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Integrating Practice-Based Learning into Formal Education: Stakeholder Perspectives on the Challenges of Learning Location Cooperation (LLC) in Germany's Dual VET System

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Abstract: Germany's dual Vocational Education and Training (VET) system has been criticized for insufficient cooperation among vocational schools, companies, and inter-company training centers, limiting its potential to effectively relate theory with practice. Despite the issue's ongoing relevance, recent research on Learning Location Cooperation (LLC) remains scarce. This study addresses the existing research gap by examining contemporary LLC dynamics through the lens of key stakeholders. A total of 20 semi-structured interviews were conducted across interconnected learning locations, with each of the five targeted occupations represented by an apprentice, vocational teacher, trainer, and inter-company trainer. The study design enabled participants, connected through the apprentices' learning journeys, to discuss LLC phenomena from their unique viewpoints, facilitating an in-depth exploration of cooperation strategies, relationships, conditions for success or failure, and desired improvements. Findings reveal both similarities and differences in perceptions, highlight diverse barriers, and provide actionable recommendations to strengthen LLC. These insights are crucial for refining Germany's VET system and offer valuable lessons for international contexts, where integrating theory and practice is essential for developing a skilled and adaptable workforce. Overall, the study underscores the importance of fostering deeper cooperation among learning locations to ensure the effectiveness and sustainability of (vocational) education globally.

Keywords: vocational education and training (VET); learning location cooperation (LLC); theory–practice integration; stakeholder perspectives



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1. Introduction

The debate over the relationship between formal education and practice-based learning has a longstanding tradition in research on professional learning (Billett 2014; Stewart 2014). In her seminal paper and presidential address, Resnick (1987) criticized formal education for often producing inert knowledge—knowledge that is not readily applicable to solving real-world problems. Her central argument highlights the abstract nature of school-based learning, which is described as differing significantly from the situational contexts of practice, thereby hindering the transfer of knowledge from educational settings to practical environments. As a result, numerous approaches have been developed to better integrate practice-based experiences into formal education, such as internships in higher education. However, a persistent challenge is the alignment of these practice-based experiences with the theoretical content taught in formal education (Goller et al. 2020). While Germany's dual Vocational Education and Training (VET) system is purposefully designed to bridge

this gap by integrating both forms of learning, this paper examines the ongoing disconnect between the system's educational objectives and actual practices.

Generally speaking, Germany's VET system is internationally recognized for its effective integration of theoretical and practical learning (e.g., [Deissinger 2015, 2022](#); [Fürstenau et al. 2014](#); [Graf 2013](#); [Kirchknopf 2020](#); [Pilz 2016](#)). This system operates through a combination of three distinct learning locations: vocational schools, companies, and inter-company training centers. Vocational schools provide the theoretical foundation, offering upper secondary general education in core subjects (like German, math, or social science) along with subject-specific expertise in areas related to the training occupation, both of which are essential for acquiring profound knowledge in the chosen field. In parallel, companies provide practical training. Here, apprentices are supposed to apply classroom-taught insights in real-world settings, developing skills and gaining experience in the daily operations of their occupational contexts. Inter-company training centers play a complementary role by delivering specialized training that may not be fully covered by a single company. Conducting additional courses with hands-on exercises, training centers broaden the apprentices' overall competencies. Through this integrated approach, apprentices should acquire both the theoretical groundwork and the practical know-how to excel in their chosen occupations. Thus, the VET system strives to produce highly skilled and versatile workers who are well-prepared for the constantly shifting demands of the modern labor market (e.g., [Euler 2013](#); [Rauner and Maclean 2008](#); [Solga et al. 2014](#)).

Central to the success of this model is the concept of Learning Location Cooperation (LLC), which calls for educational partners (i.e., vocational teachers, company trainers, and inter-company trainers) to work together across institutional, organizational, and pedagogical lines in order to foster effective vocational preparation for their apprentices ([Gessler 2017a](#); [Kutscha 2002](#)). However, a significant challenge for LLC stems from the fact that these institutions follow distinct and often conflicting rationales. Companies employing apprentices are guided by private economic interests and tend to mentor each apprentice on an individual basis. Vocational schools and training centers, in contrast, focus on groups of apprentices within classes or courses and are largely funded by public resources, thus operating with less emphasis on economic objectives.

The core purposes of LLC are threefold: LLC aims not only to (a) build productive learning environments through a seamless integration of theoretical and practical learning but also to (b) efficiently utilize resources by combining the strengths and opportunities of all involved learning locations, as well as to (c) maintain high quality and ensure the VET system's innovative potential ([Pätzold 1999a, 1999b](#); [Pätzold et al. 1990, 1993](#); [Spöttl and Windelband 2013](#); [Stark 2002](#)). Vocational pedagogy sets high demands for achieving effective LLC. In an ideal scenario, LLC would involve continuous and comprehensive cooperation throughout different areas, including organizational management, content coordination and timing, as well as pedagogical methods or didactics. To meet these demands, it is crucial to establish cooperation frameworks grounded in reliability and equality, ensuring that each learning location can uphold its unique identity and autonomy while working together in a unified educational effort ([Pätzold 1990, 1999b](#); [Pätzold et al. 1993](#)). At the same time, it seems likely that stakeholders within this system may not share a common mental model on how the roles of the different learning locations can be meaningfully connected.

Beyond the direct interactions between teachers, trainers, and apprentices, LLC evolves as part of a broader governance framework that shapes how these stakeholders operate. Within dual VET systems, governance mechanisms define the institutional roles and responsibilities of social partners, companies, and educational institutions, thereby influencing conditions for cooperation. Governance research shows how cooperation in skill formation

depends on the degree of stakeholder involvement across different levels, from political–strategic to technical–operational governance (Emmenegger and Seitzl 2020; Šćepanović and Martín Artiles 2020). Comparative analyses further illustrate that in countries where dual training is not yet institutionally embedded, social partners must take on new coordination responsibilities to enable effective cooperation (Sanz de Miguel et al. 2024). Likewise, studies on decentralized cooperation in collective training systems emphasize that governance is structured through institutional networks and regional cooperation mechanisms that regulate how training responsibilities are shared (Emmenegger et al. 2019). Denmark’s governance, for example, is driven by ongoing political and economic contestation rather than being fixed by a single regulatory framework (Carstensen and Ibsen 2021). While these studies highlight the macro- and meso-level factors affecting cooperation, this paper focuses on the micro-level interactions among educational partners in Germany’s dual VET system. By exploring how LLC unfolds in practice, this study seeks to offer insights into the formation of cooperation through interpersonal dynamics and institutional contexts.

