI.

In addition, some further positive effects evolved during the intervention as the literature on study visits indicates (cf. Chapter II.4). The linguistic level in English was improved and the motivation to engage more in multilingualism was increased.

As a side effect, the teachers put themselves in the position of their students because they were forced to communicate about subject contents in a foreign language and admitted that they sometimes were not able to express all their thoughts. This is a good example of learning to show more empathy language-wise with the students. One participant perceived it as “really exhausting, as you indeed listen in a different and more concentrated way than you do with respect to your native language”. Another participant underlined: “At the same time I was able to reactivate my linguistic skills and improve them a little.“ (PR1).

In view of increased personal skills, the comparison of school conditions (activities, institutional development, teaching practice) with regard to LSCT resulted in a confirmation of the participants´ own work at home: “I also noticed that we already carry out many things (in the lessons) in a similar way, and that provides me with additional security.” (PR1)

With respect to the impact section of the participant´s reports, one question dealt with further improvement of skills (apart from the superior objective). All of the participants fully agreed upon the sentence “Due to this mobility activity, I could also improve my emotional / personal skills (such as self-confidence)”.

Methods and activities

The participants have had a variety of experiences as a consequence of the applied methods and activities. The view on different methods and how these are applied in Sweden was perceived as helpful for the participants´ own teaching practice.

The group work discussing experiences, successful solutions and difficulties (including ways of how these have been dealt with) was a suitable tool to reflect the participants´ own experiences in Germany. In addition, they learnt new impulses in order to solve problems in ways they did not know before. The respective questions were written on the whiteboard (see Figure 34). The German teachers were split up into three groups and associated to a pair of Swedish teacher colleagues, respectively. Each group met in a separate room for half an hour to jointly discuss the questions. Then, the groups changed so that in the end, every German participant had the chance to talk with each pair of the Swedish colleagues. This exchange was perceived as highly advantageous.

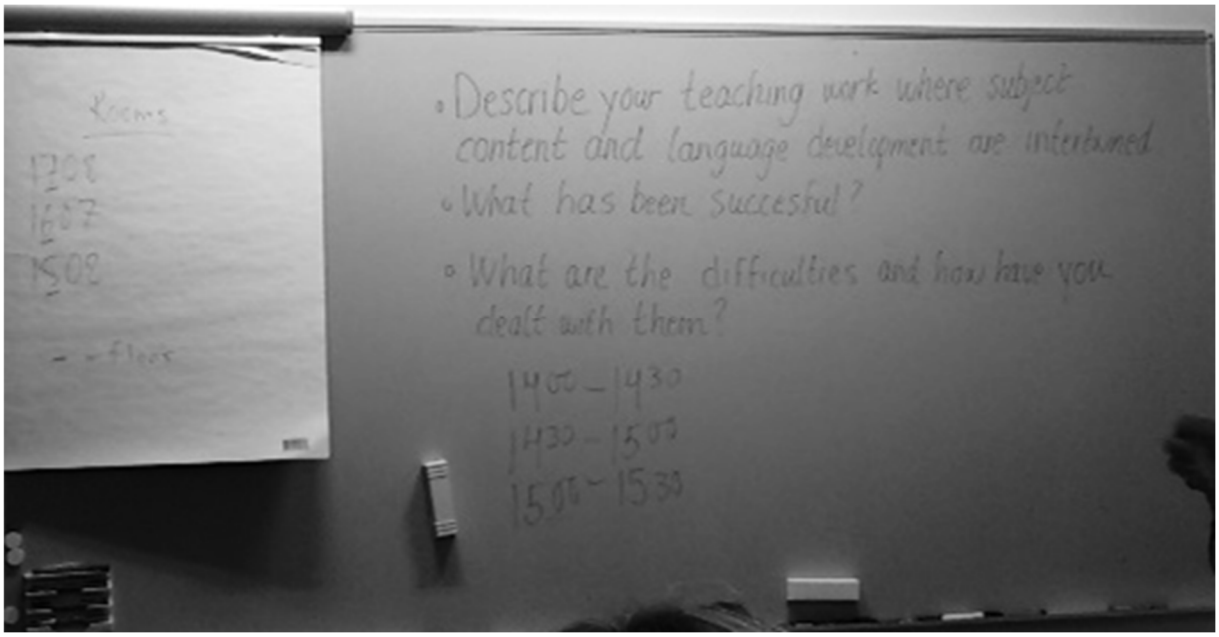


Figure 34 - Workshop intercultural dialogue on experiences with LSCT (own photo)

By means of the presentation by a Swedish teacher about his experiences with Reading to Learn (R2L), a specific LSCT method, the participants developed their knowledge on how to use strategies of LSCT in concrete situations[77]. It was a useful input which expanded skills repertoire of the participants. At the same time, it was a trigger to consider transfer opportunities of integrating this method into their own teaching techniques pool.

[77] As emphasized by Rose (2009, 2018), the methodology can be classified into the Scaffolding approach (cf. also Chapter II.2.3.2.1) and thus, into the linguistic assistance part of LSCT. R2L is, e.g., a useful tool applied in second language learning (cf. the empirical investigation by Shum et al., 2018). For more information about the R2L methodology and empirical findings, cf., e.g., studies by Damayanti (2017), Rose (2009, p. 7-14, 2018) and Rose and Acevedo (2006b).

A reflection on the different interpretations of the LSCT concept was conducted during cooperative working phases in a workshop. The participants could learn about their own understanding of language promotion and development combined with subject content development. In addition, they compared and discussed in written form how their German and the Swedish teacher colleagues understood the concept. The method used was the four-corner method (cf. Siebert, 2010, p. 103), and was carried out in groups of two or three with the German and Swedish vocational teachers, as well as Swedish researchers and the scientific project coordinator. The sheet (cf. Figure 35) includes the question of “What is the meaning of Language 2 and Subject Development for you” and was developed, instructed and moderated by an expert from the *The National Centre for Swedish as a Second Language* during the workshop phase (cf. NC, 2018). Language 2 means in this case that for the specific individual, the official language will be the second language (as for non-native speakers). The method was slightly modified to three instead of usually four fields, where in each of the three fields, one group member could fill in their ideas, considerations, feelings about what the answer to this question is to them. Note that the question basically aims at how the participants understand language-sensitive content teaching or learning (in sum: development). Thus, it is about different interpretations of the LSCT concept.

The four-corner method was a very useful tool to activate existing knowledge and perceive and/or learn how others define the meaning of language-sensitive content teaching. It also raised the participants´ awareness for the complexity of this term. Furthermore, it helped generating questions that teachers can ask with respect to the meaning of LSCT in their daily work. „I as a teacher must learn more about how it is to learn a new language” is one example of statements within this prosperous discussion (source: research diary). It was used to develop and increase the understanding of the concept´s characteristics. However, it also revealed high levels of self-reflection in terms of having understood or made clear what LSCT means and, as the next step,

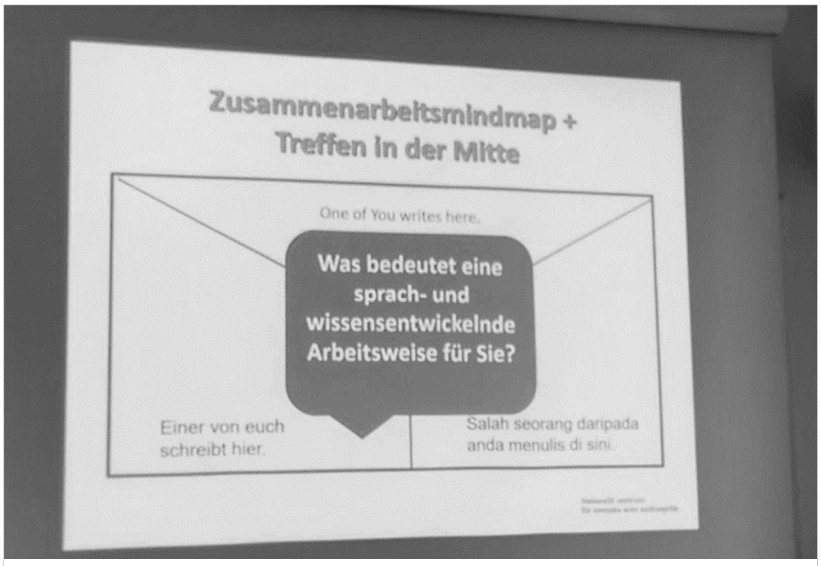


Figure 35 - Method of exchanging knowledge about the meaning of LSCT (own photo based on material from NC, 2018)

which implications for the teachers´ acting and behavior (adjusting their role) arise from this understanding. This is, e.g., pointed out by exemplary statements by German or Swedish vocational teachers such as follows (research diary, cf. also Figure 36):

- “It is necessary to reflect the own practice all the time and to be sensitized for the concerns of the target group and then to change and to advance”
- “Language 2 as a tool for a purpose”
- “Subject development and L2 relates to terminology, work culture, social competences”
- “Both require understanding the students´ background and socio-cultural capital. It is a process starting with self-reflection. What is my role as a teacher?”
- “To work with the language with meaningful subjects or themes. Learning by using and practicing the new language. I like the idea of asking open questions to get to know some more, to help the person to express what he/she is really thinking. Using music, lyrics, writing, body-language and playing a scene, explaining to others.”

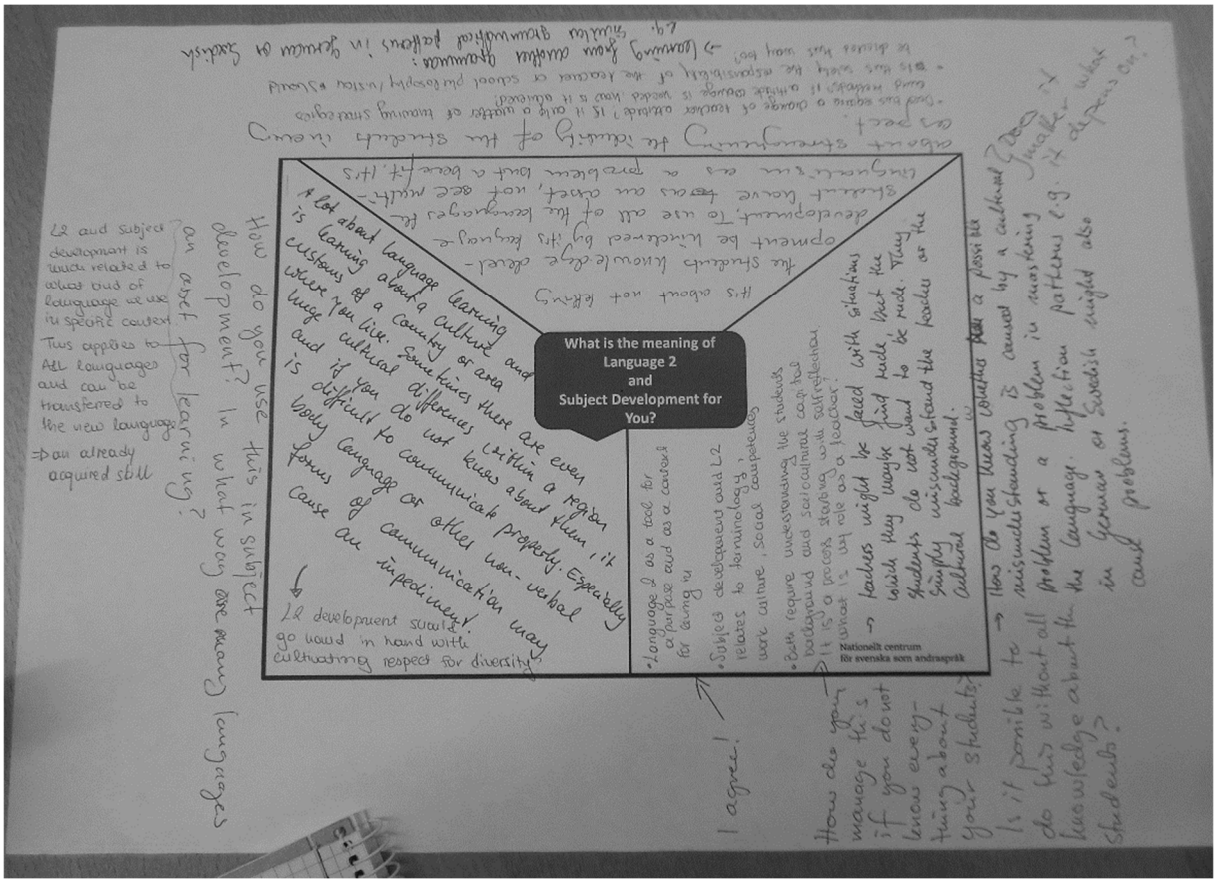


Figure 36 - Exemplary artifact resulting from a group discussion about the meaning of LSCT (own photo)

The statements above highlight one of the core elements of the LSCT concept: its holistic approach and the acceptance of allowing many interpretations of the concept. What they have in common:

First, language-sensitive content teaching in the present study´s terminology always considers language and content development simultaneously. It focuses, however, on the professional education of the learners, i.e., on teaching them vocational action competences. By adhering to this focus, language is used as a tool, as stated above in one of the teacher´s quotation. Since the focus is on the learners´ professional orientation and skills´ preparation for a future profession, terminology is one of the most vital fields of action within LSCT.

Second, the teacher should be aware of their additional role which involves self-reflection in their own use of language and be sensitive to the linguistic diversity of learners and their linguistic difficulties with the official language.

Third, the consequences of being aware of this role include applying strategies of linguistic assistance such as "…body language, playing a scene…". The choice of strategy or method is left to the teacher. Moreover, there is no perfect set of methods, and there are too many different methods to know. The participants got an insight and feeling for methods which could work, and they can use this outcome as an impulse for their own testing of these examples and further research at home.

These are the important competence dimensions which evolved from the four-corner method above and which the participants are recommended to develop. The methods, activities have contributed to this development.

During the school visit, two Swedish teachers offered an insight into their office and into their work by showing examples of teaching material or products the students created (cf. Figure 37). This encouraged the participants to ask questions, compare the Swedish approaches to the German ones and discuss ideas and opinions.

Figure 37 - Vocational teachers during the exchange of experiences about LSCT (own photos)

The round tour including short visits in practical teaching lessons in a vocational school offered a lot of contents to discuss in dialogues between Swedish and German teachers. The participants used the opportunities and got into contact with teachers and some students in a hairdresser's, carpenter´s or car mechanic´s teaching lesson. The following Figure 38 shows an example of terminology training sheet used within a car repair workshop in the vocational school. With regard to the workshop with German and Swedish teachers, the perceptions vary. The participants – and this became as well apparent from observation of their actions – actively engaged in communicating their experiences of LSCT and getting feedback from the Swedish colleague. This involved LSCT techniques such as how to train job-related vocabulary, the teacher´s own pronunciation, question techniques, and linguistic support when working on tasks with students.

The participants received impulses for expanding their repertoire of acting and their motivation to adopt elements of this method increased according to the observation of conversations between German and Swedish teachers.

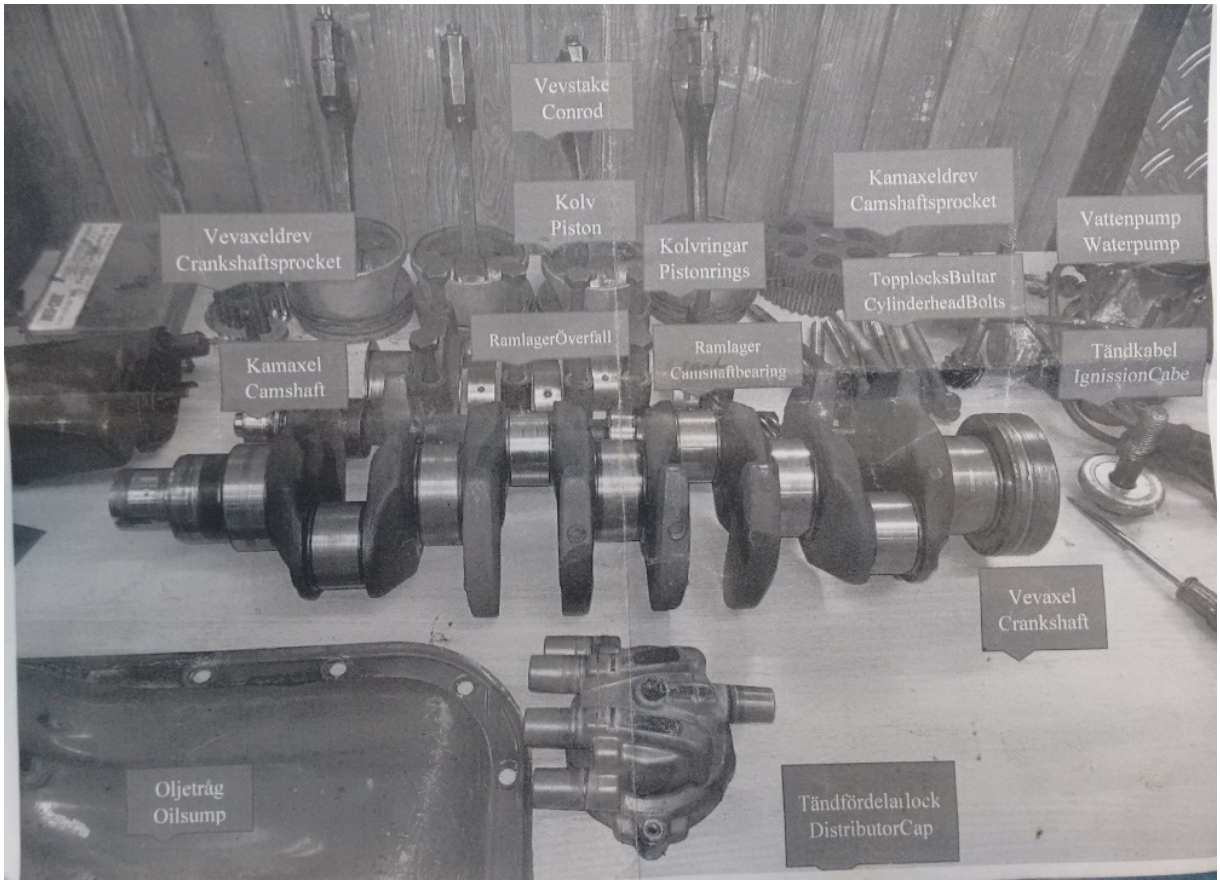


Figure 38 - Example of LSCT technique to train technical vocabulary used in a Swedish car repair workshop (own photo)

Regarding the <u>transferability of the competences in relation to methods and activities of the design</u>, participant P_4 describes how she can imagine transferring her experiences from discussions with teachers and the school visit into her own business and economic lessons. However, she also points out that organizational conditions such as learning group size would have to change, too. Regarding the question of potential transferable factors, she makes the following observations:

“By all means, parts of it, yes. For me, this is still very difficult for my teaching, but I have already started to think about how I want to do it, but I still have to start testing it in practice. (…) In my learning group, we will now turn to the issue of sales contracts, and this clearly is a difficult topic for them, and I have derived it with them from various sketches. What can happen now? Well, one is buyer A, the other one is buyer B, what happens here? Then, they have made a few wordless videos, to show that no money is transferred. So, nobody talks, and at first, it is only demonstrated, and the basic understanding of this disturbance will be established. What does default of an acceptance mean? They, they receive role cards, how they should react. This is recorded and projected afterwards together with the group (…) and we can rely on the videos afterwards, if needed: What was that again? Remember again. What were you doing there? How did he react? And what were his rights, what did he ask, what he can do later. This is a first try, works out very well at the moment. But it's only possible because the class has been divided and there are only eight students now. So for me this is also a significant difference to the Swedish system. I found the classes relatively small, and therefore it is possible to work more methodically, to get more into the individual problems, to work more individually, and- yes, I have classes with 34 students at the moment, of which- yes, 15 students have language problems, not all of them from the refugee area.” [T4, par. 46]

With regard to the transferability of language-promoting methods, P_6 argues as follows:

“I found this very interesting, because they have adopted a quite modern, new method (…), Reading to Learn. (…) I thought it was great, because even in the way he presented it, in principle, a text can first be semantically unraveled in order to reproduce it from another question, and that with (…) significantly higher semantic density. (…) That's one thing you can use in all courses of education. You can do it with very advanced students, but also with students who are still at the beginning. [T6, par. 22]

Unexpected negative effects have come up only to a small extent:

- The final summary and feedback round was planned to take place after the meeting with the head master in a VTI in Stockholm on the last day (day 4). It turned out to be very short and the participants perceived this as abrupt which could have caused insecurities on the German participants´ side. The overall positive impact and atmosphere of the study visit could balance out this last item of the design. The scientific project coordinator (author) arranged a spontaneous short meeting with the German group for the farewell. This aspect was discussed in the follow-up with the Swedish project partners and an improvement of this will directly enter the modified concept of the second prototype (→ appropriate summary and feedback in terms of content and time).

