

# Expertise Development at Work: A Workplace Curriculum Perspective in the Domains of Sales Representatives and Leadership Coaches in a German Context

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## Abstract

**Context:** Active engagement and participation in professional practices are an important requirement for expertise development in vocational domains. However, not much is known about how work contexts foster or hinder such expertise development. To further fill this research gap, this study investigates two vocational domains, namely sales representatives and leadership coaches, using the Workplace Curriculum Approach. This approach focuses on three aspects. First, how novices get access to certain tasks. Second, which tasks at work are especially conducive to learning, referred to as pedagogically-rich activities. Third, what knowledge is hard-to-learn through practice alone. By focusing on these three aspects, the Workplace Curriculum Approach helps to understand learning.

**Method:** Eleven highly competent sales representatives and ten highly competent leadership coaches from German organizations participated in an interview study. A thematic qualitative text analysis was applied using deductive and inductive coding.

**Results:** For sales representatives, task sequencing is different across organizations due to structural factors, particularly products, and infrastructure. Ideally, apprentices start by

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getting to know the customers by selling products on site at a counter and by getting to know the products in the warehouse. Challenging interactions with customers on the phone are most conducive to learning. The scope of the product portfolio and the amount of technical knowledge are hard to learn. Leadership coaches are encouraged by peers to start at team leader and smaller team levels before moving on to more senior executives and larger team levels. Weekly team meetings offer important social learning opportunities similar to informal discussions among peers. Methodological and organizational knowledge are hard to learn.

**Conclusion:** Regardless of differences between both domains, the Workplace Curriculum Approach proved useful for analyzing learning and expertise development in the different workplace contexts. The approach proved to be a fairly tangible and easy-to-use tool to investigate how workplaces support expertise development and how workplace learning regimes might be changed to further foster novices' learning and development. Researchers and practitioners alike can utilize the Workplace Curriculum Approach to analyze learning in different domains in their respective organization. However, individual factors of the learners such as motivation to participate in activities in the workplace are not explicitly included in this approach to investigate professional learning and development. They should be of additional focus in any study interested in vocational expertise development.

**Keywords:** Workplace Curriculum, Expertise, Workplace learning, Sales Representatives, Leadership Coaches, VET, Vocational Education and Training

## 1 Introduction

Developing a highly competent workforce is important both for individuals and organizations. From an individual perspective, a high level of competence is needed to be able to effectively deal with daily work tasks and to stay employable (e.g., Gruber & Harteis, 2018). From an organizational perspective, highly competent staff enables organizations to reach their goals while staying competitive in their markets (e.g., Salas & Rosen, 2010). The highest form of competence has usually been described as expertise (Dreyfus & Dreyfus, 1986, 2005), which shows itself through "continuous (...) outstanding performance" within a work domain, relative to peers (Gruber, 1991, p. 23; see also Chi, 2006; Ericsson, 2018a, 2018b; Posner, 1988 as cited in Gruber, 1991, p. 23). Both cognitive as well as socio-cultural accounts could show that such expertise can be acquired through active engagement and participation in professional practices (Billett et al., 2018; Ericsson, 2018a, 2018b). Thus, expertise development takes place mostly in the context of work itself (Billett et al., 2018; Köhler & Rausch, 2022; Taylor et al., 2023; Wang et al., 2022).

How well different work contexts support expertise development can be investigated using the workplace curriculum (WPC) approach developed by Billett (2006, 2011a; see also Billett & Noble, 2020). Billett (2006, 2011a) suggests three distinct WPC aspects that help to understand how novices within a domain can learn and develop. First, when and how are novices confronted with new tasks and activities at their workplace (*task sequencing*)? Second, what activities already exist in the workplace that are inherently helpful to further develop competences for novices (*pedagogically rich activities*)? Third, what knowledge is both highly important to acquire but is usually hard to learn for novices in the context of work (*hard-to-learn knowledge*)? It has been suggested that answers to these questions can both help to understand how conducive particular workplaces are to learning and how learning can be fostered through organizational development endeavors (Goller et al., 2019).