1.1. Origins and Evolution of LLC in Germany’s Dual VET System

To fully understand the complexities of LLC in VET, it is essential to first examine this concept’s historical background before considering relevant research results. Up until the 1960s, the notion of Learning Location Cooperation (LLC) was virtually absent in Germany’s dual VET system since vocational schools and companies operated in isolation from one another. Vocational training was traditionally centered in the workplace, with companies holding a predominant role, whereas vocational schools played a secondary, supportive part. This separation was rooted in the belief that distinct learning locations should focus on their specific tasks without overlapping, as this would best serve their individual educational goals. By the 1960s, however, the need for closer cooperation between learning locations became more apparent. Criticisms grew that traditional, company-based training alone could no longer meet the needs of an increasingly industrialized and technologically advanced workforce (e.g., Deissinger 1996; Faßhauer 2020; Gessler 2017b; Lipsmeier 2004). The 1964 report by the German Committee for Education and Training recognized the growing importance of schools as key partners in vocational education, capable of contributing significantly to the qualitative improvement of training programs. It argues that the success of the dual system depends on their effective partnership, supported by new contractual and legislative measures (Deutscher Ausschuss für das Erziehungs- und Bildungswesen 1966). This initiative marked a shift toward recognizing the systemic nature of vocational education by acknowledging that a modern VET system requires the integration and equal participation of all educational partners (Euler 2004a). Nevertheless, industry representatives remained cautious, fearing that too much emphasis on theoretical learning could lead to an overly school-based approach to vocational education, undermining the traditional focus on practical training within the company (e.g., Deissinger 1996; Faßhauer 2020; Gessler 2017b; Lipsmeier 2004). Against this background, navigating the tension between educational innovation and traditional industry control has become a central issue in the evolution of LLC.

During the 1970s and 1980s, a series of model experiments were launched to investigate the prerequisites for successful LLC in Germany’s dual VET system. These pilot initiatives aimed to test various models and strategies for enhancing cooperation between the different learning locations. Despite their innovative approaches and valuable insights, various projects encountered significant challenges. Issues such as mismatches between institutional priorities, resistance to change, or a lack of effective communication often hindered the successful implementation of the proposed models (e.g., Bau and Stahl 2002; Holz et al. 1998; Pätzold and Walden 1995). Consequently, while these model projects

served as important case studies and offered best practices, their impact was limited; most of the proposed solutions have neither achieved widespread adoption nor led to systemic changes in the VET system.

In the 1990s, LLC gained renewed importance, driven by modernization debates and the growing need for a workforce capable of adapting to rapid economic, technological, and societal changes. As a result, the dual VET system faced new challenges that required a stronger connection between learning locations. The reorganization of training occupations during this time emphasized the need for a holistic and action-oriented approach to vocational preparation to better equip apprentices for the evolving demands of the modern labor market. It became clear that such objectives could not be met if the different learning locations continued to operate in isolation. Instead, integrating theory and practice has emerged as crucial for fostering impactful learning experiences among apprentices (Pätzold 1991, 1998, 1999a; Walden 1998, 1999a).

1.2. Superficial and Sporadic Cooperation: Unveiling LLC Realities in 1990s VET

During these developments, extensive research on LLC was conducted, revealing a rather disheartening picture of its implementation throughout the 1990s. While variations could be observed based on training occupation and company size (Walden 1999c), the overall findings were unequivocal. As reflected in the synthesis of multiple studies by Euler (2004b) or Pätzold and Walden (1999), cooperation was mainly reactive, arising as a response to specific challenges affecting apprentices, which included learning difficulties, disciplinary issues, and the necessity for exam preparation. This reactive nature meant that LLC was characterized by a focus on immediate problem-solving rather than by proactive, strategic efforts to enhance the overall training process and results. Hence, there was a notable lack of systematic cooperation with only limited efforts being invested in aligning training content and discussing pedagogical approaches. Moreover, strained relationships between educational partners, frequently rooted in prejudices and biases, impeded cooperation. Vocational teachers often perceived trainers as lacking pedagogical expertise, while trainers viewed teachers as being disconnected from the practical demands of the workplace. This mutual skepticism contributed to hindering meaningful cooperation since each side tended to pursue its own objectives as opposed to jointly working toward shared educational goals (Pätzold et al. 1993). Surveying apprentices, Berger (1999) discovered that less than 10% perceived the cooperation between their learning locations as fully effective—a negative evaluation consistent with the findings on poor cooperative practices among educational partners. Here, the assessed level of LLC effectiveness seemed to depend on certain favorable conditions, such as apprentices feeling that someone in the company is accountable for their training and actively engages with school-related topics, or their vocational teachers providing opportunities to reflect on company-specific experiences against the background of theoretical knowledge. However, these conditions were not widely prevalent, hence contributing to the overall superficial and sporadic nature of LLC identified at the time.

This unsatisfactory state of cooperation is also reflected in simultaneous attempts to design scientific models aimed at categorizing LLC practices. Cooperative practices observed in the 1990s were consistently placed on the lowest tiers of these models, underscoring their limited depth and scope. For instance, according to Euler's (2004a) intensity levels of cooperation, these practices were largely restricted to mutual information sharing about expectations, experiences, and problems encountered in day-to-day VET contexts—equating to the first out of three intensity levels. Similarly, Pätzold's (1995) levels of LLC understanding reveal that most cooperative practices were confined to a pragmatic–utilitarian stage. Such classifications indicate that cooperation largely resulted from a one-sided need

for partner support to resolve pressing challenges rather than from a shared educational commitment to linking learning locations, as would be expected at more developed stages of this model. The frequent placement of cooperative activities at the bottom of LLC models highlights the challenges in developing more effective and enduring partnerships among learning locations within Germany's VET system. Therefore, the envisioned vocational pedagogical ideal of both continuous and comprehensive cooperation was far from being realized within the late 20th century.

1.3. Exploring the Present State of LLC

After the disappointing outcomes of the 1990s, interest in LLC research has significantly declined since the early 2000s, prompting its characterization as a fragmented field (Faßhauer 2020; Freiling and Mozer 2020). Those few studies that have been conducted in this area after the turn of the century largely reinforce earlier findings, underscoring persistent issues (e.g., Gessler 2017b; Wenner 2018; Wirth 2013). Despite the diminishing research output, Germany's VET system has experienced significant changes over the past two to three decades: the Vocational Training Act, effective from 2005, has legally mandated cooperation between learning locations (Bundesministerium der Justiz 2005, para. 2), thereby formalizing it as a standard requirement. Moreover, new challenges due to demographic shifts and increased global competition have emphasized the urgency of strengthened interconnections between learning locations to better address these issues. At the same time, the rise in digital technologies may present opportunities for more flexible and accessible forms of cooperation.

In light of recent changes and the scarcity of contemporary studies, this paper analyzes the current state of LLC in Germany's dual VET system, drawing on insights from key stakeholders. Interviews with vocational teachers, company trainers, inter-company trainers, and apprentices serve as the analytical foundation. This approach facilitates an in-depth examination of LLC complexities from multiple viewpoints, focusing on the following research questions:

- RQ1: How is LLC implemented and experienced by educational partners and apprentices?
- RQ2: What structures and attributes shape the relationships between educational partners?
- RQ3: What factors contribute to the success or failure of cooperative practices?
- RQ4: How do educational partners assess the feasibility of establishing LLC in a way that combines continuity and comprehensiveness?
- RQ5: What strategies can be employed to enhance and strengthen existing cooperative practices?

2. Material and Methods

2.1. Research Design and Data Collection

To explore present LLC dynamics in Germany's dual VET system, this study applied a qualitative research design with semi-structured one-on-one interviews. In total, 20 interviews were conducted and strategically organized into five "Cooperation Groups" for analytical purposes, representing a range of occupations. Each group comprises four key stakeholders directly involved in the apprentice's learning experience: one apprentice, one of their vocational teachers, one of their company trainers, and one of their inter-company trainers. By deliberately choosing participants from interconnected learning locations, this study ensures that each group's members are structurally linked through the apprentice's educational journey, allowing them to reflect on the same LLC dynamics from their individual perspectives.