The conditions of teaching and learning

The chronological order of items was perceived as positive for the purpose of the study visit. This is reflected within participants´ statements (T4, par. 70): „I think the study visit has already been very well organized. Also with respect to the chronology.“

The three main locations where the design was realized were the seminar room at Stockholm University, and the two vocational institutions (various classrooms, seminar room). This was a good distribution of locations, since the group had one central meeting point (the University seminar room) and the joint traveling to the two schools contributed to loosening up the situation.

In addition, within the University room, all participants sat around a rectangular table. Both the view and the comfort were high for each participant. Eye contact with all involved was possible and everyone had sufficient space, which was beneficial for the interpersonal exchange of experiences.

Figure 39 - The seminar room with interactive participants and table form (own photos)

As Figure 39 indicates, there was a dynamic, productive atmosphere. During breaks such as illustrated on the right, the German teachers took advantage of the opportunity to continue their dialogues with the Swedish teachers and researchers. During the program sessions, they were open and interested both with respect to obtaining information and discussing ideas that came up.

The participants pointed out the new perspective and the comparison between Germany and Sweden in view of language-sensitive content teaching. This change of perspective as well as the view to further methods and opportunities including their feasibility was perceived as “helpful” by the participants (e.g., PR1).

The group dynamics was perceived as positive. All in all, the design had a positive influence on the participants. For some, the practical parts should have been larger, and the group seemed to be fully stretched with the amount of input they got. They liked the mix between "input and culture" (T6, par. 80), which was possible due to the program´s character which was perceived as not too tough (ibid.).

"We really got a lot of input, but we also got to know a little bit of the culture. So it was all a good thing. I thought it was good to see schools and the relationship between theory and practice, and university is always good, it is good that you can see that at the university. But in terms of the program, I really liked it! I liked that very much." [T6, par. 80]

Hence, the study visit program´s organizational and social conditions contributed to a positive working atmosphere or was perceived as positive by the participants. Hence, the practicality could be ensured. The underlying idea of inspiring the participants to compare LSCT in Sweden with the association and practical experience they had from their own work lead to the different outcomes in the participants´ thinking and acting. The comparison on-site by exchanging experiences or listening to conceptual talks about language promotion with migrant students in Sweden raised their awareness for the subject matter and refined their understanding of what the concept means and which factors facilitate using this competence.

It is important to note that the exchange of experiences was characterized as a mutual exchange, in particular with regard to the design´s elements about group work and meetings and discussions with Swedish teachers during the school visits. It was observed that the German vocational teachers were actively engaged in not only listening to and reacting on the experience with LSCT the Swedish colleagues told them. Instead, they enjoyed speaking about their experiences in class. It involved, e.g., discussing typical obstacles of learners with respect to understanding vocational contents or in general, misunderstandings when working on tasks or in oral communication, or with regard to the complexity and efforts when preparing tasks with three levels of linguistic difficulty for the learners. In addition, as became apparent in particular during the interviews, the German participants talked about institutional conditions which enable or complicate LSCT in practice. This, in turn, developed their ability to critically analyze and reflect. It also revealed that they think about ways to incorporate the new knowledge about LSCT and strategies of application into their own teaching. Moreover, they even assess the feasibility (transfer) under consideration of whether their vocational school´s conditions allow them the implementation of new methods.

The socio-cultural and personal conditions of the overall group promoted the successful implementation and practicality of the study visit. For instance, the Swedish project collaborators were highly motivated to fulfil their responsibilities. It might be possible that, due to the project collaborators´ university context, their epistemological interest had an influence on the design of the program. This might intimidate participants from the practice, but the effect remains – in the scientific project coordinator´s opinion – rather low, due to the close coordination of the program (didactic design) with the scientific project coordinator who took into account to satisfy the practice-oriented objective, as well.

Implementing the study visit in a Swedish location, i.e., experiencing language promotion within VET and in particular for a better integration of non-native speaker students, yielded advantages in order to develop the German vocational teachers´ competence in LSCT. The experiences of the Swedish project partner (researchers from the University) with their own small-scale project of teaching teachers how to plan and conduct their lessons in a language-sensitive contributed to the partner´s well-matching implementation of the desired intentions and purposes in the design. For instance, the structuring of the design towards increased required levels of active participation lead to the participants becoming more and more active during the study visit. Starting with knowledge input short presentations about the Swedish VET system, the situation about migrant students within VET and ideas to use LSCT to enhance the situation provided the participants with additional information. This additional information was country-specific and induced a first comparison of Sweden and Germany. By doing this, the participants enhanced their knowledge and simultaneously started reflecting on their conceptualization and strengthen their understanding of important elements of the integrated language promotion.

Furthermore, teachers´ language awareness could be enhanced by the didactic design. They were now required to present themselves in English (i.e., in this situation, they were non-native speakers) and use specialist terminology, as this was a situation which differed from small-talk (with everyday language). Hence, with regard to SPC´s assumption that it is essential to be able to identify with learners´ difficulties, emotions and thoughts, in order to be aware for learners´ language skills, this situation served as the first experience. Observations revealed that it did not seem easy for the participants, especially due to the fact that it was the first situation of this kind. Some of the participants were nervous, but all could present themselves well. One participant quickly made some notes and searched for the correct term to describe the occupational training class she teaches (optician trainees). This effect is striking, since it depicts a reversed position situation. Teachers who, as is assumed, exactly have in mind what they want

to communicate, are at first not (or only under difficulties) able to find the appropriate words in their second or foreign language. This linguistic and intercultural experience contributed to a greater understanding of the importance of language which is required to be aware of when teaching subject or vocational contents to learners with a lack of language proficiency. It points to the fact that in the multitude of cases, a lack of linguistic proficiency is not linked to a lack of cognitive skills. The contents that individuals want to communicate cannot be directly transformed into spoken or written words. Experiencing this difference and changed assessment of their own dealing with learner´s language problems was one of the essential outcomes of the intervention. It helps reconsidering their future attitude and behavior which can lead to adjusted acting, for instance by being willing to support learners with linguistic assistance. In general, it helps teachers meeting the learners with more patience and paying attention to individual linguistic needs, as far as possible.

One participant teaching economics expressed the wish that she would prefer to get a little more information about her specific area (T4). This would be practical if the study visit focused on one particular subject content, which would then imply selecting the group of participants and coordinating the whole content of the didactic design according to the specific field, such as economics. This was not the purpose of this study, where impulses shall be drawn from many different fields. The adjusting of new skills and knowledge to the particular subject of the participant would be a task of transfer. Her wish can be explained by the desire to maximize her personal benefit of this exchange. She additionally noted that she could take a lot of general input about LSCT with her and thinks she can use it for her own teaching.

2.2.1.3 Findings of the First Cycle regarding the Design´s Functionality

2.2.1.3.1 Achievement of the Objectives

The first cycle evaluation already points to an effective functionality of the design by means of the evaluation base described above. This means according to the analysis of the data, the language-sensitive content teaching competence was developed or enhanced on the German vocational teachers´ side.

The four specific dimensions of LSCT competence which should be developed by means of the didactic design are subsequently evaluated w.r.t. their effectiveness (cf. Table 7 in Chapter II.3.2.2).

1. Openness and awareness for linguistic skills of learners (*language awareness* as *attitude*) could be enhanced by the participants to a high degree according to the evaluation results. The teachers experience and develop their awareness for language promotion in professional contexts.

2. Motivation and willingness to teach in a language-sensitive manner also with respect to subject or vocational contents (*attitude*) was further developed. It was stated that the study visit lead to the motivation to further develop the professional skills.

3. Knowledge and understanding of the LSCT concept is a dimension which could be developed by means of the didactic design. The combination of contents, activities and methods lead to an enhancement of this dimension. The participants *know and understand* what language promotion in content teaching means. However, according to the analysis of the individual learning conditions of the German vocational teachers, it is assumed that they already had a recognizable amount of prior know-how. In the interviews, they could adequately distinguish between important terms and describe the meaning of the language promotion and language awareness. This might represent a learning outcome derived from the didactic design. The analysis of the personal data sheet indicated that all of the participants had taken part in a theoretically-based PD about one specific LSCT aspect. With respect to specific forms of cooperation with teacher colleagues, there was an additional enhancement in the participants´ knowledge.

4. The dimension concerning knowledge about where to obtain and how to use LSCT techniques and strategies (*application skill*) could be developed, for instance with regard to a focus on situated learning to promote learners´ language skills within a specific vocational learning situation. Further tools such as reading and understanding specialist texts were learned. Although additional strategies of LSCT have been presented to the participants (derived from participatory observation), the learning effect of these was not as high as expected. This might be due to the organizational, social conditions in which this content item and activity took place, or also due to the participants´ perception that they could not transfer the skills. With regard to this objective, the participants´ perceptions vary. Some stated that they have received practical knowledge for their current job as well as for their professional development.

With regard to the effectiveness, teachers were able to express suggestions for improvement of the LSCT practice and the integration of migrant students into the German VET system based on reflections of the experience abroad.

2.2.1.3.2 Practicality and Relevance

Relevance

The didactic design is assessed as relevant, as it addresses the specific need for a practical approach of gaining new insights into LSCT. Moreover, it is based on the latest know-how of LSCT and the conception of teacher professional development. In particular, it is relevant, since it took place in another European country and the evaluation revealed that there is European solidarity for the subject matter. The didactic design can become more relevant if it is modified to being oriented even stronger to the naturalistic setting of vocational schools. This is linked to the evaluation criterion of practicality.

Practicality

The first intervention in Sweden has already shown that the design can be used in the context for which it was developed. The participants have visited two vocational schools in the municipality of Stockholm, where they were able to visit teaching classes of confectioners and bakers, carpenters, hairdressers and car mechanics. These were short visits. Due to the regulations of the school, the group was not allowed to attend a whole teaching process of a class. However, the participants obtained an insight into the realistic setting and had short discussions with the teachers in class. They talked about how language is promoted and trained with the direct relation to the four above-mentioned vocational fields.

Participants would have liked having spent more time in these classes to intensify the impact and have more time to exchange experiences with the Swedish colleagues.

> “What I would focus even more on is practical visualization in schools. So these theoretical lectures maybe try to do something - they were also important, sure, I need an overview of the Swedish school system - but maybe that it's possible to accompany a class maybe for a day or something like that. That would still be desirable, although I take this visit very positively.“ (T4, par. 70)

The increase in practicality by trying to let the participants spend more time in real teaching classes is one of the elements of modification for the second cycle.

2.2.1.3.3 Sustainability

According to the scientific project coordinator´s assessment, the didactic design was sustainable insofar as the participants expressed their motivation and intention to transfer their new knowledge. This involves, e.g., know-how about how to implement language promotion and which potential techniques and strategies to use. However, as the potential for improvement in view of practicality might indicate, not all participants appeared satisfied with the competence development in the field of additional skills to apply.

On the contrary, with regard to having worked on their attitude and beliefs, the first cycle could achieve an augmented expertise in this dimension of the LSCT competence: The participants indicated that they are more willing to teach in a language-sensitive manner and also planned to be more open and aware for the learners´ linguistic skills in the future.

Sustainability was achieved as well by the participants´ plan to engage more in the cooperation with their colleagues at their domestic schools. Nevertheless, the participants raise their concerns about possible obstacles of a sustainable utilization of the learning outcomes due to a lack of time or support.

The participants used the impulses they received from their discussions and exchange of experiences with Swedish colleagues, as well as what they learned from tasks and presentations to reflect the situation at their domestic schools. Regarding school´s conditions and institutional development with respect to a successful language-sensitive content teaching practice which is sustainable, they expressed their recommendations. The following institutional preconditions are beneficial for the sustainability of applying the developed competences at the domestic schools:

- create incentives for teachers, provide them with time, mention the long-term benefits
- LSCT concept should be implemented “from above” (T4, par. 72), i.e., promoted more strongly by the school management
- Appreciation and value towards the work done by teachers (a lack is expressed from the teachers´ perspective)
- The curricula in German VTI should be standardized in the sense of integrating LSCT as an integral part with regard to school-to-work transition programs as well as including obligatory PDI for teachers working the field.

Thus, factors of LSCT which the participants perceived as beneficial and useful have been categorized by them into two parts: a) those factors which they are willing and actually *plan to actually* transfer to their daily work and into the teaching practice and b) factors which they would be willing to transfer but assess as not transferable given the institutional conditions of German vocational training institution (or even educational policy conditions in general, not with the specific focus on VET). This has been demonstrated by a variety of statements by the participants for which examples are provided in the following. The multitude of statements with regard to this also highlight the depth in which the participants have reflected about how they can use new skills of LSCT. In addition, it shows that they develop a thorough understanding of the sense, importance, and practicality of language-sensitive content teaching. Furthermore, their motivation to further engage in LSCT is pointed out by this process of thinking and reflecting. However, there is also direct criticism of and the wish for some adaptions in the German system. On the other hand, this attitude could also be interpreted as handing responsibilities for a non-functioning of the transfer towards the institution.

Private communication has revealed that the intervention motivated and engaged one of the participants to become an intermediary at her vocational training institution after having taken part in the exchange program. By doing this, she ensured the transfer of what she had learned to be forwarded to interested colleagues. In the conversation with the teacher half a year after the intervention, P_1 stated that she accompanies colleagues as a host in their teaching lessons. The contact was made by her directly addressing colleagues working with school-to-work transition learning groups at her school. This is one specific case showing one specific outcome where the participants take the role of a multiplicator. Nevertheless, according to her statement, this LSCT developing activity can be seen as a potential successful outcome of the professional development interventions. An increase in studies like this will likely yield more of this or similar beneficial developments which lead to the stronger embedding and long-term impact of LSCT in an individual school. By the network of VET institutions, it might spread further.

2.2.1.3.4 Reflective Application of the Techniques of Qualitative Social Research

The combination of analysis of the research diary resulting from participatory observation, transcripts derived from the interviews with the German participants and statements from their written participants´ reports proved to be a solid foundation for evaluation. Both the scientific project coordinator´s perspective and the perspectives of the German participants could be

included. The techniques have been applied following the scientific rules of data collection, preparation and analysis as was explained in Chapter III.2.4. The data were completely available as previously planned.

2.2.1.4 Discussion and Conclusion

The first prototype served as a beneficial starting point and already managed to achieve to develop the LSCT competence of the participants.

The participants´ cooperation could be included to a larger degree into the planning phase of the activities aimed at the development of expected competences for a didactic design which is even more oriented to their needs and wishes. The effectiveness has already been evaluated as high, however, the aim is a further increase, as recommended by Plomp (2013).

The interplay between expected competences, activities, methods, and the conditions of teaching and learning have worked well to fulfil the quality criteria. Activities could, however, be refined to include observing actual teaching lessons abroad and exchanging experiences afterwards.

In particular, the level of practicality should be improved, in order to orient the didactic design even more to the individual needs of the participants. Job shadowing will be incorporated and shall cover a period of one day. By doing this, the participants will also be required to cooperate even more within naturalistic settings of VET daily work. The level of communication (intercultural dialogue) will be increased, as well.

The didactic design of the first prototype has demonstrated that a development of the teachers´ competences takes place at three different levels: Apart from the teachers´ own examination and reflection of their use of a language that is not their first language (here: English) (level 1), there is an exchange of experiences within the German group (without the language awareness effect, in this case) (level 2). What is more, there is of course the exchange of experience with colleagues at the European level (level 3).

Implications and expected transfer of the developed competences of I_1

The participants expressed their perceptions about the impact of their participation onto their schools. They are convinced of the fact that their participation will impact their domestic working place, i.e., their VTI on different levels (according to the response options participants selected in the PR):

- New opportunities to share the knowledge that they have acquired during the intervention with their colleagues
- Using new teaching/training methods, approaches and good practices at their sending institution
- Creating opportunities for the launch or development of new educational activities such as curriculum development, development of joint courses or modules, academic networks, etc.
- Reinforcing a positive attitude of my sending institution towards sending more staff on teaching assignments, job shadowing or training abroad
- Strengthening their sending institution's cooperation with players in the labor market
- Strengthening their sending institution's cooperation with players in the civil society
- Starting or joining new European / international projects
- Strengthening the cooperation with partners in this project
- Strengthening the efforts of their sending institution towards an more international orientation of their activities.

By the assessment of the answers selected above, the participants are expected to become multipliers in their vocational training institutions. Developing the LSCT competence can then be as well carried out among the staff of VTI (in particular the staff working in school-to-work transition programs) and the new ideas and knowledge based on the intercultural, transnational study visit experience can be disseminated by means of the multiplier to their colleagues.

In conclusion, the participants´ considerations about transferring the results of the intervention have thus a direct connection to school (institutional) development. Due to this outcome, the link to the institutional development with regard to LSCT, the documentation of this design-

based research study also addresses decision-makers in the institutional development of vocational schools. They can promote and enable the success of transfer and the sustainability of this program.

Critical reflection of the data collection in I_1

The lack of diverse international perspectives within the collection of data for evaluation has to be noted critically. The German vocational teachers are in the focus of this thesis which is why they are in the focus of data collection, as well. However, the second prototype is recommended to include foreign project collaborators and foreign vocational teachers into the sampling. By involving them, different perspectives enter the evaluation base which is reasonable in view of the European orientation of the study. Due to the physical distance and potential difficulties with the availability of foreign teachers after the intervention, electronic methods of questioning are suitable here.

Design principles resulting from I_1

From testing and evaluating the first prototype intervention, the following design principles can be formulated after the first cycle:

Expected Competence
1. Convey knowledge about relevant and effective strategies of the implementation of language promotion integrated in LSCT and VET programs in the European target country of the study visit.
2. Through the conscious experience of being a temporary second language speaker during the study visit, the participants develop their awareness for language. They are required to discuss specialist terminology (VET terminology) in English in a foreign environment. They thus experience intercultural and linguistic situations. This change of perspective increases the participants' identification with learners.
3. Convey knowledge that increases the competence of interlinked teaching of both the target language and the specialist subject (language as a tool and target).

4. Induce a discussion about the VET system of other countries and their approach to linguistic diversity, in particular in view of refugee migration.
5. Rely on all dimensions of language-sensitive content teaching: a) knowledge, b) skills and c) attitude (orientation on effectiveness and sustainability).
6. Transfer the lessons learned within the PDI to the daily work life in order to achieve sustainability.

Methods & Activities
1. Encourage the participants to share their experiences on successful as well as unsuccessful teaching and learning situations and to pose questions, both with respect to vocational subject teaching and language difficulties of non-native students in general.
2. Create situations of discourse about language promotion with individuals of two (or more) different first languages and encourage teachers to rely on multiple languages in order to express their message. The multilingualism strengthens the language awareness by raising the understanding of and motivation to accept and use multilingualism where it is required in class. Teachers obtain experience at first hand (identification effect with students).
3. Provide the participants with sufficient time to exchange their experiences and reflection.
4. Design the content in a way that the desired participation gradually increases. Suggestion: cognitive knowledge transfer followed by “exchange of experience” (first: cooperative / reflecting the concept, second: practical by job-shadowing). This leads to a beneficial distribution of energy and motivation resources. The participants can arrive, become familiar with the other participants, the climatic conditions and the unknown environment.
5. Encourage intercultural dialogue in order to increase awareness and acceptance of the individuality of learners.

6. Select varied methods. Participants are more receptive and likely to participate if there is a change of methods. One of these methods could be presentation by experts from the practice in order to initiate the knowledge transfer. In addition, group work for discussion and reflection results in cooperative and reflective learning. Finally, alternating activities (e.g., between job shadowing and exchanging experience and reflecting on interlinking language promotion and vocational subject teaching) should be promoted.

Conditions of teaching and learning – organizational and social framework conditions
1. Select an appropriate time of placement of the PDI both with respect to the domestic school system schedule and the one in the other European country. It is recommended to consider periods within a school year in which absences due to professional development participation are possible, i.e., where German teachers can be absent from teaching for four days, and where partners abroad are available (consider bank and school holidays abroad).
2. Select a European country where English can be used as the language of communication. Alternatively, select a country where one common language of communication can be identified for the entire group participants. To enable the LA effect, this common language should not be German.
3. The PDI should take place in locations which support the purpose of the activity. For the job shadowing, real-world settings and situations (classrooms and teachers´ working places apart from teaching) should be used as locations. With respect to talks and presentations, or exchange of experience including reflection, a seminar or conference room is appropriate where the participants can sit together in a quite environment and keep eye contact.
4. Carefully select expert trainers and speakers of the PDI in order to achieve the expected outcome. The trainers and speakers are responsible and thus essential for the quality of the study visit. This depends on the quality of the partners abroad under whose supervision and responsibility the selection of involved trainers and speakers is carried out.

5. Select an appropriate European country for carrying out the intervention by orienting towards their education system which is suitable for the PDI. Its LSCT concept should thus exhibit similar challenges and solutions regarding migration and vocational education and training so that teachers can learn from each other.
6. Accompany and supervise the PDI in order to ensure that the visit goes as planned in order to achieve the expected outcome.
7. Select a reliable and appropriate partner in the European target country in view of cooperation on the study visit program implementation and the achievement of the expected outcome. If the partner abroad is located at a university, ensure that they are able to engage school managements and teachers as well as external partners for contributing to the program. If the partner abroad is a social education institution, the probability of a network including vocational schools can be higher. However, ensure that they incorporate methods of cooperative learning.