Although empirical evidence exists that each of the three aspects included in the WPC are indeed useful to analyze workplace learning (e.g., Billett, 2014; Gherardi et al., 1998; Lave, 1990) the WPC approach has rarely been used in its entirety to investigate how novices develop expertise at work (see, for example, Goller et al., 2019). This contribution aims to address this research gap by using the WPC approach to examine expertise development in two occupational domains: (a) Sales representatives and (b) leadership coaches. Both domains are highly important for their organizations' success. First and foremost, sales representatives are responsible for creating revenue through their work. In addition, sales representatives act as the "face of an organization" as they are in direct contact with customers (Köhler & Rausch, 2022, p. 573). This position also allows them to gain insights into current developments in the market (Köhler & Rausch, 2022), often much more quickly and more comprehensively than other actors in their organization. Whereas sales representatives are essential for an organization's outward success, leadership coaches help facilitate internal success by reducing employee turnover and creating effective leadership (Freas, 2000). In fact, through their coaching efforts they help key actors in an organization to maintain and to expand their working capacities.

Both professions are distinct as they are constituted by specific work activities as well as knowledge to engage in them (Alexander, 1992; Maggioni & Alexander, 2011). However, they are also similar as they are ill-structured in nature, which refers to a lack of accepted rules and performance standards across organizations regarding how to accomplish work, and they face constant changes due to societal and technological developments (Ackerman, 2011; Ericsson, 2018a; Goller & Billett, 2014; Köhler & Rausch, 2022; Salas & Rosen, 2010). In addition, incumbents in both domains must solve a range of different problems, involving dynamically unfolding situations with high-stakes social interactions with customers and clients respectively (e.g., Jonassen, 2000; Shanteau, 1992; see also Köhler & Rausch, 2022). Besides these commonalities, sales representatives and leadership coaches also differ in how their initial workplace learning is structured. While sales representatives are trained in the

German vocational education and training system (VET) and therefore are supposed to follow a more or less pre-structured curriculum (Bundesinstitut für Berufsbildung, 2021), leadership coaches are trained outside the formal education system.

By focusing on two differently structured organizational domains this contribution aims to generate insights into whether the WPC approach can be used in different kinds of workplace learning contexts. On a more general level, the results of this study contribute to a better understanding of the development of expertise and why not everyone becomes an expert in a domain. These insights might then be used to explain how organizations can foster workplace learning and expertise development. Furthermore, currently only little knowledge about the professional learning and development of both sales representatives and leadership coaches exists. This study therefore also generates insights into how employees in those two crucial domains learn and develop. For this purpose, the next section will further describe expertise development in the workplace and the three aspects of the WPC.

## 2 Expertise Development in the Workplace

Real-world experience with the activities that constitute a certain domain (Köhler & Rausch, 2022) are the foundation of expertise. In other words, expertise development at work is a product of employees' active and long-lasting engagement with tasks and problems that are typical for their domain (Billett et al., 2018; Ericsson, 2018a, 2018b; Ericsson et al., 2018). From a cognitive perspective such work engagement can have several effects (see also Goller, 2017). First, employees learn about what constitutes their work and how particular things are done in their organization. Semantic knowledge (Kolodner, 1983) is constructed, for instance, about products, stakeholders, and performance norms. In addition, this semantic knowledge also includes rules on how to tackle tasks that are specific to the domain in question (Goller, 2017). The acquisition of this knowledge usually takes place through direct participation within the particular community of practice (Paavola et al., 2004; see also Lave & Wenger, 1991). Second, the steady application of this learned declarative knowledge allows novices to gain first-hand experiences leading to the acquisition of episodic knowledge (e.g., Sternberg et al., 2000; see also Goller, 2017). Episodic knowledge structures store information about encountered situations including the adequateness of applied problem-solving strategies as well as situational cues (Gruber, 1999; Sternberg et al., 2000). Such knowledge can then be retrieved by employees for case-based reasoning in prospective situations (Boshuizen et al., 2020; Kolodner, 1993). Third, besides this knowledge accumulation, work experience can also lead to qualitative knowledge changes over time: Related knowledge structures are increasingly connected, and declarative knowledge is transformed into procedural knowledge (Anderson, 1983; Boshuizen et al., 2020). Scripts are special types of knowledge that help individuals to quickly assess a situation and to act accordingly (Kolodner, 1993). Hence, over time learning

and increasing expertise within a domain is characterized by cognitive changes such as the accumulation of a vast amount of well-structured knowledge, a changing perception of problems, and the ability to solve tasks with increasing difficulty (Boshuizen et al., 2020).