The study specifically focuses on industrial and technical occupations, a sector that plays a crucial role in Germany's VET landscape. Spanning a range of occupations, the

sample includes representatives from various metalworking professions, mechatronics engineers, and carpenters. Rather than aiming for broad representativity, this study provides an in-depth examination of LLC dynamics within a key economic sector. However, by offering valuable insights into cooperation among VET stakeholders, the findings may also inform practices in similarly structured industries. The participant pool consists of 19 males and 1 female. Such a gender imbalance is not an unintended bias but a realistic depiction of the workforce composition in the examined sectors, where women remain underrepresented. Consequently, the study's sample authentically reflects the professional demographics of the investigated occupational fields. Participants were drawn from five companies, three inter-company training centers, and two vocational schools. All interviews, averaging 41 min in length, were transcribed verbatim, resulting in an extensive dataset of nearly 135,000 words.

2.2. Sample

The sample features apprentices and their educational partners, encompassing vocational teachers, company trainers, and inter-company trainers. Practitioners were deliberately selected as interview partners because they have extensive experience with the everyday realities of VET. Their insights offer first-hand perspectives on the practical unfolding of cooperation instead of addressing strategic or policy-level considerations. On average, the educational partners were 41.5 years old ($SD = 9.9$) and despite differences in years of professional experience ($M = 12$, $SD = 9$), all participants had sufficient familiarity with LLC, ensuring that their insights reflect VET realities. Years of professional experience indicate active participation in providing vocational education and/or training, distinguishing the interviewees' roles as educational partners from the time that they spent as apprentices and skilled workers or as university students. Three of the teachers had completed formal teacher education at the university level, while two had completed vocational training programs prior to beginning their teaching careers as lateral entrants. All trainers and inter-company trainers pursued additional qualifications beyond their initial training. The majority achieved a master craftsman's diploma. However, one participant obtained a technician's diploma and passed a trainer aptitude test; yet another earned both a bachelor's degree and a diploma in business administration. With an average age of 18.8 years ($SD = 1.2$), the apprentices were at various points in their vocational preparation, which spanned a total of three to three and a half years. Three apprentices were in their second year, one was just beginning, and another was in the final year of training.

The apprentices and their company trainers represent five different companies, varying in size and international reach. One company falls into the category of small enterprises, whereas the remaining four belong to the category of large enterprises, most of which operate internationally with locations across Europe and beyond. The size of a company can influence the extent to which LLC is feasible. Larger companies often have dedicated staff for training coordination, enabling structured cooperation. In contrast, smaller companies may have fewer resources available, making cooperation more challenging due to constraints on personnel and time. With companies from two German states participating, the research includes North Rhine–Westphalia (NRW) in western Germany and Thuringia in eastern Germany. The small company in the sample is located in NRW, Germany's most populous state, offering a broad economic landscape with established industry networks. The four large companies, on the other hand, are based in Thuringia, where internationally active manufacturing enterprises shape the VET landscape.

2.3. Data Analysis

The study's methodological strength lies in its "Cooperation Group" approach, which brings together insights from four interconnected VET stakeholders for each of the five investigated occupations. By including apprentices, vocational teachers, company trainers, and inter-company trainers, a design of this nature captures the complexity inherent to cross-institutional cooperation in VET contexts. Using Qualitative Content Analysis (Hsieh and Shannon 2005; Mayring 2022; Schreier 2012), this study considers similarities and differences across three distinct dimensions: (a) between occupations (e.g., mechatronics engineers vs. carpenters), (b) between stakeholders (e.g., teachers vs. trainers), and (c) between individual participants (e.g., apprentice one vs. apprentice two). Such a methodological approach enables the identification of both consensus areas and variations in participants' responses.

The interviews were conducted using two separate interview guides tailored to the varying roles and insights of the participants. Educational partners were asked about the implementation of LLC, their experiences and relationships with other educational partners, their attitudes toward the vocational pedagogical ideal of cooperation, and their suggestions for improving existing cooperative practices. Correspondingly, apprentices were asked for their observations of specific cooperative practices, their personal experiences with these activities, and their recommendations for potential improvements.

Before initiating the data analysis, deductive main categories were created based on existing research literature, the addressed research questions, and both applied interview guides. These categories were then refined inductively during the analysis, leading to the development of various subcategories. After a subsequent coding iteration with the differentiated coding system, comparative analyses were conducted to examine the interview data in depth. MAXQDA 24 (Release 24.4), a software tool for qualitative data analysis, was utilized to support the process.

3. Results

This section highlights the study's findings by structuring them around core themes, beginning with the perspectives of educational partners (i.e., vocational teachers, company trainers, intercompany trainers) and moving on to those of apprentices.

3.1. Educational Partners' Perspectives on LLC

3.1.1. From Problems to Planning: How LLC Remains on an Instrumental Level

Cooperation between vocational teachers, company trainers, and inter-company trainers is largely necessity-driven, with communication occurring primarily when issues arise. Most educational partners stated that interactions are typically prompted by challenges related to apprentices, such as unexcused absences, poor (and—in rare cases—exceptional) performances, or behavioral concerns. One inter-company trainer further elaborated on this reactive approach, emphasizing that cooperation takes place solely in response to situations requiring intervention: "When do you write a review about a restaurant, for example? Is it when the experience was good? Or when it was just okay? Probably not. It's more often when it was bad. So, if we call or write an email to someone, it usually means something has already gone wrong" (Inter-company trainer 3). If there are no immediate issues to address, educational partners occasionally discuss their general evaluation of apprentices and their perspectives on the apprentices' learning progress. This becomes especially important during the probation period when companies must decide whether to keep an apprentice employed and rely on the educational partners' support for this decision.

In addition to reactive interactions, cooperation also covers organizational matters, including scheduling and content planning for both the upcoming school year and inter-

company training courses. Sometimes, technical or logistical questions arise that require consultation; for example, deciding whether apprentices can use company-provided laptops at school and negotiating class exemptions for specific company events. One trainer, who serves as a VET coordinator (i.e., someone who organizes and manages location-specific training for individual occupational groups in a large company instead of directly training apprentices) mentioned various points of contact with the inter-company training center that he cooperates with, going beyond the aforementioned points of intersection. They established an informal agreement where they share resources like machinery or provide support for necessary repairs, and they also cooperate on long-term initiatives like launching international training programs. Despite these examples, however, this type of more elaborate cooperation tends to be the exception rather than the rule.

First, although training frameworks exist—such as school curricula, company training plans, and inter-company module plans—their level of specificity varies. In many cases, they provide only general training objectives, leaving room for interpretation in content coverage and sequencing. This, in turn, leads to alignment gaps and makes it difficult to ensure consistency across learning locations. One trainer critically observed, “There is a training plan from the Chamber of Industry and Commerce, but it is so general” (Trainer 3). Second, even these relatively flexible plans do not always translate into actual training practices. According to the interviewees, vocational schools largely follow their curricula. Company-based training, on the other hand, regularly deviates from the original training plan due to operational needs, spontaneous tasks, and shifting production priorities (see also Section 3.1.7). Furthermore, institutional constraints such as staff shortages or fluctuating workloads determine training realities, limiting the extent to which predefined plans can be adhered to in practice. Some educational partners expressed frustration over the lack of coordination and wished for a more structured, binding agreement on content distribution. This frustration was clearly expressed by one trainer: “The biggest wish would be to have a comprehensive agreement on who teaches what and when. But in reality, there is only a very rough framework” (Trainer 3). However, there are no overarching structures that systematically monitor whether educational partners adhere to curricula and training plans, meaning that deviations often go unnoticed and unaddressed. Without enforcement mechanisms, educational partners can disregard existing frameworks based on situational needs, thereby exacerbating inconsistencies between learning locations. Against this background, it remains uncertain whether introducing more detailed frameworks alone would improve alignment. In the absence of effective regulation, even the most structured agreements risk having little impact in practice. While governance structures formally mandate training objectives, they provide no guarantee that these objectives are realized across learning locations.