Conditions of teaching and learning – individual learning conditions of each participant
1. Offer individual, need-oriented consulting of the participants prior to the PDI. This is a substitution activity of previously scheduled kick-off meetings or theoretical introductions in the home country. Note that the PDI is consciously determined to be realized exclusively abroad.
2. Inform all participants about English (or a further foreign language of communication agreed on) being the main language of communication.
3. Assemble a group of preferably homogeneous participants. The homogeneity refers to the participants´ working environment (VET context, or more specifically, learners´ school-to-work transition, who have worked or work with non-native speaker students) and to their similar objectives (developing their competence in teaching their subject contents in a more language-sensitive way).
4. Limit the group of participants to a number between five and seven.
5. Support the participations by encouraging them to actively participate in all activities already before the PDI starts.

Source: own research

Interim summary

Exploiting the potentials (cf. Chapter III.1.6.1) of DBR by using the findings from one prototype to refine the subsequent prototype from both practical and scientific perspective is the focus of this study. Thus, the optimal prototype (here: professional development concept abroad in order to develop or enhance the LSCT competence of vocational teachers) aiming at the solution of a problem within educational practice evolves step by step (and note that, although a third prototype will be a positive construction resulting from a refinement of the two former ones, the optimal prototype will not be completed at the end of this study).

Plomp (2013, p. 33) argues about this potential and interim status very appropriately as follows:

> "A key idea is that when the prototype of the intervention in a certain iteration does not result in the desired outcomes for that iteration, the conclusion is that the intervention is not yet good enough – in other words, the asserted design principles (or intervention theory) for that iteration are not (yet) good enough or not yet emerging. This has to result in a re-design or refinement of the intervention, which goes hand-in-hand with the refinement of the intervention theory or design theory …".

At this point within the research process, some factors have been evaluated positive (as they fulfilled the criteria established before), a few unintended factors have shown (see above) which should be avoided in the future and others have appeared as unintended, but positive effects.

With regard to adhering to the research model, the didactic design could be realized as planned and there was no short-term adjustment during the process necessary, as the appointments were all complied with, the partners abode by the agreements and have been reliable. With respect to the group of participants, there were not outliers or unexpected behavior or other problems.

Hence, in line with the DBRA, the findings of the first cycle are used as a basis to further develop the prototype by substantiating and putting the design principles into (more) concrete terms. This refinement is carried out taking into consideration what was found about the expected competences (intentions, contents), methods and activities and also the conditions of teaching and learning (organizational / social conditions or individual learning conditions of the persons involved). In particular, the group of participants always shows highly individual features – despite the fact that they have been selected according to specific criteria such as the type of school, the target group they are teaching – which has an unpredictable impact on how well the learning situation with the intentions, objectives, and methods works. This is explicitly pointed out here as it has to be paid attention to in the interpretation of the findings.

Following the critical reflection of the first prototype, a few modifications were made in coordination with the local project collaborator. In particular, the didactic design was ***redesigned*** in view of a higher practical relevance (job shadowing as central element of the study visit), more diversification within the German teacher group (work experience, age) and changing the organizational / social framework conditions by selecting France as the location for the second cycle. Associated with the increased practical relevance as method to achieve the expected competence, the characteristics of the partner (foreign project collaborator) changed, too – from the university partner in Sweden to a social educational institution in France.

In this way, the subsequent prototype is improved by allowing critical aspects and suggestions for optimization to enter the planning and preparation of the following study visit.

2.2.2 Second Iteration of the Research Process with Prototype 2 (France, May 2019)

2.2.2.1 Objective of 2nd Prototype

2.2.2.1.1 Research Questions

As was the case for the first intervention, the objectives (intended outcome) as well as the potentially occurring unintended impact are paid attention to by means of the research questions. In the following, only the research questions are listed which are new with respect to the second study visit abroad, i.e., supplements which resulted from the evaluation of the first didactic design and were modified to improve the second didactic design.

Objective and impact

Expected competence

- How does the modified transnational study visit (PDI concept) represent a more effective version in view of a long-term establishment of such a program? If not, why?

Methods and activities

- How does the additional activity job shadowing effect the didactic design´s functionality?
- How does the increased codetermination work w.r.t. expected learning outcomes and conditions of teaching and learning?
    - regarding the codetermination prior to the intervention
    - during the intervention as a consequence of noticing the participants´ dissatisfaction or discrepancies about the program implementation?

Conditions of teaching and learning

- Which differences can be detected with respect to the individual learning conditions of the German participants´ group in I_2?
- How will the interaction work between the German teachers and their colleagues from France?
- How does the intervention process work with the foreign project collaborators from the practice (social education institution context as one condition variable in I_2 compared to the University context in I_1)?

Optimization and consolidation

Which consolidated design principles can contribute to achieving the objective best – according to the two cycles of development, testing, evaluation, refinement, testing, and summative evaluation?

2.2.2.1.2 Evaluation Criteria

Iteration I_2 will lay a higher focus on the sustainability of the design. The cycle results of I_1 had pointed to the need for improvement with regard to the transfer of the knowledge increase, additional skills to use LSCT strategies and the development of attitude into the network of the participants´ home institutions, to colleagues and further interested persons.

An additional aim is to increase the practicality of the design.

Furthermore, the reflection on applied research techniques from QSR in the first cycle resulted in the decision to increase the number of different text sources, i.e., the variety of perspectives which are consulted and included into the evaluation of the didactic design. This means, texts evolving from written surveys completed by the French project collaborators (from the social education institution) and by some of the French vocational teachers enter the evaluation basis. As this study visit is of transnational character, it is interesting to analyze how these individuals perceived and assessed the their experiences during the intervention.

In sum, the evaluation criteria (ec) of the *implementation of the second prototype* are again based on the effectiveness (by analyzing the achievement of objectives and further impact factors) and the same other criteria such as in I_1. For I_2, they are modeled as follows (Table 21):

Table 21 - Evaluation criteria of the second prototype

Evaluation Criterion ec	**Description / Type of Evaluation Criterion** (eo = evaluation objective)	**Part of the Documentation**
$ec_{1-3} = o_{1-3}$	Achievement of objectives *(gradually increasing)*	Implementation and evaluation
ec_4	Practicality and Relevance	
ec_5	Sustainability *(gradually increasing)*	
ec_6	Reflective application of the techniques of qualitative social research	

Source: own research

2.2.2.1.3 Context Conditions of the 2nd Prototype: Organizational, Social Framework and Individual Learning Conditions

Regarding the second study visit cycle, only those context variables are described which differ from the aggregate of context variables presented for the first study visit in order to avoid redundancies.

The conditions of the context in which the second prototype was implemented, are again divided into organizational, social framework conditions on the one hand, and individual learning conditions of the participants on the other hand. They can be described as follows:

Organizational / social framework conditions of the context *in contrast to the first* cycle conditions of the context:

- Professional development intervention is embedded into the *French* vocational education and training system which has an influence on the didactic design, i.e., with respect to the contents of the program and by particular individual conditions the project partner (social educational institution) brings along.

  Exemplary measures for refugees in the broader domain of LSCT: There is no particular school-to-work transition system in France such as in Germany. On the contrary, similar to Sweden, educational programs in vocational institutions prepare migrant students for higher education (on their way to a future job) via French as a second language courses combined with vocational subjects. According to statements by French teachers (*Lycée Gustave Eiffel*, Bordeaux), in all lessons, the French language is consistently rather used as a tool than a goal itself. Becoming employable is a significant motivation according to French teachers´ statements. This also reflects the motivation for the LSCT concept from the institutional and teacher perspective.

  In France, similar to Germany, projects with regard to their specific interpretation of LSCT have only started in recent years. France, for example, has similar issues in terms of requiring to improve their VET systems towards the integration of migrant and refugee students. In addition, they share the need for an approach that combines the promotion of the French language in between vocational studies and training. One of the reasons of France being the target country for the second professional development intervention (PDI) presented here, was the knowledge of the above-described similar challenges.

  The high value of the official language in France was another interesting condition to take a look at, i.e., how this condition influences the manner in which VTI include language and subject content teaching and learning. Furthermore, teacher language awareness might play a significant role in this context.

  Moreover, the Job to Stay Project which the French project collaborator took part in had a network in the region of Bordeaux as well as the international experience with non-

native speakers students and vocational training institutions on-site. In contrast to the University project partner in Sweden, the French project partner did not have a particular expertise on LSCT. In contrast to this, the French vocational schools had experiences with it. The term used in the vocational school where the job shadowing activity was carried out, was "Les matières professionnelles: un outil technique pour l´apprentissage du français". Translated in English, this means "Vocational subjects: a technical tool to foster French learning". This is quite similar to the language-sensitive content teaching concept as understood in this study. However, by using the above-mentioned term, the vocational contents are seen as a tool for language promotion, while the "German conceptualization" of this study considers the language promotion as the tool to develop vocational action competence.

- Development and implementation of the study visit in cooperation with French project partners (practitioners) of Association Odyssée, a social education institution located in Bordeaux, south-western France.
- Heterogeneous composition of the group of participants of the PDI (practitioners from the social educational institution, French school management / headmasters, subject or vocational content teachers from two vocational institutions in Bordeaux, partners from the French agencies in the vocational educational sector) with diverse degrees of expertise of LSCT and diverse didactic know-how.
- Specific institutional or educational policy conditions in France as influence factors on the content design.

Individual learning conditions:

- Homogeneous composition of the German group of four participants in view of the pre-existing LSCT competence levels
- Different compilation of working experience, gender, motivations of the participants

The sampling process of the German teacher participants was essentially the same as in the first cycle. Nevertheless, some modifications were made with regard to the sampling which are summarized in the following. The modifications were carried out for the purpose of improvement and in order analyze a different compilation of the group in terms of, e.g., gender, number of participants.

For intervention I_2 (as was also the case for intervention I_1), the German teachers were selected according to the criteria highlighted in the pre-study of the research process.

All in all, there were eight applicants or interested persons from different vocational training institutions. However, due to institutional regulations (permission of only one participant per school as stated by the school management) or personal reasons, the final number of participants was four. One person canceled at short notice due to personal private reasons. As a group with more than seven persons would be difficult to handle, and we assume that the participation and impact might be higher if the group is small, this final number fit to the conditions. However, it can be pointed out that the application process was characterized by many conversations (mostly via telephone) between the scientific project collaborator and interested teachers who did not become part of the sampling due to the fact that a) they were not able to attend as there were the above-mentioned personal or institution-related obstacles (the latter should be reduced by the VTI as is claimed in this study) or b) they did not meet the criteria for participation at all. This was for instance the case with applications of teachers teaching French in the (upper) secondary area of VTI within the district.

Already during the application process phase, individual talks with the applicants demonstrated that they feel the need to get into more discourse about their experiences in the STWT classes. Several were under the impression that their work is not (sufficiently) appreciated by the institutional management and that they need more support to develop the necessary LSCT competence.

Table 22 - Characteristics of the German teacher participants P_n with n = 1-4 in intervention I_2

Gender	Vocational orientation(s) of VTI	Teaching areas of P_n	Work experience in years	Interest in languages	P_n´s language skills	Attended a training in LSCT before

P1 / M	Business and Administration, Catering / Food service	English, German in the STWT courses, commercial college and upper secondary level	27	yes	English, French, German	no
P2 / M	Business and Administration, Catering / Food service	Commercial / economic subjects, Spanish in STWT course, technical college (Berufsfachschule)	31	yes	English, French, Spanish, German	no
P3 / M	Healthcare, Education / Social Care, Household Arts, Florists, Beauticians, Hairdressers	English, German, Politics in STWT courses, technical college (Fachober-schule), upper secondary level	7	yes	English, French, Spanish, German	yes
P4 / F	Business and Administration	English, Spanish, German as SL in IC, Fach-schule, Berufsschule	29	yes	English, Spanish, German	yes

Source: own research

Table 22 provides an overview of the characteristics of the participants of the second intervention in France (based on additional personal information sheets submitted by the participants after the interview within a follow-up meeting after the PDI):

The participant group consisted of three male (75%) and one female participant (25%).

Regarding the second group in I_2, the most striking observation is that the four teachers differ widely in the vocational orientation of the vocational training institution within the Münster District they work in. This is a positive or rather desired prerequisite since the PDI pursues the goal to develop the LSCT competence of teachers across the whole spectrum of subjects rather than to focus on one specific vocational subject.

As a modification to the first cycle, the present group was characterized by a much higher average work experience of the participants (23.5 years per average). It is more than double the average work experience of the group in the first cycle. This is interesting to consider when subsequently comparing the impact and outcome of the intervention, as teachers having a higher work experience possess a larger skills repertoire and higher levels of expertise. However, they might also differ from teachers with less work experiences in terms of motivation due to the many more experiences they have made throughout their career so far. These experiences can be of personal, professional, linguistic character, among others. This applies

especially to the research project´s motivation which includes the support of in-service teachers at VTI with many years of work experience in general and who are lately assigned (whether voluntarily or not) to work with non-native speakers at STWT courses such as in International Classes or related courses.

A further important difference is that two of four participants indicated that they had never attended any PD training with regard to LSCT before. On the contrary, as was the case in the group of the first cycle, all four participant of the second cycle stated that they have a personal interest in languages in general. This is reflected in the language profile they reported. Each of the four spoke at least two languages apart from their native language. Each participant´s native language was German.

The two participants with experience in a language promotion-related PD reported these to be German as a second language (P_4) or a Teaching English as Foreign Language Day organized by the University of Münster (P_3). The latter one is a professional development for teachers in order to develop their competences in teaching and examining foreign languages. Hence, no one in the group had taken part in a PD abroad or one with the specific focus of teaching languages within general or subject vocational teaching (at VTI).

By assumption, due to their general interest in language, the learning conditions will be different from those of a group where participants have no experience with or interest in languages at all. However, it is assumed that this group is equipped with a basic level of LSCT competence which might be the consequence of their experiences in the field so far – as they all currently work with learners at the school-to-work-transition (preparatory educational programs). All of them work with non-native speakers in the International Classes or further programs of the STWT.

2.2.2.2 Fine Adjustment and Revision of the Design

2.2.2.2.1 The Study Visit Abroad Concept

2.2.2.2.1.1 Concept Description

The basis of the modified concept is the first cycle findings which took place in Sweden in November, 2018. The second intervention was conducted in France from May 14th to 21st, 2019. A comparison of both will emphasize major modification elements.

In particular, these refer to changed context variables (cf. Section 2.2.2.1.3), a stronger focus on the exchange of knowledge, skills, and attitudes in the real-world setting "VTI" by including job shadowing events into the didactic design. These were supposed to increase the design´s practicality and improve the probability to achieve the objectives defined (effectiveness). With regard to the sustainability, increased attention was paid to discussing the possibilities of transfer during the follow-up individual meetings (encouraged or inspired either by the participants or the scientific project coordinator).

The method of creating an understanding of what the LSCT concept can include by letting the participants discuss three questions in different group constellations was maintained and slightly modified by changing the small group work into a joint discussion with the entire group.

In order not to influence the effects of the design towards the participants´ perception and actions during the study visit, there was no specific mission for them to do as underlying task. Instead, in the individual and need-oriented preparation of each participant, they were invited to be as open-minded as possible for any incoming perception, information, contact or communication with French colleagues. The short visits in vocational schools (with short visits in the practical teaching lessons and short talks with the respective teachers) were modified to longer visits including job shadowing in complete lessons. The participants should thereby raise their awareness for language and the need for LSCT, gain new/additional information about LSCT and how to apply techniques and strategies by observing and exchanging ideas to a larger extent than it was possible due to the contents and activities in the first intervention in Sweden.

The intervention was developed and planned by the author in cooperation with three practitioners from the social education institution Association Odyssée in Bordeaux, France. From the French side, head masters and teachers from two vocational education institutes in Bordeaux participated. In addition, experts in the field of integration of refugees and migrants as well as in the French implementation of their understanding of LSCT were involved.

This intervention included a complete day of job shadowing with seven French teachers who allowed the German participants to visit complete teaching lessons, and follow-up discussions and reflections on teaching methods with a focus on language promotion. Even dialogues with some of the students in class were possible. With the French teachers' permission, questions could be directed towards the students regarding the respective contents and experiences they made in class.

The process set-up of the design is illustrated in Figure 40.

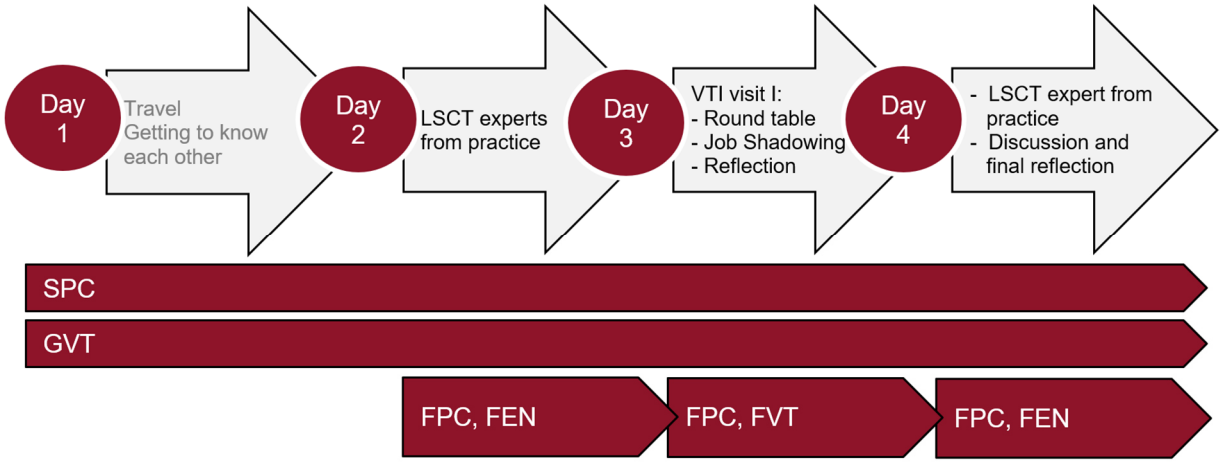


Figure 40 - Process set-up for the design of the second intervention (own diagram)

During the study visit in France, apart from day 1 (travelling, getting to know each other face-to-face among the German participants similar to the first study visit), specialized topic-related presentations, exchange of experiences in the following discussions took place on day 2. On day 3, job shadowing phases with an introductory round table including all teachers from Germany and France, the vocational school´s head master, as well as the French project collaborators and the scientific project coordinator were carried out. There were reflection phases in between and a concluding one at the end of the day. Day 4 included a further presentation and discussion by and with an expert in the field of training migrant adults in job-related French language development. The study visit concluded with a final summary and reflection phase involving only the German participants, the scientific project coordinator and the French project collaborators. The language of conversation was English.

The format features (duration, status etc.) are equal to the first prototype.

2.2.2.2.1.2 Didactic Design

In a simplified scheme, Table 23 illustrates the didactic design of the preparation phase prior to the actual second study visit. The entries in black and bold type denote the differences.

Table 23 - Didactic design of the preparation phase (2nd prototype)

Phase (prior to study visit)	**Content item**	**Expected competence (intention, purpose)**	**Methods, activities**
3 months	Preparation of the participants (content-related and administrative)	Participants broadly know the contents of the program and the documents they have to provide as required by the Erasmus+ initiative	Methods: e-mail communication either bundled to the whole group or individually Location: online
3 - 1 month(s)	Preparation of the participants (content-related, organizational process)	Participants are consulted w.r.t. content-related (language of communication) or organizational questions (travel, accommodation). Participants talk about their motivation. Participants talk about their expectations **(which is structured and enters the fine tuning of the program)**. Participants are invited to prepare for the study visit by reflecting how they understand LSCT and on their own experiences with it, and being able to talk about this with their French colleagues. **Participants are offered to exchange contacts among each other to get in touch prior to the study visit (voluntarily)**	Methods: communication via telephone or e-mail individually between SPC and the participant on request Location: online/telephone
1 week	Sending the final program to the participants	The participants are informed about important content-related and organizational elements: - dates and time of the appointments of study visit program elements - title and description of the program events - names of persons involved in each event **- address of accommodation and principal location of the seminar (Association Odyssée as ´main venue´)**	Methods: Sending an information package to each participant via e-mail Location: online

Source: own research

One essential difference to the first prototype is characterized by a higher involvement of recommendations of the participants. These were structured and formulated as wishes, which were communicated to the French project collaborator, and were taken into account during the planning and development of the didactic design of the program.

A second modification concerned the organization of the contact of the German participants among each other. As a consequence of the evaluation of the first prototype, the second included the offer to exchange contact details, if desired, prior to the actual intervention abroad. According to the statements of the participants and results of the scientific project coordinator´s observation, this offer was used by two of the four participants.