Overall, LLC is viewed as a functional tool for handling challenges and/or organizational tasks as opposed to a premise for enhancing the educational experience in a vocational–pedagogical sense. Illustrating this understanding, a participant clarifies, “The smoother things go, the less there is to talk about, right”? (Trainer 1). This pragmatic and reactive approach provides little opportunity to strengthen the integration of theoretical and practical components within the VET system.

3.1.2. LLC Tendencies: Preserving Independence via Information Exchange

The methods and strategies used for LLC vary across different vocational schools, companies, and inter-company training centers. A frequent practice is the annual “Trainers Day”, when trainers are invited to visit vocational schools to receive basic information about the upcoming school year and to discuss their apprentices’ development with the class teachers. However, some teachers voiced disappointment about the fact that by far

not all trainers participate in those days. Indeed, at one of the schools, these events were discontinued due to little attendance. Some teachers also mentioned the implementation of an “Electronic Class Book”, where educational partners can access performance and attendance data through an online system. Although such a tool is generally seen to facilitate cooperation, several participants noted that it has diminished direct communication between educational partners.

While classes occasionally visit one of the apprentices’ companies, joint projects across different learning locations are rare. In a few instances, apprentices work on long-term projects that involve both theoretical and practical components. For example, a project might begin with the planning of a work process and the design of a piece of furniture at school, followed by the actual construction as part of an inter-company training center course. These projects sometimes culminate in a joint evaluation, which means that trainers and teachers cooperate on grading, reflecting a deeper form of LLC.

In large companies, VET coordinators named additional methods of cooperation, such as hosting orientation events before the next year of training begins. These events are designed to help educational partners as well as prospective or future apprentices familiarize themselves with the company. Moreover, these coordinators regularly visit apprentices during their inter-company training courses to gather feedback on their learning progress and may also attend school classes if significant issues arise between apprentices and teachers.

For the most part, educational partners exchange information to enable independent actions at each learning location rather than working directly together across institutions. What stands out is that there are no concrete guidelines for LLC standards in place at the interviewed learning locations, nor are there (adaptive) agreements regarding LLC with specific educational partners. Consequently, the nature and extent of cooperation are primarily shaped by those individuals involved, and more specifically, their commitment to fostering or engaging in cooperative practices.

3.1.3. Theory–Practice Integration: Separate Learning Locations, Separate Approaches

In line with the observed cooperation strategies that largely uphold a clear separation of learning locations, efforts to integrate theory and practice follow the same pattern, with little interconnection among the educational partners. Even though all interviewees underscored the importance of a strong theory–practice link, their attempts to achieve this integration tend to be confined to their own learning locations.

Vocational teachers, for example, expressed a desire to increase the practical aspects of their teaching by offering more hands-on learning opportunities. However, they are constrained by institutional limitations, such as the high cost of necessary machines and tools or short workshop times due to curriculum restrictions and space-sharing requirements among multiple classes. At the practice-based learning locations, company trainers and inter-company trainers regularly incorporate theoretical content into their instructions. Some do this on an ad hoc basis, revisiting theoretical aspects as needed, while others—especially in the context of inter-company training courses—have firmly fixed theoretical components as part of their daily schedules.

Consistent with the broader pattern of limited LLC, it becomes evident that although educational partners put considerable efforts into linking theory and practice within their own institutions, the connection of theoretical and practical learning across institutions continues to be insufficient. This may indicate that integrating both forms of learning internally is viewed as more manageable than coordinating efforts beyond institutional boundaries.

3.1.4. Patterns and Variations in Communication

Communication between educational partners takes place through phone calls, emails, and occasional in-person meetings. Less commonly, information is transmitted through letters, which apprentices are expected to hand over to the addressed stakeholders. A notable finding is the lack of contact between vocational teachers and inter-company trainers. From the teachers' perspective, cooperation concerning these trainers is largely perceived as the responsibility of companies sending apprentices, leading to very little direct engagement.

The frequency and intensity of communication with company trainers vary considerably, as vocational teachers and inter-company trainers reported differing levels of interaction depending on the companies involved. This variation is largely influenced by (a) the trainers' interest in cooperation and (b) the number of apprentices they send to the school or training center. Generally, a higher number of apprentices, particularly from multiple years of training, tends to result in more regular and consistent communication. In some cases, certain teachers act as the primary contact for companies—a role that proves particularly crucial in navigating complex conflicts since they mediate on behalf of their school and support colleagues with resolving issues.

Educational partners serving on examination boards highlighted such settings as valuable platforms for exchanging information with other stakeholders. Communication occurs most intensely during exams held at specific learning locations, which also offer non-members the opportunity to engage with other partners.

Although many participants pointed out obstacles that lead to limited interaction (see Section 3.1.5 for details), some saw the lack of contact in a more positive light. One interviewee argued, "In the end, the apprentices come here to complete their tasks, and if there are relatively few complaints, then we are doing our job well. You could see it that way" (Inter-company trainer 5). Through this lens, minimal interaction seems to be interpreted as an indication of not only independent but above all efficient functioning that requires no cooperation.

3.1.5. Supportive Components and Persistent Barriers

LLC effectiveness is influenced by a complex interplay of both supportive and inhibiting factors. Several elements have emerged as relevant in fostering successful cooperation, whereas others present significant barriers.

At the heart of fruitful LLC lies open and honest communication, coupled with empathy and a non-blaming approach should challenges arise. Establishing clear expectations and maintaining transparency—especially when it comes to apprentice assessments—are crucial for creating a foundation of trust. A deeper understanding of the structures and learning processes at different institutions may also be essential to strengthening cooperation. As a participant emphasized, "The first step would definitely be to introduce the dual partners to what we do here, because I don't think many of them are aware of it. They likely still have their own vocational school experience in mind, but things have changed so much, even since my own apprenticeship, that it would probably be good if we had a clearer understanding of what each of us actually does" (Teacher 1). Moreover, personal networks, often built informally over years of professional experience, emerged as a powerful tool for fostering cooperation. These networks enable efficient and straightforward communication, which one of the teachers pointed out as follows: "After ten years, I know which companies I can work with, or work well with . . . Since I specialize in one professional field, I am familiar with the companies that send us apprentices" (Teacher 3).

Alongside these helpful factors, though, numerous barriers persist that continue to complicate LLC. A prevalent challenge is the higher prioritization of other work tasks,

with cooperative aspects falling behind more urgent duties. Time and personnel shortages, most notably in schools, add to these difficulties. Highlighting such issues, another teacher explained, “The problem is that I now have a class of 28 apprentices, and each of them has attended different courses, works at a different company, and each company has a different focus. It’s very difficult to bring all of that together. In an ideal world, it might work somehow” (Teacher 4). Competition can also impede cooperation, particularly if tensions arise over perceived favoritism, as has happened in cases where organized class visits to a company sparked complaints from other companies that have not yet had the opportunity to present themselves. Additionally, negative past experiences with educational partners might cause reluctance or resistance to re-engaging in cooperative activities. In the words of an interviewee: “If I notice that I’m calling them and nothing happens, or I’m just being brushed off, then I certainly won’t call them again next time. I’m not going to make a fool of myself, if I can put it that way. And there are companies you call and get the feeling they’re thinking: ‘Oh, what do you want from me? Stop bothering me’” (Teacher 3).