The actual didactic design of the implementation phase of the refined prototype is characterized in the following scheme:

Table 24 - Didactic design of the implementation phase (2nd prototype)

Day$_n$ (with n = 1-4)	**Content item**	**Expected competence** **(intention)**	**Implementation tools** **(via methods, activities, media)**	**Conditions of teaching and learning** **(organizational and social)**
1	Travel *First group meeting* Getting to know each other Introducing into the program	Participants arrive at the study visit location. Participants get to know each other (start of the group dynamics with the German group). Participants pose and discuss open questions to the SPC.	Activity: Joint, cooperative dinner	Location: Restaurant within accommodation in Bordeaux. Total no. of participants (P): 5
2	8.30 – 9.40 *Introduction meeting, information about the program*	Participants from both Germany and the French project partner get to know each other. Participants formulate their expectations.	Methods: Short tour of introductions of all participants Organization	Location: Association Odyssée, seminar room Total no. of P: 9

2	10.00 – 12.00 Introduction on the French VET system by staff of a vocational school and Apprenticeship Training Center	Participants are informed about the French VET system and get an insight into the LSCT interpretation and implementation examples in France. Participants discuss country-specific differences and similarities. They reflect on their own experiences with LSCT.	Methods: Presentation, information transfer (cognitive-theoretical form) Talks/presentations by French teachers with subsequent open discussions Media: Beamer, presentation slides	Location: Vocational school, class room Total no. of P: 11
2	13.00 - 15.00 *Lunch*		informal exchange	
2	15.30 -17.00 Introduction of Job to Stay Erasmus+ Project (professional inclusion and language courses for women with refugee status)	Participants increase their knowledge and understanding about what language promotion in content teaching means. Participants become (more) open and aware for the importance of language in VET contexts. They develop an awareness for dealing with their own use of language, the linguistic skills of learners and dealing with heterogeneity in general.	Methods: Presentation, information transfer (cognitive-theoretical form) Group discussion Media: Beamer, PPP, Whiteboard for additional remarks	Location: Association Odyssée, seminar room Total no. of P: 9
2	17.00 – 18.00 Introduction of the Academic Centre for newly-arrived and travelers pupils (CASNAV)			
2	19.00 *Dinner*		informal exchange	
3	8.30 – 09.00 *Welcome coffee*		Methods: Intercultural exchange of French and German teachers (getting to know each other) Media: Beamer, PPP, Whiteboard	Location: Vocational school Les Menuts, Bordeaux Total no. of P: 16
3	9.00 – 10.00 Round table with teachers of the vocational school on: *Vocational subjects: a technical tool to foster French learning*		Methods: Round table	

3	10.00	Participants get an insight into how the LSCT concept is implemented in the French VET system. They increase their knowledge about LSCT. They learn where to obtain and how to use LSCT skills. Participants develop their motivation to teach in a language-sensitive way. Participant develop their language awareness.	Methods: Intercultural dialogue, communication in foreign language, cooperative work **Job shadowing** in teaching lessons: - hairdresser - French as foreign language - sales / business - prevention, health and environment	Location: Vocational school Les Menuts, Bordeaux Total no. of P: 16
3	11.00			
3	12.15 *Lunch*		informal exchange	
3	13.25	Participants get an insight into how the LSCT concept is implemented in the French VET system. They increase their knowledge about LSCT. They learn where to obtain and how to use LSCT skills. Participants develop their motivation to teach in a language-sensitive way. Participant develop their language awareness.	Methods: Intercultural dialogue, communication in foreign language, cooperative work **Job shadowing** in teaching lessons: - hairdresser - French as foreign language - sales / business - economy and law - prevention, health and environment - individualized mentoring	Location: Vocational school Les Menuts, Bordeaux, Various classrooms Total no. of P: 16
3	14.20			
3	15.30			
3	16.25			
3	17.20 Meeting with German and French teachers to share summary feedbacks on the job shadowing session		Methods: Group discussion with German and French teachers to share summary feedbacks on the job shadowing session	
4	10.00 – 11.30 Introduction of Alios Formation – training center for adult migrants	Participants are informed about LSCT implementation examples in VET. They develop their knowledge and learn about didactic techniques of LSCT.	Methods: Presentation by an expert from the training center and group discussion (intercultural discourse)	Location: Association Odyssée, seminar room

			Media: Beamer, PPP	Total no. of P: 10
4	11.30 - 13.00 Summary *(What can we learn from each other in Europe?)* Goodbye	The participants express their overall perceptions and thoughts, as well as concluding remarks, thereby strengthening cognitively what they have learned.	Methods: Open discussion round, post-it feed-back round Media: Whiteboard for collecting post-its	

Source: own research

2.2.2.2.2 Persons Involved, their Roles and Preparation

In the following, there is a brief description of the respective important groups of actors, including an outline of their role (position(s), function(s)) and specific preparatory measures taken. Whenever there are overlaps with the persons involved in the first cycle, the information is omitted and can be found in Section 2.1.3.2.2. All the parts are closely related to the first intervention. Only the differences are highlighted in the following.

Foreign project collaborators in France

Three practitioners of the social education institution Association Odyssée, Bordeaux, France, were chosen as partners for the second intervention due to their specific matching in view of our problem setting. Equal to the scientific project coordinator (author), these three attended the entire study visit program (day 2 to 4).

Foreign experts from networks and schools in France

The selection and coordination of further involved actors is carried out by the foreign project collaborators after development discussions with the SPC and the LPC (determination of criteria for selection). FPC are comprised of French school management and vocational teachers and foreign experts from networks.

Role: Individuals from environment beyond teaching practice in schools: Mediators or agents of content-related input (e.g., by presenting their view on a specific aspect of LSCT practice or their project about LSCT as a best-practice example).

French teachers ("VET teachers in the vocational path") from vocational schools ("lycées professionnels") (Centre Inffo, 2018, p. 29): hosts who share their experience from teaching practice and/or show elements of their daily teaching practice.

Preparation: is not considered here, as it was the responsibility of the foreign partners who are classified as trustworthy w.r.t. an appropriate, necessary preparation.

2.2.2.3 Implementation

Parallel to the first cycle, the implementation of the second prototype was carried out along the planned process (cf. Table 24 on p. 342). Due to a tightly timed schedule and the productive and flexible reaction of the French project collaborators to the German participants´ requests with regard to the contents of the program (in accordance with the SPC), some adjustments were made. The latter referred to a short-term additional school visit on day 2 which was inserted into the time schedule. One of the teachers of the vocational school where the presentation of the French VET system and their particular practice of integrated language promotion took place, invited the group of participants to visit her teaching class in the afternoon of that day. The learner group she was teaching was characterized by many learners with difficulties in the French language.

A too short reflection and discussion sequence of the job shadowing periods on day 3 was the consequence of the tight time schedule.

Apart from that, with respect to the conditions (both organizational, social framework conditions with respect to the partners and the program in France, and the individual learning conditions of the German teachers), the implementation could be realized according to the plan.

A detailed description of the implementation is integrated into the following documentation of the evaluation where it is required. The reason for this is to avoid redundancies.

2.2.2.4 Evaluation

2.2.2.4.1 Evaluation Base

The evaluation base of the second cycle again involved participatory observation conducted by the scientific project coordinator (author) resulting in a research diary with elements of a protocol enriched by the author´s interpretations and conclusions from observed contents, activities/methods and the conditions given.

Written surveys of the German vocational teacher participants

The procedure was the same as has been documented for the first intervention (cf. Chapter IV.2.2.1.2.1).

In order to avoid repetition, only the differences between I_1 and I_2 are reported in the following:

- All four participants P_{1-4} selected the report in English language (voluntarily).
- All participant reports were completed and available online (P_{1-4}).

Interviews with German vocational teacher participants

The interviews were represented as follow-up individual meetings. They took place shortly after the return home from the study visit abroad. As they allow for a qualitative thorough oral report which leaves space and time for questioning by the interviewer (understanding of contents and statements, clarification in the case of ambiguities or lack of clarity, deeper discussion of specific aspects etc.), they form the main basis for evaluation – apart from the observation instrument which rather shows the scientific project coordinator´s perspective.

Table 25 - Overview of conducted interviews with sampling in in the second cycle

Participant	Date of data collection	Interview no. (transcript no.)	Length of interview (in minutes)
P_1	04.06.2019	I1 (T1)	39:22
P_2	04.06.2019	I2 (T2)	43:48
P_3	06.06.2019	I3 (T3)	55:47
P_4	06.06.2019	I4 (T4)	55:27

Source: own research

All in all, the duration of four interviews accounted for 194:24 minutes, which represents an average duration of 48 minutes and 36 seconds per interview (cf. Table 25).

Similar to the first cycle, the guideline for the interview was open, semi-structured. The guideline of the second cycle interviews resulted from the prior guideline of the first cycle supplemented by new findings from this first cycle (in order to evaluate the modification of the prototype after the second cycle testing).

The interviews[78] with participants P_1 – P_4 were carried out at the respective workplace (VTI) of each participant – equal to the first cycle. The conditions of the interview situation was exactly the same as the in the first cycle as this had proven beneficial for the purpose.

The preparation and analysis of the transcripts followed along the rules established and recommended by Mayring (2010, 2014) and in addition, by Mayring & Fenzl (2014). The precise process of this qualitative content analysis was described in Chapter III.2.3.1.

Expansion of the evaluation basis in order to increase the amount of perspectives of the persons involved

In the second cycle of this research study, the multi-perspective analysis was improved by expanding the evaluation basis (cf. Figure 25). Therefore, both the French project collaborators (three persons) and French teachers who attended the job shadowing period (three persons out of nine) completed a written survey whose details are explained in the following.

Written surveys of the foreign project coordinators ($WS_{Partner}$)

Including the perception and assessment of the French project collaborators´ perspective into the evaluation basis represents one refinement of the first cycle towards the second. Due to the importance of the quality of the foreign project partner should have (in view of successfully implementing the didactic design which highly depends on the cooperation with the partner abroad), their feedback on the achievement of objectives, practicality etc. is vital.

[78] The interviews are available in the participants´ first language (German). With regard to what is being presented in the evaluation of the design´s functionality section of results, all relevant text passages were translated to English by the author.

The written survey was provided in the form of a questionnaire sent via e-mail in the follow-up phase of the intervention. This canal was selected due to the physical distance between the project collaborators in France and the scientific project coordinator in Germany. In addition, the project collaborators were given sufficient time in order to carefully reflect on their evaluation. In order to obtain valuable and useful evaluation results, the questions were developed in an open manner. Among these, the participants were kindly asked to freely *describe their experiences*, *give their opinion* and *share their perceptions* about different factors (which have been suggested).

Examples of feedback questions center around the follows aspects (all from the organizer´s view on site in France):

- Satisfaction with the practicality (plus explanation)
- Perception of the motivation, interaction, general atmosphere between the French and German teachers
- Opinion about the suitability (achievement of objectives) of the (LSCT-oriented) contents and activities of the program focusing on the German teachers
- Assessment of the organizational, social conditions (time, speed, difficulty adhering to the program structure)
- Assessment of the expected competences (contents, intention) with regard to the reception and acceptance by the German participants
- Obstacles during the intervention w.r.t. the individual learning conditions of the German teachers, the overall organizational, social conditions and the didactic design (program)

The written survey blank form for the foreign project coordinators can be found in Appendix III.b.

All of the three French project collaborators sent back their completed written questionnaires. They were sent in a bundle (all of the three via one e-mail by the leading project collaborator) about five weeks after they had received them.

Written surveys of the foreign vocational teachers ($WS_{FrenchTeacher}$)

As another refinement of the evaluation design of the first iteration in Sweden, the second iteration included an additional evaluation of the French teachers´ perception. Three of nine participating teachers from the two different vocational institutions in France agreed to share their experience within a written questionnaire. The document was prepared in English. In particular, they were kindly asked to describe their perception and/or opinion on questions such as:

- Evaluation of the practicality of the exchange of experiences with German teachers in general, and in view of their daily work with the integration of language promotion in VET
- Effect of the exchange of experiences with the German teachers in view of an enhancement of language awareness and language promotion in VET
- Obstacles / negative aspects during the intervention
- Positive impact factors in general / their own learning outcome from this intervention
- The possibility of their own participation in a study visit of this type in Germany
- Country comparison: Which differences have you perceived, with regard to France and Germany, in the integration of the linguistic development of refugees and other students with language difficulties in the lingua franca?

The written questionnaires were sent back to the scientific project coordinator by the mediator, i.e., one of the French project collaborators who organized the contact to the French teachers in the follow-up phase of the intervention. According to her statement, it was difficult to receive back the completed forms due to the lack of availability of French teachers, as French summer vacation within the (VET) school system started quickly after the study visit had ended. The completed written questionnaires were received by the SPC within a period of three months after the study visit abroad.

The written survey blank form for the foreign vocational teachers can be found in Appendix III.b.

2.2.2.4.2 Evaluation of the Design´s Functionality

Parallel to the evaluation procedure of the first cycle, the evaluation is carried out taking into account the elements of the didactic design of the second cycle. The evaluation is multi-perspective again involving the view of the scientific project coordinator, and the German teacher participants. In contrast to the first cycle, the perspectives of the foreign project collaborators and the foreign vocational teachers are included into the evaluation basis, as well.

As a reaction to the evaluation of the first cycle, the prototype was modified in particular with respect to including job shadowing as promising activity for a closer cooperation, exchange of experience and relation to the core, i.e., the teaching practice in a real-world setting. Other elements of the didactic design remained the same: theoretical introductions by means of presentations were combined with the intercultural discourse about the French and German vocational teachers´ experiences with LSCT. The latter one was realized in the form of a round table activity with the French teachers in a vocational school in Bordeaux.

Expected competences

The higher focus on practicality by means of the above-mentioned activities led to an increased achievement of the motivation and willingness to teach in a language-sensitive way. This means participants demonstrated the motivation to pay more attention to their learners´ individual needs including linguistic skills.

The participants could develop their language awareness during the study visit abroad:

"I told [...] the students that I now had a change of perspective, where I was the one who was in another country and hardly spoke the language, and I told them a bit about it. And they found that very interesting, they listened very interested. (...) Which is of course also important: my reports with facial expressions and gestures and with individual word fragments, how well one gets along. And then they told me that this was also the case for them." [T4, par. 48]

In addition, they learned about new methods of LSCT or additional ways to implement these. According to the participants´ statements, they also want to include some of these into their own teaching. In particular, this is linked to the application of modern technologies such as learning apps on the mobile phone as a support to integrate language promotion into general or vocational (here, e.g., in the hairdressers´ teaching lesson in France) subject teaching:

"Exactly, and I thought that was very good. And that's when I also thought that this would be something I could incorporate into my teaching. Exactly, she used the apps in her lessons and the students could practically do tasks with their mobile phones, a bit like there are knowledge games today that people like to make, where they play against each other like a competition. And these kinds of tasks were available via mobile phone." [T4, par. 26] "[T]he mobile phone was used specifically to overcome language difficulties. (…) [S]ome of the work was done with different apps that can be used in class – targeted webpages that students can use to improve their language skills." [T1, par. 22] "[The ´learning app´] is very practical, because you can create language-oriented games, quizzes etc. relatively easily, and you can search for some of them, so there are a lot of things in it. She used them for her hairdressing lessons." [T1, par. 24]

The participants were motivated to work on learning new techniques at their domestic work place in order to obtain more skills for promoting the learners´ language development:

"...that now in times of new media, that you could theoretically develop further, which I would also like to do. I am curious whether this will work at our school sometime in the future." [T3, par. 36]

A personal benefit could be observed in view of the participants´ own teaching practice and for their daily work in general. The participants appear to be highly impressed by the French teachers´ attitude to observe learners from different perspectives. They perceived this either as impulse or also as confirmation of their own work such as the following examples points out:

"And if that's the way it works, if the French welcome you (…) so hospitably, then this European idea can work. I think it is very important to take some of it back with us and to spread the word here among the teaching staff that this international air is contributing to something like this. (…) [I]f we do not have these digital possibilities at our school, it will take some time. - But to look beyond our own noses and to be encouraged once again in these areas in which I am now travelling, namely to observe students from different perspectives and not just according to their performance. [A]t the end of the day the performance must of course be written on the school certificate, but to see the entire human being in these students, I would definitely take that with me, because I believe that the French have done the same." [T3, par. 34]

The participants experienced the mix of languages (multilingualism), leading to an enhancement of teachers´ language awareness. There was a situation within the group in which English, French, German and Spanish were used during the study visit in the communication with all the persons involved in different ways:

“Yes, [the language mix] is certainly a good exercise. I personally once had the situation in France that I couldn't really make the distinction between French and Spanish any more. So that's where I once was floundering. Apart from that, it is of course nice to know that you can get on with English all the time. That is not the problem. But there was also the situation that I talked to French teachers who don't speak English. And then you´re a little lost, what exactly am I doing now? And then I try to unpack my own rudimentary French a bit {I: And that's also exhausting.} Yeah, that's exhausting too. And it's just been a beautiful experience. And yes, it has of course parallels to what students experience. And I have to say that our students have a lot of other personal challenges that we didn't travel to France with. {I: Yes.} So we have always had the security that nothing can happen to you here, our students don't have that. So not like this.“ [T3, par. 38] “...because there was a lady present who didn't speak English. And then we really, it really was like that, everyone spoke a language at some point, and yet we all understood each other. Exactly (...) And maybe we should allow more of that in class.“ [T4, par. 50]

Methods and activities

The change from theoretical introduction by means of short presentations, discussions towards the “practice” (job shadowing, conversations with teachers and students) has been perceived as “balanced and appropriate” (T1, par. 56).

With regard to the second cycle, the focus is on the job shadowing as a method to enable and foster the exchange of experiences, i.e. understanding of LSCT, opinions and practices about the concept. In particular, the exchange of experiences with the French teachers of two different vocational schools has had a lasting impression on the participants: “Being able to exchange with other teachers about shared problems and ways to cope with them” has been listed among the most important experiences during the study visit (PR_{1-4}).

Teaching lesson visits switching between teachers and learning groups and the discourse between different German and French teachers were the main activities which adequately promoted the intention. However, as the participants critically reflect and also with regard to the scientific project coordinator´s opinion from her observation, there was a lack of time for joint

reflection and discussion for the French and German teachers. This method (group discussions for reflection) should be brought more to the focus of the design´s methods. Apart from offering an entire day of job shadowing sessions, there must be sufficient time in between to reflect each lesson´s impressions and experiences with the French teachers. The sessions and also the round table activity took more time than was planned on the program schedule. This means, a slight reduction of the content in favor of additional time for discussion is recommended.

The participants´ wishes concerned the further development of the study visit into other European countries or inviting the French teachers to their domestic vocational schools in order to present them the German ways of the implementation of LSCT. Two participants emphasized that they would have preferred even more practical elements and a simultaneous reduction of knowledge input by means of presentation ("…I would perhaps - then again a little bit, even more strongly pay attention to the fact that this also has the absolute focus, so that one really looks at such lessons very seriously and also gets into conversation with the colleagues" (T3, par. 40). This is also demonstrated by the results of the first short feedback round in the final summary part of the study visit.

As the outcome of the feedback round via post-its, teachers recommend a focus on the practical element to an even larger degree than was realized in the second intervention. They wish for more time for conversation, "less input, more discussion" (cf. Figure 41). The upward arrow on the figure signifies the feedback category of "What would like to optimize for the next time?".

Figure 41 - Feedback round I_2

The intercultural exchange and discourse about language promotion during vocational subject teaching was productive in that both the German and French teachers took the chance to ask questions about daily teaching practice. Job shadowing was carried out, for instance, in a hairdressing salon. The participants could observe one of the French teachers during her work. It was perceived as inspiring to see how the French teacher paid attention to the correct pronunciation, or exercised typical examples of customer communication with the learners while they carried out their practical training. In a subsequent session of group reflection with all German

participants and three of the French teachers, the teachers exchanged about language-promoting material with the special focus on hairdresser terminology (cf. Figure 42).

Figure 42 - Vocational teachers during exchange of experience and job shadowing (own photos)

Conditions of teaching and learning

The chronological order of items of the didactic design was perceived as positive for the purpose of the study visit. This means the program started with knowledge transfer, for instance by means of a presentation as introduction into the French VET system. Similar to the study visit in Sweden, it was an important start in order to know the differences between the systems which have an influence on the current implementation of LSCT. The German participants were highly engaged in discussing the differences they noticed. In general, the level of attention and interest was observed to be high. In addition, the first day included two more presentations about good-practice examples of projects.

Although the three introductory presentations which should lead to the participants knowledge expansion and induce the intercultural discourse about LSCT have not been too long, the participants seemed fully engaged and “tired” (observation, $WP_{Partner}$). This can be due to the first day and acclimatization, but another assumption is the possible exhaustion due to the new situation of being “forced” to communicate in a foreign language about professional contents. Similar to the intervention in Sweden, the participants learned to identify with non-native students in terms of their feelings and thoughts when requiring to communicate in a second or foreign language about professional or educational subject matters. The effect is striking (identification aspect with learners) as they are in a situation which is similar to their learners. In the

first cycle evaluation, one of the participants analyzed her own experience with talking in English (her second or foreign language) during the study visit abroad. In her self-reflection, she compared her feelings ("weariness", T4 in intervention I_1) after one day of the study visit with the statements about feeling exhausted she receives from her learners within an International Class at the German vocational school. This might be one experience of language awareness the participants during the study visit in France, as they talk about "the exhausting day" (T3, par. 38).