3.1.6. LLC as a Secondary Task: Satisfaction Amid Unrealized Potential

There is broad consensus among the educational partners that LLC represents a crucial component of the VET system. When asked about their satisfaction with current cooperative practices, the majority provided moderate to high ratings, scoring between 5 and 9 on a 10-point scale. Only one participant provided a lower score of 3, which indicates a general sense of contentment among the participants. Although the present level of cooperation is seen as adequate, many educational partners acknowledge that there is, indeed, potential for improvement. A trainer commented, for instance, “It’s not that bad; otherwise, it wouldn’t work. But there’s certainly room for improvement” (Trainer 1). This potential, however, does not seem sufficient to prompt concrete action: “. . . the desire is there, but no one is really taking the initiative, right?” (Inter-company trainer 1). It becomes evident that LLC is often perceived as an additional task—one addressed, if at all, only after higher-priority duties have been managed.

3.1.7. Largely Collegial Yet Strained: Decoding Educational Partnerships

Overall, the relationships between educational partners are described as positive, marked by mutual respect and a clear understanding of each other’s roles and responsibilities. Interviewees frequently expressed appreciation for their counterparts, valuing the professional contributions of each party. Relationships tend to be stronger when personal connections exist, such as former student–teacher bonds or transitions between roles in companies and training centers. Physical proximity is also an influential factor since partners located closer to each other generally experience tighter connections.

In spite of these positive dynamics, vocational teachers still stressed various challenges in forming effective relationships with their educational partners. Some noted difficulties regarding the sustainability of regular communication, mentioning cases in which their attempts to reach out were ignored or failed to bring about any significant change. As one teacher shared, “There are companies where you just can’t make any progress, and sometimes you get the feeling: ‘They understand what I’m saying, but nothing ever actually happens’” (Teacher 2). Interestingly, while several teachers voiced frustration over their perceived lack of engagement from trainers, some company trainers hold the opposite view, wishing for a more proactive search for conversation from the teachers’ side. They communicated a desire to be involved sooner whenever issues with apprentices arise, highlighting a discrepancy in the two groups’ expectations. A recurring concern from vocational teachers was the observed undervaluation of school-based education by company trainers. Some reported that businesses prioritize practical in-company training

over classroom learning, with a preference for minimizing school time to allow apprentices more time in the workplace. Additionally, teachers noted that some company trainers appear indifferent to apprentices' performance in school, as long as they perform well on the job. A teacher critically remarked, "For many people, we're just seen as: 'Oh, it's that annoying school again, taking my apprentice away from production'" (Teacher 2). Certain trainers confirmed this impression, viewing knowledge acquired at school—particularly in subjects not directly related to the pursued occupation—as less relevant to the skills required in the workplace. They argued that practical training is more pertinent to apprentices' future careers, and some even questioned the relevance of grades in assessing apprentices' job-specific abilities.

Another source of tension between educational partners is the belief that businesses are primarily driven by economic interests. Teachers and inter-company trainers expressed worries that apprentices are sometimes used as low-cost labor, performing tasks unrelated to their training: "... so the goal isn't to promote the apprentice's broad knowledge, but there's always a narrow focus, right"? (Inter-company trainer 1). A few company trainers acknowledged these concerns, clarifying that business demands require apprentices to focus on production tasks when deadlines are pressing. Companies strive to train apprentices in their specific fields, but they also need to balance operational demands, as one trainer stated: "Yes, we have to meet the delivery deadlines for our vehicles. This means that our apprentices sometimes have to work with us in production" (Trainer 2). Finally, several trainers brought up how they feel that school-related issues, such as canceled classes, shift the obligation onto them to compensate for gaps in theoretical learning. A small number of trainers also questioned the practical expertise of vocational teachers, fearing that they underutilize the technical equipment and thus contribute to training deficits.

3.1.8. Navigating Roles and Hierarchies: Companies' Leadership in the VET System

The educational partners largely agree that the main responsibility for initiating LLC rests with the company trainers, given both their direct role in hiring apprentices and their vested interest in securing a skilled workforce for their businesses. Strikingly, the interviews reveal teachers and inter-company trainers often being described, both by other stakeholders and themselves, as service providers to companies, which points toward a subordinate role and thus highlights a power imbalance among educational partners. Within this perceived hierarchy, schools appear to occupy the lowest position—a dynamic also driven by broader political developments. Visibly upset, one teacher explained, "It was just decided that there will no longer be a final school examination, which means we are even further marginalized within the VET system. This week, our apprentices came to school and, to my surprise, said: 'Have you heard about this? What do you think about teachers now having even less power'? I responded: 'I didn't know we ever had any power to begin with.' But in theory, we are now excluded from the system, and the apprentices are saying: 'Then we won't need to put in any more effort at school because the school can't harm us anymore'" (Teacher 2). This statement refers to a recent policy change in Thuringia, where apprentices are no longer required to pass a final school examination to complete the theoretical component of their training. Such a reform does not phase out theoretical learning in schools, but assessment now relies solely on the final apprenticeship examination, which is administered by the Chamber of Commerce and Industry and focuses largely on practical skills. During the COVID-19 pandemic, the final school examination had already been suspended. When discussions emerged about its potential reintroduction, stakeholders ultimately decided to discontinue it entirely. The policy has been in effect since the 2023/2024 school year, reducing administrative burdens on schools while easing exam-related pressure on students and teachers. For now, it remains to be seen whether the

teacher's concerns regarding declining student motivation in school-based learning and the further marginalization of schools in VET will materialize, and whether this policy change will have lasting implications for LLC. Its impact will likely depend on how apprentices and companies perceive the relevance of school-based education in the absence of an independent school examination. If companies continue to value the theoretical education provided by vocational schools, the reform might have limited consequences. However, if companies place even greater emphasis on workplace learning, schools could struggle to maintain their position as equal partners in VET. Moreover, it is important to note that this concern was raised by only one of the four teachers from Thuringia in the study's sample. Although significant for some, it may not represent a widespread or systemic challenge across the affected teachers.

3.1.9. Ideals vs. Realities: The Struggle to Find Suitable LLC Approaches

While educational partners view the vocational pedagogical ideal of LLC as desirable, they consider its implementation (nearly) impossible due to numerous barriers. Overall, the interviews indicate that even the current sporadic and superficial forms of cooperation are riddled with challenges, making more intensive cooperative practices seem too difficult to achieve. As a result, expectations for an effective LLC remain relatively modest. For example, many stakeholders declared that they already consider regular communication and structured meetings with other stakeholders to be significant goals. When asked about their personal ideal of LLC, some partners (especially trainers) suggested that a holistic learning location integrating school, company, and inter-company training would be beneficial by creating a direct connection between theory and practice, hence fostering closer relationships and reducing administrative efforts. However, not all participants share this vision. One inter-company trainer voiced concerns about such an idea, arguing that it could limit apprentices' independence and personal development: "If you make things too easy for the apprentices, it could have a negative impact at some point. After all, they're not just completing an apprenticeship to acquire knowledge or learn a craft; it's also a maturation process. 'Okay, how independent am I? How do I handle this?'" (Inter-company trainer 5). This divergence in views underscores the complexity of finding an approach to cooperation that not just all partners consider realizable but also promising.