The French context was different to the Swedish context in that, in contrast to Sweden, not all of the teachers in France were proficient in English (the designated language of conversation during the PDI). The remaining French teachers communicated by using the English skills they had, some of them restrainedly, others very openly.

Due to the rather low English levels of a few of the French teachers, a new language situation developed which was unexpected (observation): Both German and French teachers referred to different languages of their language repertoires depending on the terminology or even common vocabulary they were lacking in order to express their thoughts. It led to conversations which started with a question in English by one of the German participants, was answered in a mix of French and Spanish by the French teacher, on which another German teacher reacted in Spanish language, i.e., helped the other two. It should be noted that <u>all persons involved in this conversation understood each other by using different languages</u>. This is an example of the existence and utilization of multilingualism and evidence for the development of language awareness. In this situation, it supported the individuals in expressing professional contents. The participants experienced language awareness without consciously knowing. This is a striking result which was unexpected but highly positive for the LSCT competence development from the scientific project coordinator´s view.

As stated by the French project collaborators ($WP_{Partner}$), the <u>overall atmosphere between French and German teachers during the study visit was assessed as "good"</u> due to the "easy exchange and expose of the points of view" ($WP_{Partner1}$), "especially in the informal moments" ($WP_{Partner2}$) or "very positive and constructive" ($WP_{Partner3}$).

With respect to the <u>interaction with each other</u>, this was evaluated as positive, as well (observation, $WP_{Partner}$). In particular, the German participants appeared to be "strongly willing to participate and to exchange with the other trainers, teachers and even pupils" ($WP_{Partner3}$). All in all, the German teachers had a multitude of questions which they were open to pose, while the French teachers were themselves very open to discuss opinions and practices.

The French project partner from the practice was evaluated as an advantageous choice. The social education institution was reliable in organizing and implementing the didactic design´s content items and activities and methods as was coordinated with the scientific project coordinator in the planning phase. This might be due to the specific context conditions (organizational, social framework) that were consciously and carefully selected. For instance, the expertise of the French project partners in the field of inclusion and language development of refugees as well as their network with vocational schools in the region were important context variables which contributed to the successful implementation of the study visit. Also, their experiences with carrying out projects became apparent from their structured organization on-site.

In addition, in coordination with the scientific project coordinator, the French partner reacted adequately and on short notice on unexpected problems. This lead to the enhancement of the expected competences of the participants as well as on the overall atmosphere and dynamics of the study visit. On the first seminar day, the French project team arranged an additional vocational school visit as a contrast to the phase of cognitive theoretical methods before. The participants were highly interested in visiting a teaching lesson of one of the French teachers they met during the presentation of the French VET system of the same day.

The three main locations where the design was realized were the seminar room at Association Odyssée, and the two vocational institutions (various classrooms, seminar room, teacher´s room). The locations were assessed as supporting and matching the intentions, methods and activities of the didactic design. This was a good distribution of locations, since the group had one central meeting point (the seminar room in the facility of the French project partner) and the joint traveling to the two schools contributed to loosening up the situation. Traveling between the locations was completely realized on foot, which led, according to the scientific project coordinator´s observation, to additional stimulating conversations among the German participant group members about their experiences with LSCT.

Figure 43 - The seminar room and table form (own photo)

In addition, within the seminar room (see Figure 43) all participants sat at a table in carré form. Both the view and the comfort were high for

each participant. Eye contact with all involved was possible and each one had the feeling of having enough space.

The overall effect of the modified didactic design was the development of the participants´ LSCT competence in terms of their language awareness and openness for learners linguistic skills and the (increased) motivation to teach in a language-sensitive way by means of intensive and increased exchange between the French and German teachers.

Participants perceived the study visit as beneficial and encouraging, which was stated both by the German participants (PR) and the French vocational teachers ($WP_{Teacher}$). The French teachers emphasize that they obtained a different perspective on the VET system in another European country and also considered planning their teaching lessons differently.

2.2.2.5 Findings of the Second Cycle regarding the Design´s Functionality

2.2.2.5.1 Achievement of the Objectives

The functionality of the modified design was more effective. According to the analysis of the data, the language-sensitive content teaching competence was developed or enhanced on the German vocational teachers´ side.

1. Openness and awareness for linguistic skills of learners (*language awareness* as *attitude*) could be enhanced by the participants to a high degree according to the evaluation results.

2. Motivation and willingness to teach in a language-sensitive manner also with respect to subject or vocational contents (*attitude*) was further developed in the scientific project coordinator´s opinion, based on the evaluation analysis.

3. Knowledge and understanding of the LSCT concept is a dimension which could be developed by means of the didactic design. The combination of contents, activities and methods lead to an enhancement of this dimension. The participants *know and understand* what language promotion in content teaching means. However, as became clear by means of interviews and observation, their focus was not on the increase of knowledge.

4. Instead, the participants were more keen on developing the dimension concerning knowledge about where to obtain and how to use LSCT techniques and strategies (*application skill*). This was achieved for instance in the form of learning about apps to promote language in all subjects.

2.2.2.5.2 Relevance and Practicality

The relevance of the study visit abroad of the second cycle is very high, due to the same problem setting and solution strategy (same context). The changed context variables (such as country, project collaborators from the practice and different group of German teacher participants) did not change the relevance level of the didactic design. However, for instance, the changed individual learning conditions of the German teachers (their average work experience was twice as high as the one of the group in intervention I_1) proved that teachers who already work longer in a vocational school are as motivated and actively participating as their colleagues with fewer years of experience.

Due to the intensive period of job shadowing and intercultural exchange of experiences with a higher number of teachers than in the first study visit, this intervention I_2 is considered even more relevant than the first one.

With respect to the practicality, the evaluation results vary slightly between the participants´ perception and the scientific project coordinator´s view. The scientific project coordinator assessed the combination of the contents and different methods and conditions of teaching and learning as feasible. The German participants wished for even more practicality. Almost all participants highlighted the design method of job shadowing and intercultural dialogues on LSCT techniques, language awareness and the exchange about their attitudes, appreciation and motivation about teaching learners´ both with respect to language and contents. These participants also expressed their opinion about a potential reduction in theoretic introduction and a further increase in job shadowing and reflection. By joint consideration with the scientific project coordinator, there was consensus about enlarging the job shadowing / reflection activities from one to two days.

This would further increase the practicality of the didactic design, since the above-mentioned activities had a positive and large impact on the development of the participants´ LSCT competence. From their own assessment and confirmed by the observation of the French project collaborator and the scientific project coordinator, this improvement is more important and stronger than the augmented expertise they got from the theoretical introduction (less practical effect). The cognitive theoretical forms of information transfer are important, in particular to develop or enhance the understanding of what LSCT can mean in different contexts. However, it should be kept short, only to give the necessary information as underlying basis for a comparison of the VET systems and examples of LSCT practice as impulses for the start of the

discourse. Job shadowing and reflection sessions should account for the largest share of the time.

2.2.2.5.3 Sustainability

One refinement of the second prototype was to pay more attention to sustainability. For this reason, the scientific project coordinator suggested to the participants to reflect on potential opportunities for transfer. Moreover, the participants appeared to have their own plans of disseminating their new experiences as analyzed from the text basis.

Thus, the participants expressed their motivation to actively and voluntarily contribute to the dissemination of the results, for instance by means of talks and presentations in staff meetings or conferences within the vocational schools. One of the participants (P_2) planned to additionally write a report about his experiences during the study visit that he wishes to provide to the school management and his colleagues, but also to the students ("So I just want to pass it on in writing and at the conference", T2, par. 75). A further participant stated that he would motivate colleagues to deal with LSCT and sharing his experience with them by "targeted addressing" (T1, par. 40). The scientific project coordinator encouraged the participants to tell their school management about their experiences. It is important to ensure the transfer of the effect to the school management, also with respect to their promotion of further colleagues to engage in the LSCT competence development. The dissemination is as well carried out by the announcing the results of the study visit by means of the participants as will bring more attention to the topic on a broad scale within the vocational school ("especially when it is pointed out that [language-sensitive content teaching] should actually be anchored in every school, it would also be spread out through such an exchange at the school", T4, par. 68). The didactic design is assumed to be sustainable as the participants state – to a larger degree after the second study visit abroad – in that they will share their information about best-practice examples with colleagues and test new methods with their students. This is a very positive effect of the activity and shows their enhancement of the LSCT competence.

2.2.2.5.4 Reflective Application of the Techniques of Qualitative Social Research

On the one hand, the combination of the applied research techniques has proven to be valuable for the analysis of the didactic design from different perspectives. As was the case in the first cycle, the research diary as prepared data from the participatory observation and the transcripts from the interviews were the most important data sources for evaluation. However, the evaluation basis was enriched by taking into account the perspectives of the French project partner as well as of the French vocational teachers.

On the other hand, intervention I_2 brought an unexpected and equally unintended impact to light: difficulties w.r.t receiving completed written surveys (questionnaires) by the French vocational teachers (relatively small return rate). The inclusion of collecting the feedback of the French vocational teachers (FVT) about the expected competences, methods / activities and conditions of the study visit of German teachers in Bordeaux, was an important aspect and modification of the first prototype. By doing this, obstacles can be reduced or removed and future PDI can better be planned and implemented. As there was no time due to the tight program on-site and the scientific project coordinator included some impulses into the questionnaire which resulted from a first reflection by herself, the questionnaires were sent to the French teachers per e-mail. One of the foreign project collaborators served as intermediary. She received the questionnaires from the SPC, performed a pre-test (both content-related and linguistically) and forwarded the questionnaires to the French teacher participants in the two vocational institutions where the job shadowing and exchange of experience had taken place. She was in charge of communicating the instrument to the French teachers and for sending the completed forms back. As the intended results of the questionnaire should be as valuable as possible for evaluation, the questions were provided in English and French (since, during the intervention, it became clear that the English proficiency levels of the French teachers varied). The French project partner adjusted the questionnaire questions and communicated this to the author.

However, the difficulty of receiving back the completed forms as reported by the French project collaborator from the social education institution and the resulting small return rate was unexpected. Three out of nine French teachers completed the written questionnaire and submitted it via e-mail.

For future interventions, the evaluation involvement of the European teacher participants from the target country including should be discussed and the evaluation instrument announced and

explained prior to the intervention. An opportunity would be, if time allows for this, to let them complete a form of evaluation directly after the program on-site.

2.2.2.6 Discussion and Conclusion

The modified prototype in the second intervention cycle has resulted in the following improvements over the first design:

- Higher level of practicality
- Higher effectiveness
- Higher sustainability

Unexpected undesired impacts:

- "Doing more with less": time ran short during the activities and there was not sufficient time for reflection. This should be accounted for in future interventions.

Unexpected positive impact:

- Multilingual communication by use of different first languages of different participants in French vocational school discussions (here: English, French, German and Spanish) served as a valuable instrument to develop teacher language awareness.
- Personal development: Increased motivation for dealing with linguistic heterogeneity due to inspiration by the French colleagues and a new "European feeling of solidarity" (as other European countries face the same challenges and also have to deal with the integration of refugees and migrant students into the VET system)

Implications and expected transfer of the competences in l_2

When asking the participants about what they will take home from the study visit in a final feedback conducted with post-its, their feedback was both emotion-driven but also pointing towards one central outcome (cf. Figure 44): be more open to the use of applications in order to promote language skills of the learners in their specific subject content teaching. The house

in the middle of Figure 44 represents the category “What I will take home”. Almost all participants state that they want to test apps (software) they learned about in France with their learning groups at home.

Figure 44 - „What I will take home from here” as the transfer part of the participants´ feedback

Obviously, and this was confirmed by the SCP´s observation and the individual follow-up meetings with the German participants, the LSCT competence (referring to ways in which LSCT can be applied in the practice) encountered a significant degree of acceptance. In the author´s opinion, this results in particular of the increase of exchange of experience phases (activities) in the second intervention combined with more time spent in realistic teaching settings at the two vocational schools in France.

In comparison to the first prototype and its implementation, the participants visited actual teaching lessons where French teachers taught learners of different educational programs (levels) and in view of different subject contents. The participants could as well get into contact with French students, which was agreed upon beforehand by the French teachers (and school management). They experienced these brief conversations with the students as highly advantageous (“Especially that- laptop class, that was just great. That was my best student talk with a young Frenchman (...) Yes, I think I gave him a bit of courage. And it was also very nice for me to be able to do that with quite simple French, the conversation. It was a nice thing.”, T3, par. 26). P_3 refers to one of their classroom visits taking place in a computer pool room in which two teachers jointly worked with learners. The German participants were invited to go around

and sit together with the students. If they were willing to, and all of them were (according to the author´s observation of the scene), the participants discussed with them about language and vocational skills. This was one purpose. The other expected competence resulted from the participants listening and observing how the two teachers cooperated with each other in order to provide the students with subject contents and linguistic / basic skills.

After the lessons, the break was used talk about how LSCT can look like in the practice of the French VET school, and compare this to the participants´ own experiences with LSCT.

These periods have been perceived as too short to get into much detail about discussing LSCT experiences (feedback within interviews). Often, as the author´s observation confirmed, the breaks were used for discussions between German and French teachers, but also involved classroom changes through walks over the school campus. In addition, usual school-day related incidents required the French (and as a result, also the German) teachers´ flexibility to organize, which could reduce the time for exchange or discussing the prior teaching session. The German participants reacted very well on that, and managed to adapt to these conditions of teaching and learning which relates to the institutional conditions of the French schools.

The transfer of the contents is reflected by an adjusted guideline for the interview and had a higher priority in terms of time during the interview. In the individual follow-up meetings with each participant in the second cycle, a higher attention was also paid to the sustainability of the acquired competences. This means the scientific project coordinator (interviewer) specifically asked for opportunities of transfer for what has been experienced during the study visit in France. An effect of giving impulses for a continuation of dealing with LSCT and strengthening its position at the respective school was generated. In case the participants were able to respond to this, which was the case with regard to three of four participants, the interviewed participants were given sufficient time for a detailed discussion.

Critical reflection of the data collection in $I_{1\text{-}2}$

The data collection is valuable and varied as explained above. Nevertheless, the lack of follow-up surveys with the German vocational teachers of both interventions is to be noted critically.

In particular due to institutional settings including the tightly organized everyday school life which make it difficult for the teachers to be available for further interviews or questionnaires, there was no follow-up in the months after the intervention.

Planning an informal joint follow-up meeting with the entire group to share experiences of teaching in the aftermath of the intervention was brought up by some of the participants. Such a meeting could not be realized due to time bottlenecks.

It is considered a good opportunity to carry out this follow-up survey during a third design cycle and, if necessary, to mutually agree on this in advance during the preparation of the participants and discuss it with the school management for higher chances of realization. This commitment for a follow-up could perhaps be justified by the assumption that teachers are also interested in long-term and sustainable PDI effects which should then be communicated to them.

Design principles resulting from I_2

From testing and evaluating the second prototype whose didactic design was based on the design principles established after the first intervention cycle, the following *additional* design principles can be formulated after the second cycle:

Table 26 - Design principles resulting from the second cycle

Expected Competence
1. Do not overexert the participants by too much (theoretical) information. The less theoretical the content elements, the higher the participants' motivation. One or two introducing presentations or talks are sufficient. Theoretical input should be incorporated, however, for the purpose of stimulating the joint discourse (theory-oriented). The intervention should primarily be practice-oriented.

Methods & Activities
1. Incorporate the exchange between the participants and students from another European country, if possible and permitted by the school management. This broadens the perspective on language difficulties and thus increases the acceptance.
2. Include activities of job shadowing as one central element of the didactic design.

Conditions of teaching and learning – individual learning conditions of each participant
1. Offer the participants the possibility to get to know each other in advance – on a voluntary basis.
2. Promote the openness and curiosity of the participants in view of the contents (LSCT and the integration of refugees and migrant students into VET) and the participants abroad.

Source: own research

Both study visit programs have shown advantages for developing or enhancing the vocational teachers´ competence dimensions. For the scientific project coordinator, it was exciting to compare the contribution of a project partner from the University context (science) with that from the social education institutional practice regarding the process and outcomes of the didactic design. Both were reliable partners, however, there is a slightly stronger focus of the science partner towards activities and methods which aim at working on a better understanding of the LSCT concept, while the practice partner, and this might not be surprising, was very successful at organizing the practice-oriented activities. This might, however, also be due to the fact that the second prototype was planned to increase the degree of practical elements.

The individual learning conditions of the participants were different in terms of higher average working experience, different gender structure, and the individuals varied from the previous intervention in terms of subjects they teach and their association to different vocational schools. The didactic design worked well for both groups.

The objectives achieved differed in view of effectiveness and with regard to the specific competence dimension. Developing knowledge about the meaning of concrete design of LSCT was promoted by means of short theoretical input, best-practice presentations by experts, co-operation and discussion about this question in groups with Swedish or French vocational teachers, and joint reflection. The increase of incorporating practical, exchange- and dialogue-oriented activities into the program led to stronger perception of having developed the motivation to teach in a language-sensitive way. According to the author´s observation, short breaks between job shadowing activities were used productively by all of the participants for informal, intercultural exchange of experience on LSCT practice and the challenges of teaching second language learners in general or vocational subjects. In addition, activities where multilingualism

was used support the enhancement of the teachers´ own language awareness. The job shadowing method created impulses for the German teachers´ to test new techniques of promoting language during subject teaching.

All in all, intervention I_1 already provided adequate elements to promote the LSCT competence. Following the evaluation results, necessary modifications were carried out and tested by means of the second improved prototype. The second intervention I_2 showed improved results in terms of fulfilling the quality criteria to a higher extent.

Two comments should be noted:

First, due to the fact that the study visit takes place abroad (associated with travel, unfamiliar environment, use of foreign language) and the complexity of the content, it was a valuable part of organizational and social conditions to include an accompanying person.

Furthermore, the provision of a sufficient amount of time for reflection and intercultural dialogue is a crucial factor of the successful implementation of the didactic design. Otherwise, the experiences abroad cannot be thoroughly processed. Making time available can also promote the teachers´ joint cooperation on solutions for teaching situations.

What can be obtained from the study?

By consolidating the summarized understanding of how the didactic design (prototypes 1 and 2) has worked, and thereby generating recommendations for how a study visit abroad should be designed in order to serve the purpose (developing the LSCT competence of vocational teachers), context-sensitive design principles are generated. These principles are presented in the following section.

3. Consolidated Design Principles of the Interventions

Chapter III.1.2.1 shed light on the design principle terminology within the context of the DBRA. By means of iterating research cycles, as the consequence of evaluating these cycles according to the established evaluation criteria, a variety of essential features are found necessary for the development of a didactic design as PDI. This didactic design was developed in order to support German vocational teachers in developing or enhancing their competence in language-sensitive content teaching of learners with a lack of language ability within VET.

The development and modification of the present study´s design principles was conducted on the basis of key questions which referred to two major dimensions.

1. The generating process of the *design principles* resulted from a thorough analysis and consideration of peculiarities of the *context* and using the *findings* of each cycle´s *implementation of the intervention* (*Which features does the intervention have?* or *design principles I*). This dimension directly addresses the participants´ learning process by means of the intervention. In concrete terms, the first key question was:

   Which features does the transnational study visit have that aims at developing or enhancing the language-sensitive content teaching competence for German vocational teachers at the school-to-work transition?

2. The didactic design contains and produces context-sensitive organizational features (*How is the intervention developed?* or *design principles II*). Due to their influence on achieving the objectives of the research project, they are used to add or enhance the design principles. If necessary, they can be consulted to reject a particular design principle. This dimension directly addresses the didactic design for which certain process recommendations are modeled and explained. Hence, the second key question was:

   How is the transnational study visit developed? Which design principles contribute to developing the design to achieve the intended objectives?

"[W]hat works where, when, and for whom" (Means & Penuel, 2005 quoted in Fishman et al., 2013, p. 137) was identified to be the core question which DBR strives to answer to understand the conditions under which designs can improve learning. The aggregate findings from two iterative cycles lead to summarized design principles. These are valid for their specific context. With regard to summative evaluation, as has been claimed by Euler (2014, p. 19, based on Lewis et al., 2006, p. 8), "[t]he interventions should only be summatively evaluated after an

advanced refinement; i.e. the development potentials of the interventions should be exhausted before an approach is rejected as lacking usefulness […]".

The summarized, consolidated design principles recommend how to design both the development and the implementation of a PDI in order to contribute to developing or enhancing the LSCT competence of vocational teachers in the German school-to-work transition system. Two general design principles for the PDI can be formulated as follows:

1. Develop the professional development intervention (PDI) by orienting towards (didactic) quality.
2. Orient on evaluation and a continuous monitoring for ensuring the further development and improvement of the PDI.

Figure 45 presents the consolidated design principles of this study which are oriented towards the classification of the structural Nürnberg Model (expected competences, methods and activities, conditions of teaching and learning). The conditions of teaching and learning are furthermore divided into organizational and social framework conditions and individual learning conditions, thereby following Euler (2014a). A more detailed description of each principle´s meaning is provided in Table 27 on p. 371 et seqq.

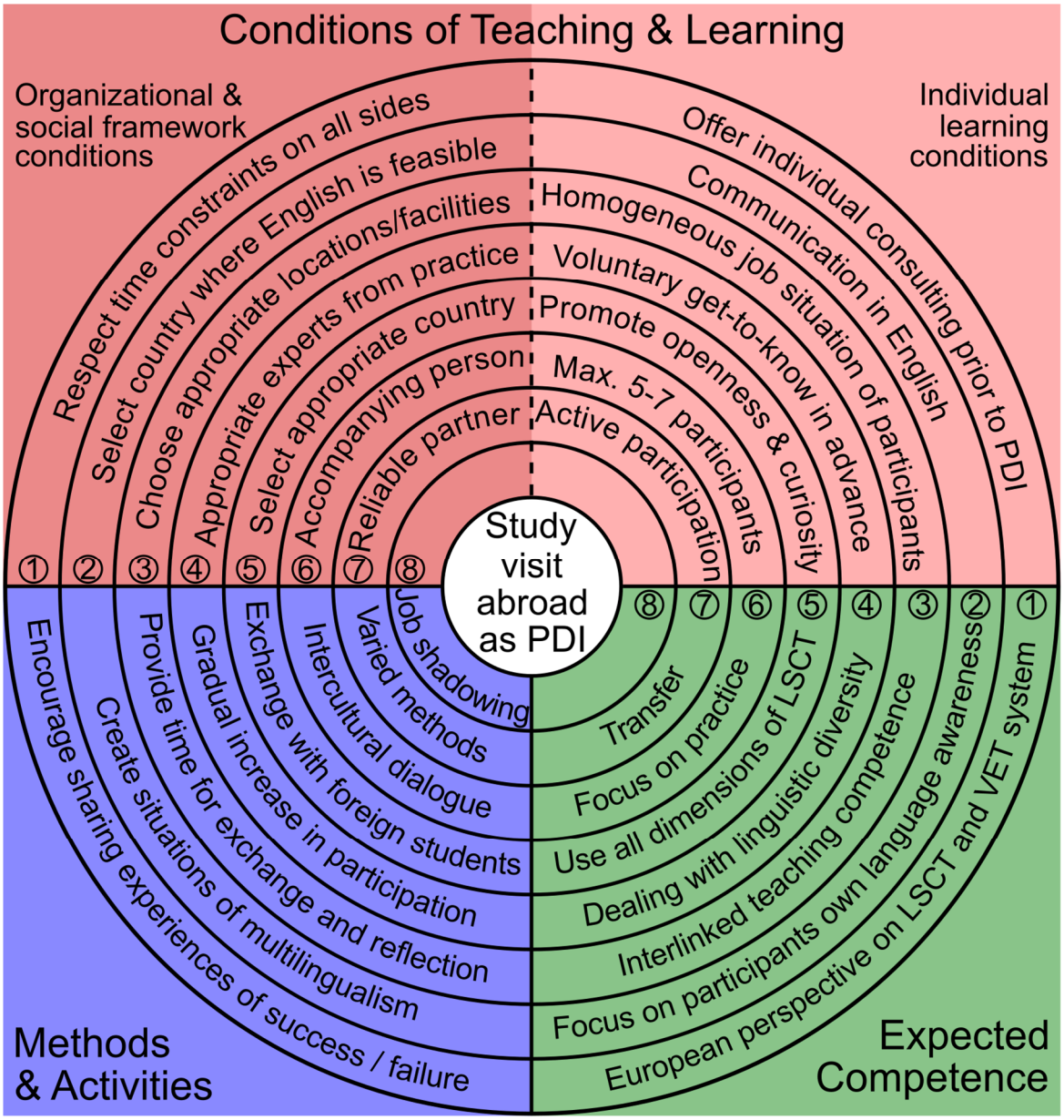


Figure 45 - Consolidated design principles (own diagram)

Table 27 - Detailed description of consolidated design principles

Expected Competence		**I_{1-2}**
Design Principles	1. Convey knowledge about relevant and effective strategies of the implementation of language promotion integrated in LSCT and VET programs in the other European countries.	I_1
	2. Through the conscious experience of being a temporary second language speaker during the study visit, the participants develop their awareness for language. They are required to discuss in English about specialist terminology (VET terminology) in a foreign environment. They thus experience intercultural and linguistic situations. This change of perspective increases the participants' identification with learners.	I_1
	3. Convey knowledge that increases the competence of interlinked teaching of both the target language and the specialist subject (language as a tool and target).	I_1
	4. Induce a discussion about the VET system of other countries and their approach to linguistic diversity, in particular in view of refugee migration.	I_1
	5. Rely on all dimensions of language-sensitive content teaching: a) knowledge, b) skills and c) attitude (orientation on effectiveness and sustainability)	I_1
	6. Do not overexert the participants by too much (theoretical) information. The less theoretical the content elements, the higher the participants' motivation. One or two introducing presentations or talks are sufficient. Theoretical input should be incorporated, however, for the purpose of stimulating the joint discourse (theory-oriented). The intervention should primarily be practice-oriented.	I_2
	7. Transfer the lessons learned within the PDI to the daily work life in order to achieve sustainability.	I_1

Methods & Activities		I_{1-2}
Design Principles	1. Encourage the participants to share their experiences on successful as well as unsuccessful teaching and learning situations and to pose questions, both with respect to vocational subject teaching and language difficulties of non-native students in general.	I_1
	2. Create situations of discourse about language promotion with individuals of two (or more) different first languages and encourage teachers to rely on multiple languages in order to express their message. The multilingualism strengthens the language awareness by raising the understanding of and motivation to accept and use multilingualism where it is required in class. Teachers obtain experience at first hand (identification effect with students).	I_1
	3. Provide the participants with sufficient time to exchange their experiences and reflection.	I_1
	4. Design the content in a way that the desired participation gradually increases. Suggestion: cognitive knowledge transfer followed by "exchange of experience" (first: cooperative / reflecting the concept, second: practical by job-shadowing). This leads to a beneficial distribution of energy and motivation resources. The participants can arrive, become familiar with the other participants, the climatic conditions and the unknown environment.	I_1
	5. Incorporate the exchange between the participants and students from another European country, if possible and permitted by the school management. This broadens the perspective on language difficulties and thus increases the acceptance.	I_2
	6. Encourage intercultural dialogue in order to increase awareness and acceptance of the individuality of learners.	I_1
	7. Select varied methods. Participants are more receptive and likely to participate if there is a change of methods. One of these methods could be presentation by experts from the practice in order to	I_1

	initiate the knowledge transfer. In addition, group work for discussion and reflection results in cooperative and reflective learning. Finally, alternating activities (e.g., between job shadowing and exchanging experience and reflecting on interlinking language promotion and vocational subject teaching) should be promoted.	
	8. Include activities of job shadowing as one central element of the didactic design.	I_2
Conditions of teaching and learning – organizational and social framework conditions		**I_{1-2}**
Design Principles	1. Select an appropriate time of placement of the PDI both with respect to the domestic school system schedule and the one in the other European country. It is recommended to consider periods within a school year in which absences due to professional development participation are possible, i.e., where German teachers can be absent from teaching for four days, and where partners abroad are available (consider bank and school holidays abroad).	I_1
	2. Select a European country where English can be used as the language of communication. Alternatively, select a country where one common language of communication can be identified for the entire group participants. To enable the LA effect, this common language should not be German.	I_1
	3. The PDI should take place in locations which support the purpose of the activity. For the job shadowing, real-world settings and situations (classrooms and teachers´ working places apart from teaching) should be used as locations. With respect to talks and presentations, or exchange of experience including reflection, a seminar or conference room is appropriate where the participants can sit together in a quite environment and keep eye contact.	I_1
	4. Carefully select expert trainers and speakers of the PDI in order to achieve the expected outcome. The trainers and speakers are responsible and thus essential for the quality of the study visit. This	I_1

	depends on the quality of the partners abroad under whose supervision and responsibility the selection of involved trainers and speakers is carried out.	
	5. Select an appropriate European country for carrying out the intervention by orienting towards their education system which is suitable for the PDI. Its LSCT concept should thus exhibit similar challenges and solutions regarding migration and vocational education and training so that teachers can learn from each other.	I_1
	6. Accompany and supervise the PDI in order to ensure that the visit goes as planned in order to achieve the expected outcome.	I_1
	7. Select a reliable and appropriate partner in the European target country in view of cooperation on the study visit program implementation and the achievement of the expected outcome. If the partner abroad is located at a university, ensure that they are able to engage school managements and teachers as well as external partners for contributing to the program. If the partner abroad is a social education institution, the probability of a network including vocational schools can be higher. However, ensure that they incorporate methods of cooperative learning.	I_1
Conditions of teaching and learning – individual learning conditions of each participant		I_{1-2}
Design Principles	1. Offer individual, need-oriented consulting of the participants prior to the PDI. This is a substitution activity of previously scheduled kick-off meetings or theoretical introductions in the home country. Note that the PDI is consciously determined to be realized exclusively abroad.	I_1
	2. Inform all participants about English (or a further foreign language of communication agreed on) being the main language of communication.	I_1
	3. Assemble a group of preferably homogeneous participants. The homogeneity refers to the participants´ working environment (VET	I_1

	context, or more specifically, school-to-work transition, who have worked or work with non-native speaker students) and to their similar objectives (developing their competence in teaching their subject contents in a more language-sensitive way).	
	4. Offer the participants the possibility to get to know each other in advance – on a voluntary basis.	I_2
	5. Promote the openness and curiosity of the participants in view of the contents (LSCT and the integration of refugees and migrant students into VET) and the participants abroad.	I_2
	6. Limit the group of participants to a number between five and seven.	I_1
	7. Support the participations by encouraging them to actively participate in all activities already before the PDI starts.	I_1

Source: own research

V Conclusion and Outlook

In this final chapter, the findings are summarized and discussed with regard to the methodical approach and the cycle results (Chapter V.1 *Lessons Learned*). These also include the necessary classification of the empirical results of the DBR study within the theoretical framework.

After that, the findings are critically reflected on the basis of the achievement of the objectives by referring to the research question. The limits of this research are assessed according to the quality criteria (Chapter V.2 *Critical Evaluation*).

Finally, implications from the results of the lessons learned and the critical reflection enter the final part (Chapter V.3 *Research Needs and Future Development Perspectives*) as future research desiderata and perspectives of connecting the present research study to further research fields.

1 Lessons Learned

1.1 Methodological Access

The choice of applying the design-based research approach proved to be adequate for the purpose of this thesis. Not only did the DBR provide the author with solid quality criteria on which the study could rely on – from the problem setting over the specification, the development of a potential solution based on theoretical assumptions up to the iterative cycles of testing, evaluation and refinement. In addition, it matches the research situation of having an open problem of high relevance without concrete practical solutions in educational science.

„The ambition of most educators, teachers, and researchers is to improve education, but this is by no means easy" (Fullan, 2001 quoted in Bakker, 2019, p. 177). DBR has proven to be a valuable approach for finding a solution: a didactic design for a study visit abroad to improve the LSCT competence of vocational teachers. The need for investigating this problem setting cannot be met by quantitative research methods as was underlined in the methodological access chapter. The specific advantages of the DBRA for carrying out the present research project have also been pointed out. Thus, the approach provided the author with a systematic structure and quality criteria by simultaneously pointing to two different objectives: the epistemological interest in generating new theories from the findings on the one hand, and the possibility to contribute to solving an urgent specific educational problem in practice by one potential and feasible approach on the other hand.

All in all, despite the fact that the ambition of improving education is “by no means easy” (ibid.), the methodological access provided a practical and understandable opportunity to do so. It should be noted that, in the author´s opinion, there is no need for reinventing the wheel if striving for innovation in education. Instead, as was emphasized in the study, vocational schools are recommended to achieve innovation by the creative utilization of existing concepts or guidelines in order to achieve important educational objectives. This means concepts (such as study visits as one form of PD or language awareness contributing to a successful dealing with linguistic and cultural diversity) are combined with the demands by the European Commission for internationalization and networking in VET due to similar education policy and societal challenges.

1.2 Research Results

“Those who understand, then, teach” (Shulman, 2019, p.1). This quotation can be interpreted with a particular focus on the complex nature of the language-sensitive content teaching competence. The link is created between the findings of the two intervention cycles and the pre-study carried out previously. The German vocational teachers have highly benefitted from their participation in the study visit abroad.

As the evaluation results reveal, there are competence dimensions which were successfully addressed for all teachers such as the motivation to teach in a more language-sensitive way or the increased openness to teach in a more learner-oriented way by a stronger awareness of their linguistic skills. The awareness regarding the importance of this term and thus, the competence dimension, could be improved. The didactic design of the transnational study visit was developed, refined and can, in the end, be characterized by 29 design principles which are likely to succeed in developing the LSCT competence of vocational teachers. The design principles are valid for the defined context, i.e., in the field of professional development of German vocational teachers working with learners who lack language proficiency at the school-to-work transition phase. The results in the form of concrete recommendations for a respective design can be applied by further researchers and practitioners in vocational education and training after careful consideration of their context of interest.

One key element of the LSCT competence is understanding the concept in terms of language awareness and motivation for language-sensitive content teaching. With respect to the school-to-work transition programs in Germany and the respective cultural and linguistic diversity of learners combined with potential cognitive difficulties, the motivational dimension cannot be overrated. The PDI has revealed a high motivation boost to face the challenge and to transfer

and test the new knowledge with learners and colleagues at their domestic vocational training institutions (multiplier function), for instance via “targeted addressing” (T1, par. 40). This motivational boost is of high significance due to the fact that working at the school-to-work transition can often be discouraging for the profession. Developing the LSCT competence has thus also an effect associated with a psychological component, as it can contribute to positively influencing VET professionals´ health conditions and work ethics.

One of the lessons learned with regard to the research results is the two different levels of impact: There are short-term effects rather relating to the teachers in their personal, specialist, methodical and linguistic development. This positively influences their competence in LSCT. On the other hand, potential long-term effects refer to the institutional development of VET and the professional development (lifelong learning) of their personnel. This involves the claim for a stronger embedding of LSCT-related study visits abroad into all individual school managements. This can be carried out by a permanent integration into the curricula, at least for the vocational teachers working in STWT programs (e.g., vocational orientation programs in Bavaria or vocational training preparation in NRW).

The results of the study visit abroad with the purpose of developing teachers´ language-sensitive content teaching competence highlight the European relevance. It can represent a meaningful impulse or trigger for an increased internationalization of in-service teacher professional development.

It is desirable – and hopefully this study has contributed as a first attempt to this development – that teacher development and further development abroad (across all subject matters, apart from language sensitivity) takes center stage to a larger extent than it currently does. As a result of the present findings, this involves promoting it within schools and making it accessible to a large number of vocational teachers in Germany. It additionally includes more PDI which are structured more reasonably and anchored more systematically within the VET system. Internationalization across all fields of education should become a more common subject matter for teacher professional development in VET as well, instead of relating to students only.

The results show new considerations about a European sense of solidarity w.r.t. LSCT due to similar challenges and resulting synergy effects to approach this challenge together. A network can be developed and the study visit can be a starting point of future exchange of experiences.

This leads to the implications of this PDI on the institutional level. In the author´s opinion and from what the findings point to, the school managements and further decision-makers within vocational training institutions in Germany are required to pay more attention to PDI in the field

of language-sensitive content teaching. Vocational teachers are willing to engage in the development of their language-sensitive content teaching competence. Now and in the future, it is the vocational schools´ chance to enable and support the participation in such a study visit by permanently including them in the curricula, and providing the framework condition for their employees.

Hence, the implementation of language-sensitive content teaching as a comprehensive concept within institutional development depends on educational policy decisions. From the author´s point of view, this must be considered when developing approaches for a change in education such as the study visit abroad. This means, the design principles can only represent a successful mechanism if the institutional framework permits.

By presenting a functioning example, the present study has moreover shown that internationalization is of significant relevance for solutions in educational policy (and more precisely, vocational education and training) which connect the fields of school-to-work transition and the integration of migrants and refugees, teacher professional development, and language awareness. This current – and in the author´s opinion future – relevance must be stated clearly to the public, in particular to the personnel responsible for institutional development. The relevance must be underlined for the purpose of shaping the profile of VET, associated with showing courses of action in perspective (cf. Esser, 2017). Following Esser (2017), these should take place both in the presence and certainly in the future.

The results have also shown a certain degree of generalization with regard to their expansion and application fields. Thus, the concept presented here has the potential to be expanded comprehensively (nationwide, internationally). For enabling this, modifications would however be necessary regarding the different context variables.

The study has investigated a problem of national concern (need for solutions in the professional development within the German VET system) and of European concern, as all VET systems in Europe face the same challenges due to migration, globalization and digitalization. Despite the fact that the national authorities such as the KMK demand the incorporation of language-sensitive content teaching into VET institutions, and European authorities call for new approaches in view of supporting teachers in VET, there were no concrete empirical research studies presenting solutions until now. The results of this study have presented one attempt to bridge the above-mentioned research gap.

2 Critical Evaluation

2.1 Methodological Access

As the study is of qualitative nature, a critical reflection is of great importance. The question is thus whether the method 1) was appropriate for the given context and purpose and 2) was applied adequately.

The evaluation system shows some shortcomings that have partly been identified during the second intervention, but partly not before the postprocessing. They need to be remedied in the future re-development and implementation. Moreover, the method is elaborate and there has to be an authority that is responsible for the financing. In the present case, Erasmus+ grants designated for staff in vocational education and training have been used. The European Union offers a variety of funding instruments and the pool has been increasing recently.

As a characteristic of DBR, and at the same time, showing the complexity of the subject, it was striking to reflect upon the new questions that constantly came up throughout the entire research process. Many different considerations needed to be taken into account in order comprehend the overall issue.

It is vital to reflect on the role of the researcher (the scientific project coordinator) in the DBR research process. It was a constant challenge throughout the research process to switch between the scientific perspective and the project coordinator´s perspective. This was also valid in view of the “crossing process” between designing the study visit abroad and being the researcher who evaluates the didactic design with respect to its functionality and with the epistemological interest to understand how and why the elements of the didactic design (expected competence, methods and activities, conditions of teaching and learning) have worked or not. This was crucial to manage, as by successfully considering both perspectives, the consolidated design principles lead to principles which can be used for both scientific theory and practice (two outcomes). It should be noted that it was important to always prioritize the research perspective – a challenge that could be managed successfully by the author.

The techniques of qualitative social research have been applied in a reflective way. Different types of data collection, preparation and analysis have been utilized, with the particular importance of participatory observation and interviews with the German participants. As the focus was exclusively on developing the competences of the German vocational teachers – also due to the fact that the results are highly context-sensitive – the evaluation basis of the first cycle only included their perspective. The one-sided perspective can be subject to criticism. However, considering the complex context which the theoretical framework analysis revealed, this

approach can be justified. The didactic design involves the specific conditions of the German PD context. The organizational conditions as well as linguistic conditions complicate an evaluation process with all the different international perspectives.

Nevertheless, in the modified second intervention cycle, the perceptions of the French project collaborators and the French vocational teachers about the functionality of the didactic design were collected and entered the evaluation basis as written surveys. On the one hand, some problems arose with the organization of the written surveys of the French vocational teachers (low return rate). On the other hand, the inclusion of the French project collaborator´s feedback was a useful enhancement to the quality of the design. Their assessment often coincided with the author´s assessment from observation, which was an additional confirmation of the overall evaluation results.

The DBR can be implemented in a variety of ways, as literature leaves room for interpretation. This can concern the exact process or the various opportunities for developing different numbers and types of prototypes in different contexts. Following the overview by Burda-Zoyke (2017, p. 20), this study developed two prototypes in two iterative cycles in one context showing many different context variables. The orientation of the DBR process following Euler (2014a), and following the Nürnberg Model (Wilbers, 2016b) concerning the didactic design has proven to be useful for the present purpose.

The cooperation between science and practice is a key element of the DBRA. With respect to this study, the cooperation between the author and different actors from practice and science was perceived as beneficial and necessary for the overall objective. Nonetheless, including many different individuals with their diverse expertise and know-how, but also beliefs, attitudes, motivation is always a balancing act. Their characteristics and motivations influence the results. Taking into account a certain number of individuals in general and their social, but also individual learning conditions in particular, results in an effortful and time-consuming study and an elaborate process. Nevertheless, the quality of the outcome is worth the effort and also a necessary condition for the design´s functionality.

Last but not least, one should critically reflect upon the scope of application as the DBR literature emphasizes. The consolidated design principles have a medium reach. On the one hand, they are sensitive in their application with respect to the context of professional development of vocational teachers in view of language-sensitive content teaching at the school-to-work transition phase in Germany. This is a highly specific context. If the design principles are seen as a contribution to the theoretical knowledge expansion in educational science, they can only be taken up by third parties and considered valid in the specific context they have been developed for and tested in. Nevertheless, and this is one of the advantages of a documentation

that was generated according to the DBR quality criteria, the design principles can be used for adaptation by third parties in order to transform them into feasible theories for their particular purposes.

2.2 Research Results

With respect to the research results (= cycle results of the two interventions which are equal to the derived design principles), one of the key questions is as follows: How can the developed and modified design principles contribute to innovation(s) within teaching practice, beyond their contribution to the objectives of this research project? Can the study visit abroad be considered a successful innovation?