3.1.10. Enhancing LLC: Practical Steps and Innovative Ideas

Building on the various perspectives toward desired LLC, a spectrum of suggestions—ranging from feasible to more pioneering—were proposed to strengthen cooperation. One commonly mentioned approach involves providing direct insight into each other's learning locations through mutual visits. These practices would allow educational partners to develop a deeper awareness of the conditions and learning dynamics affecting different stakeholders, thereby dispelling potential misconceptions. Another idea focused on designing tasks that link apprentices' learning activities across various institutions. For instance, authentic and complex problems from within the company could be further explored in the classroom, or project-based work could integrate theoretical knowledge and practical skills from different settings. A closer coordination of content and schedules was also discussed as being useful. Through such efforts, each educational partner would know what is being taught when, which could—in turn—facilitate stronger theory–practice integration and enable a more seamless progression based on the apprentices' prior knowledge. Interestingly, two interviewees emphasized that, at this stage, they view the cooperative activities themselves as less significant than simply initiating the process of closer cooperation. They argued that, first, someone needs to take charge and drive LLC forward. Then, once the ball is rolling, more ambitious practices could gradually become part of the everyday workflow,

and future generations would grow up with these approaches, setting strong cooperation as the norm.

Beyond these ideas, several innovative, long-term concepts were mentioned. One of these focused on establishing a dedicated LLC coordinator role to be filled by an external person. This person would be in charge of managing cooperative tasks, such as collecting input from the different educational partners and bringing them together in a structured and meaningful way. A second visionary notion involves organizing VET through a modular system across all learning locations. This type of system would assign each module to a specific learning location, ensuring transparency regarding the environment, responsibility, and timing of learning content. Thus, it could create greater clarity and—in turn—support cooperation.

3.2. *Apprentices' Perspectives on LLC*

3.2.1. Valued but Unfamiliar: Limited Awareness of LLC

The interviewed apprentices understand the potential value of effective LLC and recognize how it could play a pivotal role in bridging theory and practice by overcoming disconnects between institutions and ensuring a better alignment of instructional content. All of them see the regular rotation between their learning locations as a positive aspect of training. Nobody reported difficulties in transitioning between theoretical and practical learning. In fact, several participating apprentices remarked that the regular changes offer a refreshing variety to the way learning content is structured.

Despite appreciation for LLC's importance, most apprentices involved in the study remain largely unaware of how their teachers and trainers practice cooperation. Aside from the limited activities that they directly take part in (e.g., occasional conversations with visiting company trainers during inter-company courses), the majority could only speculate about present cooperative efforts, as they were unable to identify any concrete examples. Still, many apprentices assumed that cooperation happens somehow, but they believe it unfolds largely behind the scenes or beyond their direct observation. Altogether, LLC seems to be a concept that the interviewed apprentices perceive as significant, but one that feels distant from their everyday training experiences.

3.2.2. Evaluating LLC: High Contentment Despite Suggestions for Improvement

Reflecting the previous findings, a similar pattern emerges in how apprentices evaluate LLC. Although the apprentices who participated in this research struggled to specify current cooperative practices, they expressed high levels of satisfaction with their overall LLC situation. This tendency suggests that their positive assessments may be based more on trust in the VET system than on direct experience with effective cooperation. Four out of the five interviewed apprentices rated their satisfaction with LLC between 7 and 9 on a 10-point scale, while only one provided a more critical judgment, giving a score of 4. The lower rating was attributed to differing precision standards between the apprentice's company and his inter-company training center, which has led to challenging circumstances (i.e., disagreements between trainers) in the past.

Most apprentices explained that the learning content taught across schools, companies, and inter-company training centers is generally well-aligned, emphasizing how the theoretical knowledge acquired in class forms a basis for workplace skills, as practical training makes theoretical learning more tangible. However, there were occasional deviations between school-based theory and workplace practices. For example, one apprentice noticed discrepancies in how skilled workers perform tasks on the job, and upon asking his trainer about it, he was told that strict adherence to theoretical knowledge from school is not always required in everyday work.

In terms of communication, apprentices highlighted several areas for improvement. They pointed out that there have been instances where the information flow between learning locations and its eventual delivery to them was insufficient or delayed. These shortcomings concerned both organizational and content-related aspects. One apprentice had trouble finding his way around the inter-company training center during his first visit as no directions were provided beforehand, yet another encountered trouble in vacation planning due to unavailable course schedules. From a content perspective, apprentices had occasionally been unaware of the topics to be covered in the inter-company training courses until they began, and some expressed frustration over repeated material. Observed repetitions stemmed from differences in apprentices' prior knowledge and the varying pace of content delivery across their learning locations.

4. Discussion

This study examined the current dynamics of Learning Location Cooperation (LLC) within Germany's dual Vocational Education and Training (VET) system. To gain a nuanced understanding of how LLC is implemented and perceived, perspectives from key stakeholders—including vocational teachers, company trainers, inter-company trainers, and apprentices—were systematically analyzed. The interview findings demonstrate persistent obstacles while also uncovering opportunities to enhance cooperation across institutions.

4.1. Synopsis

One of the central findings indicates that LLC operates reactively. Reactive approaches become evident as educational partners mainly initiate communication to resolve challenges such as underperformance, absenteeism, and disciplinary problems, or to manage basic organizational duties. Proactive and/or sustained cooperation, on the other hand, seems to be widely missing. In cases where LLC is carried out more, for example, at large companies employing designated VET coordinators, cooperation occurs in a structured and consistent way, with learning objectives across institutions appearing well-aligned. Still, these instances remain relatively rare. Moreover, the study shows how vocational teachers and trainers often operate in isolation, relying on broad guidelines like curricula or training regulations to plan and schedule learning activities, which limits the integration of theory and practice across institutional boundaries. Largely absent theory–practice interconnections may prevent apprentices from fully engaging in an integrated learning process as envisioned by vocational pedagogy. This assumption was further reinforced by the interviewed apprentices, illustrating that although they generally assume some level of cooperation between their learning locations, they barely noticed initiatives. In fact, most of them were unable to point to specific examples, indicating that cooperative efforts are minimal and/or happen behind the scenes. Interestingly, the contributing apprentices articulated overall satisfaction with their training situation, suggesting that they place considerable trust in background cooperation or do not view LLC as a decisive factor in their assessment of the training experience.