There is a high individuality in view of the results (qualitative study, small sample size, each VTI is different in its regulations etc., teachers are individual persons with their personal, academic and practical background). As mentioned above, this restricts the results to this specific field of research.

The transfer of competences developed during the PDI has limitations due to diverse factors. Vocational school circumstances (institutional framework at the participants´ domestic working place) are often an impediment for the teachers´ behavior and their daily work in the school-to-work transition system. As the analysis of the sustainability factors in the two evaluation cycles revealed, a successful transfer of the competences developed during the PDI also depends on the institutional framework of the German vocational training institutions. Some questions may be left open with respect to the conditional implications of the results: Are school managements interested in what the teachers experienced? Can they assess the value of the participation in terms of their personal, technical / professional and linguistic development abroad with respect to language-sensitive content teaching? For instance, do the factors of school development (organizational, personnel-related, curriculum-related aspects) enable teachers to implement a specific method that they learned of in Sweden or France? These are conditions the study´s didactic design cannot regulate or influence. It has to be noted that these conditions might have an undesired impact on some aspects of transfer and the sustainability of the study visit abroad.

Due to the very different vocational training systems, the transferability of the competences developed during the study visit in the field of integrated language support for teachers certainly has its limits. In this thesis, the German vocational training system was examined in particular with regard to the area of transition from school to work, initial and continuing training

of teachers in general for vocational training and in the area of didactics for second language learners.

An extensive discussion of European studies of integrated language and specialized teaching support schemes was carried out. Literature on teacher training on this topic was also analyzed at the European level, where applicable. However, there are few studies that examine the topic of this thesis in a precisely-fitting way, i.e., comprising of the elements PDI, LSCT, school-to-work transition and internationalization. As far as the discussion of studies and the presentation of selected projects in Sweden and France is concerned, this has been carefully conducted for the available material. However, due to its scope, the present study can only make a contribution to this discussion and cannot cover all activities in their entirety for the two countries.

Although the PDI was rather short in its time format, due to its strong reference to practical elements in the didactic design, the study visit abroad might also be considered as a complementary offer of PD to vocational teachers. This means that VTI decision-makers could couple a theoretical specialist lecture in Germany with a subsequent study visit abroad in Europe as presented in this thesis. The present study visit´s aim was not to assume that the PD concept has to be a substitution for other formats. Instead, based on the findings, it can be stated that it manages to successfully achieve the objective (developing the LSCT competence) because it works on a different level. This level was characterized within the theoretic foundation, and the intervention cycle results proved that the objective could be achieved to a higher degree this way.

2.3 Limits of this Research

Is the study visit abroad a viable professional development? Although the author would affirm this, it is difficult to conclude that it is per se an effective PD. It would be interesting and equally necessary to continue the design-based research cycle by carrying out the third and subsequent prototype. What is more, the suggested concept is recommended to be disseminated to a multitude of vocational training institutions and the actors of school-to-work transition programs therein to collect more data from experiences of individuals participating in a study visit abroad as PDI for the specified objectives in teacher competence development. By doing this, apart from transparency and the precise documentation, the systematization could possibly be enhanced which is not or hardly possible when dealing with such a small-scale project.

As was clearly emphasized in the beginning of this study, a qualitative teaching and learning environment cannot be entirely controlled. The step-by-step development and refinement of a study visit in other European countries with the aim of developing or enhancing German vocational teachers´ competence required for teaching contents in a language-sensitive manner could be controlled in parts by following the design-based research approach as far as possible. The latter limitation indicates a few aspects that are important to be noted, however, which cannot be changed. These conditions are considered as given. They are taken positively within DBR. For instance, the cooperation between science and practice that brought along the involvement of many different individuals leads to the fact that some outcomes cannot be controlled.

With respect to the individual learning conditions of each German participant (vocational teacher), a few factors have been recommended that are beneficial for positive group dynamics or the achievement of the objectives of each individual. There are teachers who bring along a specific motivation for dealing with language or LSCT in their daily working life. These might be motivated to attend the present PDI. Second, there are vocational teachers who do not bring along the LSCT competence at all as a prerequisite, but who are nevertheless motivated to attend such a PDI. However, thirdly, there are vocational teachers who would benefit from the participation in a study visit abroad, but who believe that they do not need it. As was stated within the interviews as assessments of the teachers, teachers cannot be forced to engage in LSCT. In other words, if they are forced to deal with LSCT and to develop their competences with regard to this concept, they will not succeed. The reason for this is simply explained by theory in that competence development always involves the component of subjective values, attitude, awareness, motivation for the language promotion. Thus, there is a limit in the teachers who can be reached with this approach.

A complete research process about the LSCT competence development of vocational teachers can only be accomplished when the researcher gains access to and can control of each element – an impossible thing to do. Nevertheless, the fulfilment of the quality criteria of qualitative social research and DBR provides the researcher with valuable new theories about the subject matter that are valid within the context in which they have been developed, tested and evaluated. These design principles are context-sensitive. Similar, the practical outcome in the form of a concrete suggestion of a study visit abroad as PDI has been developed for, tested within and evaluated with respect to the context defined.

Having personally guided and been present throughout the whole research process, the author is acutely aware of the complexity of the entire venture and the shortcomings it brings along.

The research subject is characterized by individuals (with subjective perceptions) whose behavior and actions can only be explained in part by the selected research techniques and following the propositions by DBR. In addition, there is a lot that remains undetected. However, performing research *with* individuals entails some valuable advantages, apart from the risks. These advantages in particular refer to the development of an *understanding* of phenomena such as the meaning of language-sensitive content teaching to the vocational teachers in Germany, but also in Sweden and France. Moreover, it also reveals which competence dimension in view of LSCT is successfully addressed by means of the study visit abroad and how this affects German vocational teachers if they actually experience (learn, talk, exchange about) the subject matter away from their usual working place.

Nevertheless, it can be stated due to the degree of generalization of the theoretical and practical outcome, that there is a medium reach of these two-sided results of the study. In line with the claim by Euler (2011, p. 539), it is important that third parties are supported in interpreting the present findings in their own manner for their respective context of interest so that they are able to adjust the intervention (didactic design) according to their ideas, expectations or requirements. A suggestion for further fields of applications or expansions of the intervention is carried out in Chapter V.3.

Last but not least, didactic designs such as the study visit abroad with the focus on teacher PD in language-sensitive content teaching are classified into voluntary PD programs, e.g., supported financially by European funds managed by district governments. Here, it is an important requirement that school managements and further decision-makers at the individual vocational training institutions take the opportunity for offering and supporting the professional development of their staff.

3 Research Needs and Future Development Perspectives

Due to the need for finding new solutions to one of the urgent problems within educational policy, the study included three major subject areas: Professional development, vocational education and training (school-to-work transition), and language-sensitive content teaching. Very deliberately, there was no limitation of the research subject or object with respect to specific (general or vocational) subjects which results in a rather broad perspective, since teachers across the entire spectrum of fields within VET are addressed. If even going one step further, as was emphasized in Section 2.2 of this chapter, it can be stated that the study addresses any professional within VET dealing with learners with a lack of language proficiency, but also

learners having difficulties to follow the learning objectives or processes due to cognitive difficulties. This can concern subject content teachers from further educational programs within VET. The study supports professionals in view of better coping and dealing with linguistic and socio-cultural diversity. Learning to teach in a language-sensitive way by exchanging experiences transnationally or only getting a *feeling* for it might lead to better teaching and learning conditions at their domestic job. This would be a beneficial measure for a multitude of actors within VET.

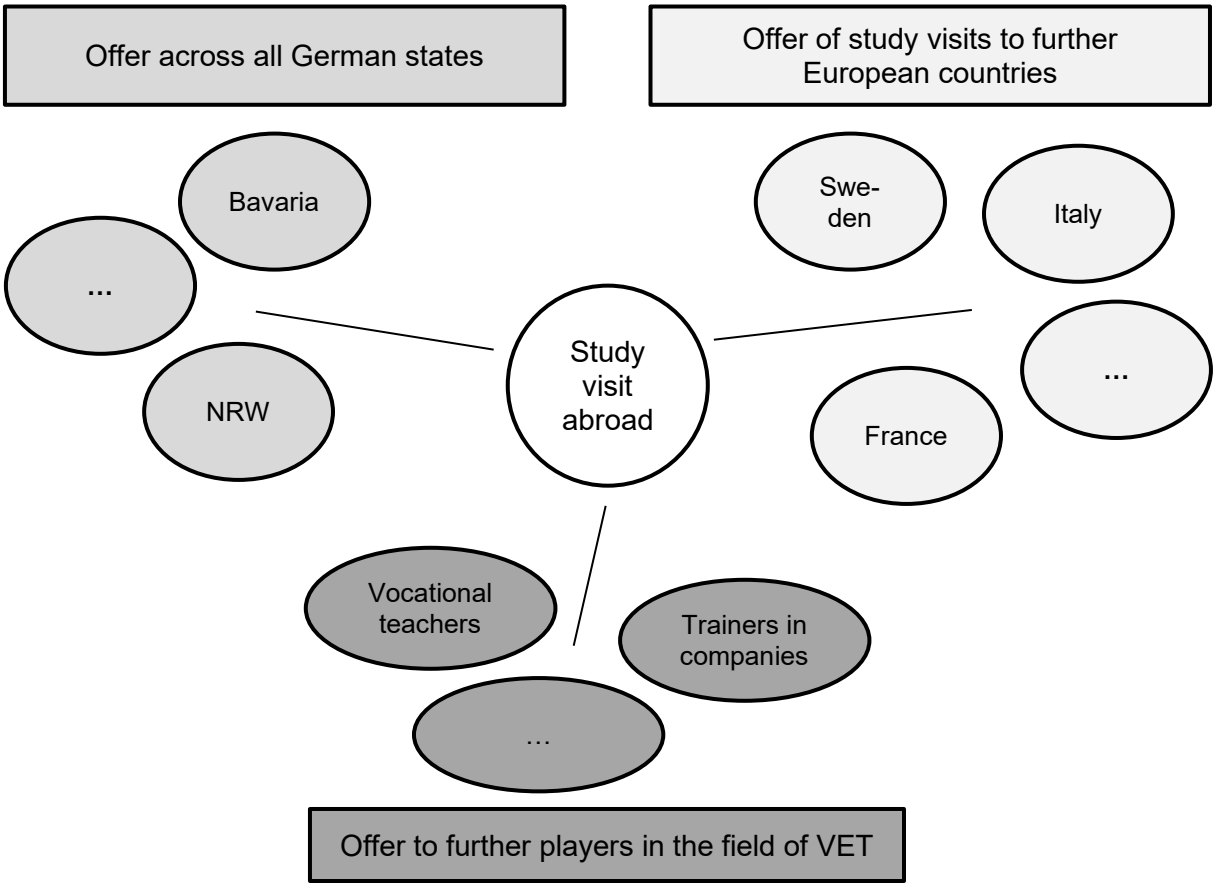
Due to its thematic focus, the study can be connected to the debate about inclusion in VET and educational contexts in general. Language-sensitive content teaching is one of the core elements of inclusion. The interventions have shown that a professionalization of vocational teachers in this field can contribute to the inclusion of learners with linguistic difficulties into the VET system, i.e., to the long-term goal of these young adults´ social participation and connection to the labor market. Very recent study findings reveal that this issue will be subject to research in European VET education for many more years (cedefop, 2020d, 2020c).

Apart from inclusion, a further connecting factor to other research fields is the question the study raises in view of the role of VET and its development in European societies. If teachers have to adapt their role profiles, it will be important to observe how VTI develop in the future with the specific focus on dealing with language and cultural diversity.

Through the design-based research process, a multitude of potential factors that influence the development of future opportunities were detected. According to the investigation about the vocational training preparation programs, the educational task of VTI will probably rise in the future – which can be considered a chance.

In view of the evolvement of recent DBR studies in VET science, there is the need for analyzing and pointing out the differences of these studies. It seems difficult to develop standards (if possible at all).

A potential future research perspective is represented by expanding the scope of application of the professionalization concept. Connected to this, there is a further research need to implement and test this or a similar intervention didactic design for further individuals (such as trainers in companies). Considering the German vocational teachers as reference point, the study visit abroad could be transferred to other German states. Apart from Sweden and France, further European countries could be the study visit target countries. As a subsequent step, as was pointed out by the participants in the interviews, the PDI could be further developed on an international basis by expanding the exchange character. The study visit abroad program could as well be expanded by a virtual exchange abroad as recently investigated by Hilliker (2020).



The focus on teachers´ skills, for instance, could be the center of future design-based research studies. The design principles can be adapted by researchers and practitioners in VET or further educational fields in view of a fine tuning of the expected competences, as well. The first cycle results point to the potential of team teaching in the field of language-sensitive content teaching. This would imply promoting teams of two vocational teachers via a study visit abroad. Alternatively, as for instance the second cycle results indicated, the expected competence could be narrowed down to the goal of learning about the existence and the utilization of applications (*apps*) in order to promote learners´ language skills within subject content teaching. The focus on the development of learners´ vocational action competence would still be provided.

Future studies could further address the sustainable integration of professional development outcomes into the institutional environment (e.g., the transfer of the outcome as integral part of teacher professional development, transfer of preconditions and implementation measures of LSCT into curricula).

This study contributed to providing vocational teachers of German VTI with the transnational experience of LSCT in the context of professional development. Teachers´ attitude, their

knowledge and skills as well as the impact of institutional conditions on language-sensitive content teaching are to be further investigated in detail. The sustainability and success of the didactic design including the 29 formulated design principles ultimately depends in a strong manner on the implementation of the design´s elements by the teachers themselves, but always as well on the implementation opportunities at their institutional working environment at home:

» That is certainly a question of attitude, but it is as well a question of school conditions, and also of competences [skills and knowledge] which you must have yourself.[79] «

[79] T3, par. 74.

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I. Observation Sheet

Observation Sheet (for participatory observation)

Scheme for participatory observation during the exchange of experiences intervention abroad (country: _____)

Observed unit: _____ location: _____attend-ants:_____
_____Date_____Time:_____ Page: _____

Subject matter to observed: Interaction between German vocational teachers and the other participating attendants within the professional development intervention units (PDIU)

Criteria and indicators (How do I know that the indicator has (not) been fulfilled?)	Observation	Comments
*Criterion 1: By means of their talk/media/methods, the **moderator/ presenter induces the teachers to participate** (exchange/discussion, learn new things)* Indicator 1.1: Adequate methods were selected (e.g., group work) Indicator 1.2: The contents of presentations/talks were interesting, useful and fitting the topic. Indicator 1.3: They react adequately and empathically on participants´ wishes/needs and on sudden occurring problems.		
*Criterion 2: German vocational teachers´ **participation*** Indicator 1.1: T.´s participation is active (answers to questions, fulfils the tasks, listens to speakers). Indicator 1.2: T. step up to other participants and talks to them (proactively). Indicator 1.3: T. address other participants voluntarily during breaks.		
*Criterion 3: German vocational teachers´ **motivation*** Indicator 1.1: Situations in which T. show joy in dealing with the subject.		

Criteria and indicators (How do I know that the indicator has (not) been fulfilled?)	Observation	Comments
Indicator 1.2: T. speak about their motivation (willingness to deal actively with the subject, emotion) Indicator: T. react to statements and questions by a certain (body) language indicating motivation.		
Criterion 4: German vocational teachers´ ***attention*** Indicator 1.1: T. listen carefully. Indicator 1.2: T. work on the tasks. Indicator 1.3: T. ask questions. Indicator 1.4: T. make comments.		
Criterion 5: The ***atmosphere*** *during the PDIU is positive.* Indicator 1.1: Attendants talk to each other (exchange of experience). Indicator 1.2: The room promotes the purpose and enables positive working.		<u>Ex. adjectives to describe the atmosphere:</u> Relaxed, familiar, unformal, warm-hearted, welcoming, quite, friendly, gentle, creative, productive, authentic, inspiring, comfortable
Criterion 6: The ***organizational framework*** *supports the purpose of the event (PDIU) = contributing to enhancing teachers´ language-sensitive content teaching competence.* Indicator 1.1: The time frame is adequate for the purpose of the PDIU. Indicator 1.2: The content(s) support(s) the purpose. Indicator 1.3: The methods applied are useful for the participants and the purpose and support to achieve it. Indicator 1.4: If unexpected problems occur or the individual needs of the participant require it, the program is flexibly changed on the short-term.		

II. Guideline-Based Interviews

a. Interview guideline

i. Intervention 1

19.11.2018

Interview zu den Erfahrungen beim Studienbesuch in Schweden vom 14.-17.11.2018 zum Thema „Sprachförderung im Fachunterricht – Von den Nachbarn lernen“

Sprachförderung und -sensibilität im Übergangssystem

Geplante Anzahl an Einzelinterviews: 6
Interview-Leitfaden für: KW 47 - 49

Thematische Eingrenzung	**Leitfragen**	**Anmerkungen**
Begrüßung/Danksagung/ Vorstellung/Hinweise zum Datenschutz		
I) Eröffnungsfrage (thematischer Einstieg)	1. „Jeder Fachlehrer sollte auch Sprachlehrer sein.“ Wie sehen Sie diese Aussage?	*Wir verwenden aus stilistischen Gründen die maskuline Form, die alle Genusformen beinhaltet.*
	2.a Was bedeutet Sprachsensibilität für Sie? 2.b Was bedeutet Sprachförderung für Sie?	
II) Eigene Erfahrungen mit Sprachförderung im Fachunterricht (SFFU) am BK	3. Welche eigenen Erfahrungen in Ihrem eigenen beruflichen Alltag im Hinblick auf Sprachförderung machen Sie oder haben Sie gemacht?	*Wie gehen Sie mit Sprachmängeln der SchülerInnen um, wie handeln Sie, wenn SchülerInnen Sie nicht verstehen?* *Jeder Fachlehrer in der Zielgruppe hier (also jungen Menschen mit Sprachproblemen wie Migranten sie haben oder Sprachmängel wie andere (auch muttersprachliche) Schüler aufweisen) im Übergangssystem soll sensibel sein für Sprache. D.h. sprachliche Korrektheit, deutlich Sprechen, genau hinhören, was der Lernende sagt, für den Beruf relevanten Wortschatz fördern usw.*

	4. Verwenden Sie im Unterricht sprachfördernde Materialien? Wenn ja, welche?	*Bei welchen Schülerinnen und Schülern?*
III) Erfahrungen mit SFFU in der beruflichen Bildung in Schweden	5. Was haben Sie während des Aufenthalts in Schweden beobachtet in Bezug auf das, was dort zum Thema berufsorientierte Sprachförderung der Landessprache gemacht wird? Erzählen Sie doch einfach einmal Ihre Eindrücke.	*Evtl. hinweisen auf Nennen der Unterschiede des Bildungssystems allgemein?* *Gibt es etwas Ähnliches zum Bildungsgang AV in NRW beispielsweise (Übergangssystem); Über welche Zielgruppe sprechen wir?*
	6. Welches sind **landestypische Aspekte** der Kombination von Sprachförderung und beruflichem Unterricht, die Sie kennengelernt haben?	*Im Vergleich zu Deutschland bzw. NRW*
	7. Können Sie **Schwierigkeiten** benennen, die in Schweden in Bezug auf Sprache in der beruflichen Bildung auftreten?	
	8. Was haben Sie in Schweden als **(besonders) förderlich für die Sprachbildung** an der beruflichen Schule kennen gelernt?	
	9. Welche konkreten **Unterschiede** sehen Sie im Umgang mit der beruflich-orientierten Sprachförderung in Schweden und Deutschland?	9.1 Wie funktioniert der Sprachunterricht an den beruflichen Schulen in Schweden? (Gestaltung, Verankerung in den Berufsschulen, Fächerzusammensetzung etc.)
		9.2 Welche Rolle hat der Lehrer in Schweden i. H. a. auf Sprachförderung in der Berufsschule? Wie geht der Lehrer mit dem Thema um? Welche Unterstützung bekommt er/sie? Wie unterscheiden sich die Motivationen?
		9.3 Welche Schwierigkeiten treten in Schweden im Zusammenhang mit beruflichen Lernprozessen auf?
		9.4 Wie sieht die Zusammenarbeit mit anderen Institutionen aus?
		9.5 Was wird für die Sprachbildung gemacht als Vorbereitung und für die Vermittlung auf den Arbeitsmarkt?
	10. Scheint Ihnen das schwedische System auf Deutschland übertragbar zu sein?	*Inwiefern?* *Wenn nein, warum nicht?*
	11. Wie hat sich die steigende Anzahl an Geflüchteten auf die Berufsbildung in Schweden ausgewirkt?	*Welche Rahmenbedingungen gibt es für die berufliche Bildung von Flüchtlingen?* *Welche Rechte haben sie?*
IV) Veränderung der Lehrerrolle	12. Wie hat sich die Lehrerrolle am Berufskolleg verändert i. H. a. sprachliche Schwierigkeiten und Vielsprachigkeit?	*Mit Blick auf die gesellschaftlichen Veränderungen/ Veränderungen in der Kommunikation von Menschen:*

		Mit welchen höheren/zusätzlichen Anforderungen konfrontiert? *Zählt Sprachförderung heutzutage zu den erforderlichen Kompetenzen einer Lehrperson?* *Wenn ja, warum?*
	13. Untersuchungen haben ergeben, dass die eigene Haltung als Lehrende/r ganz entscheidend ist: welches Bewusstsein ich selber für Sprache habe, ob ich sensibel für die Sprache bin in Bezug auf mündliche als auch schriftliche Unterrichtsmethoden. 13.a Welche Haltung muss ein/e Lehrer/in mitbringen, wenn er/sie in Klassen des Übergangssystems unterrichtet? 13.b Welche Haltung haben Sie bei Lehrern/Lehrerinnen in Schweden beobachtet bzw. was haben Sie darüber erfahren?	*In den Klassen der AV und ähnlichen Bildungsgängen i.H.a. Sprachkompetenzen und sprachliche Probleme.*
V) Transfer (Weiterentwicklung und Verwendung der Ergebnisse)	14. Was nehmen Sie persönlich aus den Erfahrungen in Schweden mit für Ihren eigenen Unterricht/für Ihre Schule?	*Gibt es Impulse, die Sie mitgenommen haben für die Verankerung am eigenen BK?*
	15. Wie haben Sie die **berufliche Unterrichtspraxis** i. H. a. Sprachförderung und im Vergleich zu Deutschland/NRW erlebt?	*Gab es konkrete sprachsensible Materialien, Unterrichtskonzepte, Strategien, die Ihnen besonders aufgefallen sind?*
	16. Was ist Ihrer Einschätzung nach und mit den Erfahrungen, die Sie während des Studienbesuchs gemacht haben, **tatsächlich förderlich für die Verzahnung von beruflichen Lernprozessen und die Sprachbildung am BK**?	*Was ist die größte Motivation, sich als Lehrkraft mit dem Thema „Sprache/Kommunikation" in der Zielgruppe „SuS mit Sprachproblemen am Übergang Schule-Berufskolleg" auseinanderzusetzen?*
	17. An welchen Punkten in der **Schulentwicklung sehen Sie den größten Handlungsbedarf** bezüglich der **Förderung von Sprache/Kommunikation**?	*Welche Ideen/Vorschläge haben Sie bezugnehmend auf die Optimierung bzw. Weiterentwicklung der Methoden?*
	18. Wie stellen Sie sich eine **Verankerung von im Fach integrierter Sprachförderung** in den Klassen der AV im **DJP** oder stärker fokussiert in den Bildungsplänen vor?	
VI) Abschluss	19. Gibt es zum Schluss noch Punkte, die Sie wichtig finden und die wir in unserem Gespräch nicht angesprochen haben?	*Haben Sie darüber hinaus noch Fragen?*
Danksagung/Verabschiedung		

ii. Intervention 2

21.05.2019

Interview zu den Erfahrungen beim Studienbesuch Frankreich vom 21.-24.05.2019 zum Thema „Sprachförderung im Fachunterricht – Von den Nachbarn lernen“

Sprachförderung und -sensibilität im Übergangssystem

Geplante Anzahl an Einzelinterviews: 4
Interview-Leitfaden für: KW 23

Thematische Eingrenzung	**Leitfragen**	**Anmerkungen**
Begrüßung/Danksagung/ Vorstellung/Hinweise zum Datenschutz		
I) Eröffnungsfrage (thematischer Einstieg)	1. „Jeder Fachlehrer sollte auch Sprachlehrer sein.“ Wie sehen Sie diese Aussage?	*Wir verwenden aus stilistischen Gründen die maskuline Form, die alle Genusformen beinhaltet.*
	2.a Was bedeutet Sprachsensibilität für Sie? 2.b Was bedeutet Sprachförderung für Sie?	
II) Eigene Erfahrungen mit Sprachförderung im Fachunterricht (SFFU) am BK	3. Welche eigenen Erfahrungen in Ihrem eigenen beruflichen Alltag im Hinblick auf Sprachförderung machen Sie oder haben Sie gemacht, d.h. wie gehen Sie mit Sprachmängeln der SchülerInnen um, wie handeln Sie, wenn SchülerInnen Sie nicht verstehen?	*Jeder Fachlehrer in der Zielgruppe hier (also jungen Menschen mit Sprachproblemen wie Migranten sie haben oder Sprachmängel wie andere (auch muttersprachliche) Schüler aufweisen) im Übergangssystem soll sensibel sein für Sprache. D.h. sprachliche Korrektheit, deutlich Sprechen, genau hinhören, was der Lernende sagt, für den Beruf relevanten Wortschatz fördern usw.*
	4. Verwenden Sie im Unterricht sprachfördernde Materialien? Wenn ja, welche?	*Bei welchen Schülerinnen und Schülern?*

III) Erfahrungen mit SFFU in der beruflichen Bildung in Frankreich	5. Was haben Sie während des Aufenthalts in Frankreich beobachtet in Bezug auf das, was dort zum Thema berufsorientierte Sprachförderung der Landessprache gemacht wird? Erzählen Sie doch einfach einmal Ihre Eindrücke.	*Evtl. hinweisen auf Nennen der Unterschiede des Bildungssystems allgemein?* *Gibt es etwas Ähnliches zum Bildungsgang AV in NRW beispielsweise (Übergangssystem); Über welche Zielgruppe sprechen wir?*
	6. Welches sind **landestypische Aspekte** der Kombination von Sprachförderung und beruflichem Unterricht, die Sie kennengelernt haben?	*Im Vergleich zu Deutschland bzw. NRW*
	7. Können Sie **Schwierigkeiten** benennen, die in Frankreich in Bezug auf Sprache in der beruflichen Bildung auftreten?	
	8. Welche konkreten **Unterschiede** sehen Sie im Umgang mit der beruflich-orientierten Sprachförderung in Frankreich und Deutschland?	8.1 Wie funktioniert der Sprachunterricht an den beruflichen Schulen in Frankreich? (Gestaltung, Verankerung in den Berufsschulen, Fächerzusammensetzung etc.)
		8.2 Welche Rolle hat der Lehrer in Frankreich i. H. a. auf Sprachförderung in der Berufsschule? Wie geht der Lehrer mit dem Thema um? Welche Unterstützung bekommt er/sie? Wie unterscheiden sich die Motivationen?
		8.3 Welche Schwierigkeiten treten in Frankreich im Zusammenhang mit beruflichen Lernprozessen auf?
		8.4 Wie sieht die Zusammenarbeit mit anderen Institutionen aus?
		8.5 Was wird für die Sprachbildung gemacht als Vorbereitung und für die Vermittlung auf den Arbeitsmarkt?

	9. Untersuchungen haben ergeben, dass die eigene Haltung als Lehrende/r ganz entscheidend ist: welches Bewusstsein ich selber für Sprache habe, ob ich sensibel für die Sprache bin in Bezug auf mündliche als auch schriftliche Unterrichtsmethoden. 9.a Welche Haltung muss ein/e Lehrer/in mitbringen, wenn er/sie in Klassen des Übergangssystems unterrichtet? 9.b Welche Haltung haben Sie bei Lehrern/Lehrerinnen in Frankreich beobachtet bzw. was haben Sie darüber erfahren?	
	10. Scheint Ihnen das französische System auf Deutschland übertragbar zu sein?	*Inwiefern?* *Wenn nein, warum nicht?*
	12. Was haben Sie in Frankreich als **(besonders) förderlich für die Sprachbildung** an der beruflichen Schule kennen gelernt?	*Was haben Sie als hinderlich wahrgenommen?*
IV) Transfer (Weiterentwicklung und Verwendung der Ergebnisse)	13. Was hat die Studienreise im Hinblick auf Ihr Sprachbewusstsein bewirkt?	*Auch in Bezug auf den Unterricht, auf den Umgang mit Schülern.* *z.B. auch durch die Gespräche/den Austausch mit französischen Lehrkräften in englischer (/französischer/spanischer Sprache)*
	14. Was nehmen Sie persönlich aus den Erfahrungen in Frankreich mit für Ihren eigenen Unterricht/für Ihre Schule?	*Gibt es Impulse, die Sie mitgenommen haben für die Verankerung am eigenen BK?*
	15. An welchen Punkten in der **Schulentwicklung sehen Sie den größten Handlungsbedarf** bezüglich der **Förderung von Sprache/Kommunikation**?	*Welche Ideen/Vorschläge haben Sie bezugnehmend auf die Optimierung bzw. Weiterentwicklung der Methoden?*

	16. Wie stellen Sie sich eine **Verankerung von im Fach integrierter Sprachförderung** in den Klassen der AV (und anderen?) im **DJP** oder stärker fokussiert in den Bildungsplänen vor?	
IV) Evaluation der Intervention	17. Beschreiben Sie, wie nützlich für Sie die Studienreise als Fortbildung war. Welche Hemmnisse gab es?	
	18. Wie finden Sie die Idee, regelmäßig solche internationalen Austausche zu Fortbildungszwecken durchzuführen? 18.1 Meinen Sie, dass die Schulleitungen dies unterstützen?	*Wenn nein, wie könnte man dies erreichen?* *Wie könnte man das Schulmanagement davon überzeugen? Anreize schaffen?*
	19. Wie beurteilen Sie das Format und die Organisation unseres Austausches in Frankreich?	*Zeit, Dauer, Vorbereitung*
	20. Wie bewerten Sie das inhaltliche Programm **als Zweck einer Weiterbildung / eines Austauschs** im Bereich Sprachförderung/Sprachbewusstsein am Übergang Schule-Beruf: von europäischen Nachbarn lernen?	*Inwiefern macht es Sinn, diesen Austausch international zu gestalten anstatt nur innerhalb Deutschlands? Mehrwert?*
	21. Was hat Ihnen am besten gefallen bzw. ist am besten in Erinnerung geblieben?	
	22. Was würden Sie beim nächsten Mal anders machen?	
	23. Was kann man nun mit all den neuen Erfahrungen machen? 23.1 Wie lässt sich das Thema Sprachbewusstsein bei Lehrenden aller Fächer **verankern an Ihrer Schule**? 23.2 Was sind Hemmnisse, dass das Thema nicht an der Schule verankert wird?	*Sie selbst können die Erfahrungen in Ruhe verarbeiten, nutzen.* *Was machen, damit die Erfahrungen und Ergebnisse nicht im Sande verlaufen, sondern dass die Kollegen / die Schulleitung ebenfalls ihren Nutzen ziehen kann.*

	23.2 Wie könnte man auch Kollegen/Kolleginnen motivieren, die keine Sprachenlehrenden sind, an einer Fortbildung teilzunehmen und sich für das Thema zu öffnen? 23.3 Wie können Sie Ihre Erfahrungen aus Frankreich, das was Sie gelernt haben, **verbreiten oder nutzen**?	
VI) Abschluss	24. Gibt es zum Schluss noch Punkte, die Sie wichtig finden und die wir in unserem Gespräch nicht angesprochen haben?	*Haben Sie darüber hinaus noch Fragen?*
Danksagung/Verabschiedung		

b. Additional personal information sheet

Zusatzdatenbogen zum Interview _____ vom _____ 20__

Zusätzliche Daten (freiwillig):

1) Name des Berufskollegs:

_____

2) Berufliche Ausrichtung des Berufskollegs:

_____

3) Fächer, die Sie unterrichten / Bereiche, in denen Sie tätig sind:

_____

_____

4) Klassen/Bildungsgänge, in denen Sie unterrichten:

_____

_____

…unterrichtet haben:

_____

_____

5) Geschlecht: □ weiblich □ männlich

6) Berufserfahrung (in Jahren):

_____

7) Persönliches Interesse für Sprachen: □ ja □ nein

8) Welche Sprache(n) sprechen Sie außer Deutsch?

_____

_____

9) Haben Sie schon einmal Fortbildungen/Schulungen im Bereich Sprachförderung besucht? □ ja □ nein (wenn ja, welche?)

_____

_____

c. Coding guideline for analysis and interpretation of the transcript data

Coding guideline for analysis and interpretation of the transcript data (cf. Mayring, 2010, 2014; Mayring & Fenzl, 2014)

*For a **deductive** category assignment (prior to data analysis)*

Category	Definition	Example	Coding Rule
1. Interpretation of terms relating to language-sensitive content teaching (LSCT)	Any text passage pointing to an interpretation of the understanding of the term LSCT	**1.2** P_1F: " Sprachsensibilität - heißt für mich - dass ich empfänglich dafür bin, festzustellen, dass Probleme, die die Schüler, Lernende haben, auch bedingt sein können durch sprachliche Barrieren, die sie zu überwinden haben. Wenn ich Schüler sehe, die Deutsch nicht als Muttersprache haben, oder du hast gesprochen von Schülern, die aufgrund von Förderungsbedarf etc. auch Schwierigkeiten mit der deutschen Sprache haben. Dann sehe ich ganz häufig, dass die an Aufgaben scheitern können, weil sie die Aufgabenstellungen nicht verstehen etc. Das würde ich verstehen als Sprachsensibilität."	Only statements referring to the understanding of terms related to LSCT, no judgmental statements.
1.1 Specialist subject teacher = language teacher **1.2** Definition of language sensitivity / awareness 1.3 Definition of language promotion / support 1.4 Change of teacher role			
2. Teachers´ own experiences with LSCT at domestic school			
2.1 Type of experiences 2.2 Methods / strategies to deal with learners´ lack of language 2.3 Type of LSCT material used			

3. Experiences (expected outcome) with LSCT during the study visit abroad			
3.1 Perception and impressions of LSCT abroad 3.2 Difficulties of LSCT abroad 3.3 Differences between the European country and Germany 3.4 Transferability of the system abroad to Germany 3.4 Beneficial factors of LSCT abroad			
4. Transfer of the expected competences (further development and dissemination of the results)			
4.1 Impact of the study visit on participants´ language awareness 4.2 Personal gain (transfer) for the participant´s own teaching / own school 4.3 Greatest need for action w.r.t. LSCT 4.4 Stronger embedding of LSCT in curricula and institutional development			
5. Evaluation of the study visit abroad			
5.1 Achievement of objectives 5.1.1 Knowledge and skills in LSCT 5.1.2 Language awareness			
5.2 Practicality / usefulness			
5.3 Obstacles prior / during			
5.3 Idea of continuous study visits 5.3.1 Achievement? 5.3.2 School management support			
5.4 Format and organization (framework)			
5.5 Expected competence (contents, transnational value)			
5.6 Remembered best			
5.7 Optimization			
5.8 Use of contents learned and experiences made 5.8.1 LSCT anchoring within school development 5.8.2 Obstacles of 5.8.1 5.8.3 Motivation of colleagues (multiplier) 5.8.3 Dissemination or use of experiences			
6 Remarks, comments			

*For an **inductive** category formation (based on summarizing; direct derivation of categories from the text)*

Case	Quotation	Paraphrase	Generalization	Category
T1 par. 98 (I_1)	„Mich hat es sehr begeistert, wie eng die Kooperation zwischen den Deutschlehrern und den Fachlehrern und Berufsschullehrern ist. Das erlebe ich hier in der Form leider nicht so. Das war wirklich das, wo ich hier ein großes Manko sehe, was da super funktioniert. Und - sicherlich haben die Schweden auch zum Teil noch optimalere Möglichkeiten. Die Schüler, die aus dem Regelsystem rausfallen, zu beschulen. Das hat mich auch fasziniert.“	For one of the German vocational teachers, the cooperation between language and (general and vocational) subject teachers is important and should work, well. The teacher criticizes this w.r.t. the German system, and positively commends it w.r.t. what she experienced during the study visit in Sweden. She thinks there are alternative methods to support learners who drop out of the regular school system.	Willingness to (improve the) cooperation with teacher colleagues.	Behavior of teachers w.r.t. language-subject content - cooperation

III. Additional Data Collection Instruments of the Second Intervention

a. Guideline for written survey (feedback of foreign teacher participants)

Questionnaire d'évaluation

Evaluation form

de l´échange transnationale
pour des professeurs au sujet de
„les matières professionnelles : un outil technique pour l´apprentissage du français“

of the trans-national exchange on
« Integrated language promotion within vocational subject lessons – learning from European neighbors at the school-to-job transition »

Chers participants français à l´échange transnationale !

Au moyen de ce questionnaire nous voudrons évaluer notre échange avec et chez vous optimalement et nous voudrons impliquer votre perspective.

En outre, l´évaluation doit permettre d´ organiser et dessiner des événements de ce type.

Nous vous prions donc de nous aider et de nous donner votre opinion. En général, il s´agit de la question : **comment avez-vous perçu l´échange avec les professeurs allemands ?** Non seulement vous comme une personne, mais encore vos commentaires resteront anonymes. Vos réponses nous serviront à continuer à travailler au concept de formation pour des professeurs dans la formation professionnelle.

Je vous remercie pour votre coopération.
…

ÉVÉNEMENT

1a Que pensez-vous de la praticabilité de l´échange pour votre travail quotidien ?

- ☐ très utile
- ☐ assez utile
- ☐ je ne sais pas
- ☐ moins utile
- ☐ pas du tout utile

Veuillez expliquer brièvement votre point de vue, s´il vous plaît.

1b Comment prévoyez-vous utiliser les résultats ?

2 Comment avez-vous perçu l´échange avec les professeurs allemands en général ?

3 Quelles différences avez-vous perçu, en France et en Allemagne, dans l´intégration du développement linguistique chez les immigrés et les locuteurs natifs avec des déficits linguistiques ?

4 L´échange m´a aidé de prendre conscience du sujet de la langue / le développement linguistique dans la formation professionnelle...

… pour moi par mon rôle de professeur.

Oui, parce-que …

… pour mes élèves.

5 Pour moi, l´échange entre les professeurs français et allemands contribuait à …

6 Quels sont les obstacles qui sont apparus pendant l´échange ? (p. ex. des compétences linguistiques manquantes des professeurs, de temps manquant, de contenu etc.)

7 Aspects positifs concernant l´échange (Particulièrement … m'a beaucoup plu, Il a été particulièrement utile que…)

8 Aspects négatifs…

… concernant cet échange (À cet échange, m´a manqué..., … a été quelque peu négligé, la prochaine fois je organiserais/concevrais … différent) ?

… concernant un échange de ce type en général ?

9 Expérience personnelle / progression personnelle : (De l´échange avec les professeurs, j´amène avec moi …, la chose la plus important que j´ai appris, c´est…, l´expérience spéciale, c´était…)

10 Je pourrais imaginer participer à tel échange (en Allemagne, dans d´autre pays européens)

□ oui □ non □ à la condition que

Veuillez expliquer brièvement votre point de vue, s´il vous plaît.

DONNÉES PERSONNELLES

11 Quelle(s) matière(s)/quel(s) cour(s) enseignez-vous ?

_____

_____

12 Quel(s) groupe(s) d´étude / niveau de formation enseignez-vous ?

_____

_____

13 Sexe : □ féminin □ masculin

14 Nombre d´années d´expériences : _____

15 Intérêt personnel pour de langues : □ oui □ non

Sincères remerciements pour votre participant au questionnaire. Si vous êtes intéressés aux résultats, n'hésitez pas à me contacter (…).

b. Guideline for written survey (feedback of foreign partners from social education institution)

Evaluation of the study visit in France (21.-24.05.2019) regarding „Language-Sensitive Content Teaching – Learning from European neighbors at the school-to-work transition“ - The French organization´s view

1 How satisfied are you – from the organizer´s view – with….

…the overall procedure of the study visit?

- ☐ very satisfied
- ☐ satisfied
- ☐ ok
- ☐ dissatisfied
- ☐ very dissatisfied

Please, explain your answer briefly.

… the practicality of the study visit (e.g. for the participating teachers´ daily job etc.)

- ☐ very satisfied
- ☐ satisfied
- ☐ ok
- ☐ dissatisfied
- ☐ very dissatisfied

Please, explain your answer briefly.

2 How did you perceive …during the exchange between French and German teachers?

…the motivation to participate…

… the general atmosphere …

… the participants´ interaction with each other (French and German participants)…

… the level of interactivity…

…the implementation of the planned program by the German participants…

3 In your opinion as organizer on site, do you think the implementation of the topic (program with its design and content) is suitable as a further development intervention for teachers?

4 Please describe your assessment and/or perception of the intervention….

…from an organizational view (structure, time, speed, level of difficulty):

… from a content-related perspective. Do you think the topic of integrated language-training within vocational education and training (VET) and integration of migrants into VET has been realized well for the participants?

(e.g. exchange between teachers in discussions/talks, job shadowing, comparison of countries, presentations by French colleagues from organizations, projects and schools etc.):

5 Which obstacles did you observe during the intervention?

(e.g. regarding the behavior / participation / communication of French and German participants, the program, time etc.)?

6 Positive aspects during the study visit from your view as an organizer:

(I particularly liked… , … has been especially practical, … has worked really well etc.): ☺

7 Negative aspects a study visit of this type:

(During this exchange, I missed… , …. missed out, I would design …. differently the next time because… etc.) 😐 ☹

8 If you have any further comments or recommendations, please feel free to write it down here (e.g. I would recommend for future interventions…):