4.2. Revisiting Previous Studies in Light of New Findings

Consistent with earlier research (e.g., [Euler 2004b](#); [Pätzold and Walden 1999](#)), these findings underscore the complexities of fostering productive partnerships between vocational schools, companies, and inter-company training centers. Echoing conclusions drawn in the 1990s, the data gathered in this study suggest that LLC practices have made little progress over the past decades, as they remain limited and have yet to meet the vocational pedagogical ideal, striving for continuous and comprehensive cooperation. Thus,

current efforts persist in mirroring the lowest tiers of cooperation models, such as those outlined by Euler (2004a) and Pätzold (1995), where simple information exchange and a pragmatic–utilitarian approach dominate interactions. The long-standing power imbalance between vocational schools and companies in the VET system, evident since the early days of LLC (e.g., Deissinger 1996; Gessler 2017b), seems to be a contributing factor to the slow progress in strengthening cooperation across learning locations. The outcomes of this research reveal how the perceived inequality in status often leads vocational teachers to undertake subordinate roles as they engage in cooperation—a struggle that further impedes the development of equitable partnerships across learning locations. Although vocational schools, companies, and inter-company training centers mainly operate detached from one another, the interviews illustrate that educational partners recognize the importance of LLC, drawing attention to a gap between cooperative aspirations and practical realities. Such a discrepancy has been noted in earlier studies as well (e.g., Pätzold et al. 1993), with explanations pointing to the fact that each learning location’s primary focus is centered on its own responsibilities, while cooperative efforts—though acknowledged as relevant—tend to occupy a secondary and less urgent position (Euler 1998, 2004b).

The Vocational Training Act of 2005 mandates cooperation (Bundesministerium der Justiz 2005, para. 2); however, based on this study’s findings, it appears to have achieved little significant progress in LLC practices over the past 20 years. One reason for this lack of impact could be that the law does not specify standards for shaping LLC, instead leaving the responsibility for designing cooperative activities to individual stakeholders. By merely stating that learning locations shall cooperate in the implementation of VET (Bundesministerium der Justiz 2005, para. 2), it does not define concrete guidelines or obligations regarding how cooperation should be carried out. Thus, educational partners must determine how to interpret and implement LLC according to their own judgment. While compliance with the law is generally expected, there are no systematic control mechanisms in place to ensure adherence to this specific provision, rendering its practical enforcement unmonitored. This study deliberately refrained from asking direct questions about the Vocational Training Act, aiming rather to explore whether and if so, how interviewees would bring up the legal framework on their own. Notably, the involved stakeholders rarely referenced the Vocational Training Act when discussing cooperation. This observation may indicate that the legal requirement has little relevance in daily practice. One inter-company trainer even stated—albeit mistakenly—that there was no obligation to cooperate, reinforcing the notion that legal mandates alone seem to be insufficient to ensure meaningful cooperation. Previous literature had anticipated these challenges even before the law came into effect, arguing that top-down legal requirements would have limited steering effects on complex cooperation dynamics. The lack of defined implementation mechanisms had already been identified as a critical weakness in earlier discussions on LLC policy (Pätzold 1999c, 2003; Pätzold et al. 1993; Walden 1999a, 1999b). Although no empirical studies have explicitly focused on assessing the impact of the legal requirement for cooperation since 2005, the continued fragmentation in practice suggests that earlier concerns still remain valid today.

Lately, academic literature has increasingly investigated the role of digital tools in facilitating LLC (e.g., Freiling and Mozer 2020; Köhler et al. 2014; Schley et al. 2022). Even though the benefits of using these tools are widely emphasized in scholarly discourses, robust empirical evidence demonstrating their effectiveness in enhancing LLC remains scarce. Faßhauer (2020), for example, clarifies that digital tools only foster cooperation when an existing cooperative foundation is already in place—a finding in line with this study, where participants noted that tools like electronic class books may even reduce direct interaction by allowing access to grades and attendance records without personal contact. This finding

suggests that while digital technologies offer new opportunities for cooperative practices, they do not inherently strengthen LLC. Instead, digital technology must be integrated into an already well-established cooperation framework between learning locations to unfold its true value.

Another potential explanation for the persistent lack of cooperation lies in the absence of a shared mental model among educational partners concerning their roles, needs, aspirations, and visions for effective cooperation. A crucial element within this shared understanding would be the establishment of a common goal for successful cooperation, which then provides the foundation for aligning and pursuing cooperative efforts. The structural and pedagogical differences inherent to the various learning locations may explain why such alignment has not yet been reached, as they give rise to distinct institutional priorities and practices. Consequently, such divergent perspectives on LLC can hinder the development of a unified and coherent approach to meaningful partnerships. Research on shared mental models demonstrates their importance for fostering cooperation, particularly in complex, multi-stakeholder environments. Shared mental models enable individuals to develop a common understanding of aims, strategies, and expected behaviors, ultimately enhancing coordination within teams (e.g., [Mathieu et al. 2000](#); [Van den Bossche et al. 2011](#)). Across VET and LLC environments, cultivating shared mental models may contribute to a more coherent approach to cooperation, ensuring that stakeholders operate under a joint understanding of objectives, commitments, and pedagogical strategies.

A final point to discuss is that most statements about LLC revolve around practical aspects, for instance, the facilitation of communication between educational partners. While this finding underscores the importance of day-to-day cooperation, it also exposes a critical shortcoming. The conceptual dimensions of the theory–practice relationship in VET are rarely explored. Leaving these aspects unmentioned in the interviews suggests that educational partners lack a nuanced understanding of not only what defines a thought-out theory–practice connection but also the mechanisms required for its institutionalization. As a result, their ability to develop a shared perspective on this more abstract matter appears constrained, hence limiting progress toward more conceptually guided LLC practices. Strengthening the conceptual basis of theory–practice integration could be key to addressing this challenge—a notion supported by empirical research on VET. [Orozco et al. \(2019\)](#), for example, emphasize the importance of explicit strategies that support reflection and engagement across different learning environments to deepen theory–practice connections. In this regard, sociocultural perspectives on learning stress the role of structured interactions between educational partners in ensuring that theoretical concepts are effectively linked to workplace learning.

4.3. Implications for Practice and Policy Development

Overcoming the challenges outlined in this study demands action in both practice and policy. Foremost, the continuous absence of proactive, systematically structured LLC highlights a need for substantial improvements regarding communication among teachers in vocational schools, trainers at companies, and trainers from inter-company training centers. Rather than confining to reactive, problem-driven interactions, attention should be directed toward establishing sustainable partnerships that allow for a fruitful alignment of theoretical and practical learning. This approach could involve distinct institutional strategies for cooperation and the introduction of consistent communication frameworks, such as regular coordination meetings, ensuring a steady dialog between all partners involved. Alongside these recommendations, innovative approaches could provoke thought and enrich the dialog on enhancing cooperation.

The introduction of LLC facilitator roles, for example, might be an idea worth exploring. These dedicated intermediaries would align objectives, reconcile issues, and monitor the integration of theory and practice, striving for ongoing progress. In international contexts, structured coordination mechanisms have been found to play a fundamental role by ensuring the sustainability of cooperation among educational actors. [Billett et al. \(2024\)](#) underscore that successful partnerships rely on clear governance structures, shared decision-making, and ongoing engagement strategies to maintain cooperative relationships over time. While their study focuses on post-school education pathways—referring to structured transitions from schooling into vocational or higher education—the identified principles of long-term institutional commitment and explicit coordination roles could also inform approaches to strengthening LLC in Germany’s dual VET system. Setting up facilitator roles for LLC may thus serve as a structural measure to address current inefficiencies. Building on this perspective, research further highlights that the long-term sustainability of cooperation in educational partnerships depends on well-defined coordination structures and dedicated roles. For instance, findings from a study on European cooperation in VET indicate that effective coordination requires clear responsibilities and institutionalized communication strategies, which cultivate continuous engagement between stakeholders ([Psifidou and Ranieri 2020](#)). These mechanisms are crucial in bridging gaps between educational actors and ensuring that cooperation is not merely ad hoc but systematically embedded in training structures.

To complement coordination mechanisms, designing cooperative projects as an integral part of the VET curriculum could encourage closer cooperation. Such projects, built around authentic learning tasks, would require active participation from different stakeholders to support apprentices in connecting theoretical knowledge with practical application and vice versa. [Jossberger et al. \(2010\)](#) argue that project-based learning promotes stronger linkages between learning locations by enabling apprentices to integrate theoretical insights with hands-on practice. This approach helps develop professional competencies while simultaneously strengthening partnerships among vocational schools, companies, and inter-company training centers. Hence, project-driven efforts may narrow the divide between VET stakeholders through shared involvement, thereby offering apprentices a more comprehensive and coherent learning experience.

Moreover, the study’s results imply that legislative frameworks, particularly the Vocational Training Act of 2005 ([Bundesministerium der Justiz 2005](#), para. 2), are insufficient to ensure meaningful and lasting cooperation across learning locations. Instead, they should shift their focus toward creating dynamic, adaptive policies that directly address the practical realities and structural challenges faced by educational partners. This need for more adaptable policies is reinforced by comparative research on VET, which suggests that flexible policy frameworks that allow for local adaptations are more effective in fostering sustainable cooperation ([Barabasch et al. 2021](#)). Such strategies acknowledge that cooperation structures must reflect regional and industry-specific conditions rather than being dictated solely by national regulations. To enhance alignment with the evolving needs of stakeholders, integrating adaptive elements into policy design contributes to sustaining long-term engagement and coordination throughout educational partnerships. Additionally, policy could support the creation of LLC-oriented professional development programs, which would aim to enhance the skills of teachers and trainers in managing cross-institutional cooperation. By providing stakeholders with advanced communication and project management skills, programs like this may build the capacity for sustained cooperation. Lastly, policymakers could consider setting up regional LLC innovation hubs to serve as centers for combining research on LLC with the development, testing, and evaluation of new approaches. Those hubs are anticipated to drive effective cooperation

forward insofar as they bring together the thinking processes of relevant stakeholders in the field.

4.4. Limitations and Directions for Future Research

While this study delivers meaningful insights into the recent dynamics of LLC within Germany's dual VET system, it is equally necessary to reflect on its limitations. First, the research scope was confined to a specific set of stakeholders—vocational teachers, company trainers, inter-company trainers, and apprentices—which, although essential for understanding LLC's present state, may not fully capture the perspectives of other influential actors, such as policymakers and educational administrators, for instance. Including additional viewpoints could have enriched the analysis by taking into account broader systemic and regulatory factors. Similarly, geographical coverage was limited to selected regions, potentially shaping the findings. Cooperative practices and experiences might differ significantly across regions or sectors, so a more geographically diverse sample could have revealed heterogeneous patterns of cooperation, especially when considering variations in resources and educational infrastructure. Drawing on qualitative interviews allows for the collection of in-depth and nuanced data; however, this approach inherently limits the generalizability of findings (e.g., [Creswell and Plano Clark 2018](#); [Maxwell 2013](#)). Upcoming research could address this limitation by incorporating a mixed-methods approach, combining qualitative interviews with larger-scale quantitative surveys to validate and broaden insights. Finally, relying on self-reported data entails a certain risk of bias (e.g., [Bryman 2016](#); [Podsakoff et al. 2012](#)). The study's participants may have unintentionally overstated or understated aspects of LLC, above all in relation to achievements or obstacles. This issue could be further amplified by the possibility of positive selection bias among the interviewed apprentices since many were recommended for taking part in the research by their teachers or trainers. It is plausible that apprentices who excel in their training or express general satisfaction with their training conditions were more frequently proposed for participation. Consequently, the views of apprentices who encounter significant challenges, including those related to cooperative aspects, might not have been thoroughly represented.

There are several promising avenues for research within the field of LLC that could significantly impact its future effectiveness. One such avenue involves the role of power dynamics and institutional hierarchies in shaping relationships between educational partners. Examining in what ways (perceived) status differences among vocational teachers, company trainers, and inter-company trainers influence both their general interactions and willingness to cooperate with each other may disclose underlying structural barriers that have not yet been widely explored. Another promising direction for future research lies in cross-cultural comparisons. Studying how other countries with established dual VET systems, such as Switzerland and Austria, manage cooperation could hint toward best practices to strengthen LLC. Additionally, investigating more recent adopters of dual systems, like South Korea or India, could uncover emerging practices for fostering cooperation, which might prove valuable not only within their national contexts but also on an international scale. While existing research (e.g., [Billett 2016](#); [El Ballat 2024](#)) has highlighted the dual identity of apprentices as both learners and employees, little attention has been given to their involvement in facilitating cooperation between educational partners. Most studies focus on the roles of teachers, trainers, and institutional frameworks. However, the extent to which apprentices may actively contribute to aligning expectations and enhancing communication across learning locations remains largely unexplored. Future research could investigate whether targeted training can equip apprentices to support cooperation, thereby contributing to the stability of LLC.

5. Conclusions

Learning Location Cooperation (LLC) has been a cornerstone of vocational pedagogy since its emergence in the 1960s. Despite substantial efforts, implementing effective approaches remains an enduring challenge within Germany's dual VET system. Twenty years ago, Euler (2004a) wondered whether LLC would turn into an endless story. Viewed from today's perspective, this question proved to be highly relevant because its evolution still appears far from complete.

To better understand the present state of LLC, this study addressed how cooperation is practiced and experienced (RQ1), what relational factors shape its implementation (RQ2), which conditions contribute to its success or failure (RQ3), to what extent it can be sustained as a continuous and comprehensive practice (RQ4), and what strategies might enhance cooperation among educational partners (RQ5). The interview findings indicate that LLC is largely characterized by reactive rather than proactive communication. Most interactions take place in response to specific challenges, such as academic difficulties or organizational necessities, whereas structured and strategic exchanges remain the exception. Moreover, institutional hierarchies and diverging priorities shape relationships between educational partners, often impeding the development of a shared understanding about how LLC could function. Although vocational teachers, company trainers, and inter-company trainers generally acknowledge the importance of cooperation, inconsistencies in learning content and sequencing persist, as curricula and training plans remain not only vague but also non-binding due to a lack of monitoring mechanisms. Cooperation's success or failure depends on multiple factors: transparent dialog, mutual trust, and informal networks that foster cooperation. Time constraints, competing responsibilities, and limited pedagogical coordination, in contrast, present barriers. Cooperation is mandated by the Vocational Training Act (Bundesministerium der Justiz 2005, para. 2), yet there is no specification regarding what cooperation actually entails or how it should be enacted, leaving educational partners without clear guidelines for sustainable partnerships. However, several promising approaches could strengthen cooperative practices, including the introduction of dedicated LLC coordinators, cross-institutional projects, and targeted professional development programs to promote engagement among stakeholders.

Overcoming the long-standing issue of fragmented and insufficient cooperation demands more than perseverance; it requires creativity and a readiness to explore unconventional methods. Iterative processes of experimentation, coupled with thorough evaluation and refinement, offer a promising pathway for meaningful progress. Ultimately, the future of LLC hinges on the ability to adopt forward-looking strategies capable of enabling the VET system to meet the modern labor market's ever-changing demands. By cultivating such a capacity for innovation and responsiveness, the dual system can reinforce its foundational role in preparing apprentices to navigate the complexities of a rapidly evolving professional environment.

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