The proposed cognitive changes through the on-going engagement in work activities are highly performance relevant. To further explain these performance effects, Dreyfus and Dreyfus (1986, 2005) suggested a stage model of expertise development describing how employees may develop from novices to advanced beginners, competent actors, proficient actors, and finally experts, in which each stage progression is associated with cognitive changes and changes in the perception of tasks in the workplace (see also Goller, 2017). This model is not only useful to understand how employees develop their expertise but also to infer what individuals on a specific stage are capable of doing. In most cases, employees enter the workplace as novices. As such they mainly start to acquire semantic knowledge such as the characteristics of products that are sold by their organization and specific rules on how to tackle the first basic tasks that are specific to their domains. Those rules usually also include knowledge about specified organizational routines or workflows, which are organizations' unique "agreement[s] about how to do work" (Feldman & Pentland, 2003, p. 98; Lillrank, 2003). While novices still struggle with these workflows, *advanced beginners* are usually capable of following them if no deviations occur. However, if a particular event (e.g., missing information) interrupts a workflow, advanced beginners are put in a situation that they cannot solve themselves. It is only *competent* employees that manage to deal with such unforeseen issues as they can rely on sufficient semantic and episodic knowledge acquired through work experience. At the same time, some major deviations from typical workflows require competent actors to rely on support from peers that have at least reached the level of *proficiency*. Proficiency is also required to tackle tasks and problems that are ill-structured in nature. In such cases no existing workflow exists, and a creative problem-solving strategy needs to be devised (Jonassen, 2000; Lillrank, 2003). Finally, some problems are especially complex due to their novelty or the consequences that might occur in the case of mistakes and errors. Such work situations can only be mastered by *experts* or even teams of highly skilled employees in an organization (Billett et al., 2018; Sonesh et al., 2018).

To progress through the different developmental stages extensive work experience over an extended period is necessary (Ericsson, 2018a, 2018b; Gruber, 1999). However, it is not only the quantity of experience that allows for expertise development but also their quality (Ericsson, 2018a, 2018b). Employees need access to particular work activities and other learning opportunities at the right time that help them to advance from one stage to another (Goller, 2017). What access to work tasks and learning affordances is provided to younger and inexperienced employees as well as how this access is sequenced are usually determined by more senior peers (Billett, 2001a, 2001b, 2011a; see also Gruber & Harteis, 2018, for the relevance of social support in the context of workplace learning; Paavola et al., 2004). In addition, more

experienced colleagues can help learners to acquire knowledge that is known to be difficult to learn at work (Billett, 2006). It follows that the characteristics of the workplace as well as the social work context largely define how employees can professionally learn and develop. The next section will introduce Billett's (2006, 2011a) workplace curriculum concept as a potential approach to empirically analyze the learning qualities of workplaces.

### 3 Workplace Curriculum

Billett (2006, 2011a) suggests that the efficacy and efficiency of workplace learning schemes can best be analyzed focusing on three key aspects of any account of professional learning: (a) How learning and work experiences at work are organized and enacted, (b) what working activities are considered to be especially conducive to learning, and (c) what knowledge is hard to learn or cannot be learned through practice alone. These three facets will now be briefly introduced and discussed (see also Goller et al., 2019).

#### 3.1 Task Sequencing

Learning a trade is often, for instance in the context of VET, structured by an intended curriculum. Intended curricula are general templates which are implemented by an organization and describe what must be learned in what sequence (Billett, 2006). Although such curricula are usually thought to be somehow binding, in practice deviations from such development templates often occur (Billett, 2006). The actual structure of when and how learners engage with tasks at work are captured by the enacted curriculum (Billett, 2006). Furthermore, even in work contexts where no intended curriculum exists new employees do not encounter work tasks completely at random. Instead, Goller et al. (2019) highlight that the structuring of tasks across investigated vocations (Billett, 2001a, 2011a, 2014; Gherardi et al., 1998; Lave, 1990; Lave & Wenger, 1991) often follows a certain logic and reasoning.

The most obvious task sequencing is based on perceived difficulty (beginning with "easy" tasks towards the most difficult ones over time) and has been shown to apply for professions like tailors (Lave, 1990), midwives (Lave & Wenger, 1991), nurse aides (Goller et al., 2019), or construction managers (Gherardi et al., 1998). However, there are other rationales to assigning tasks to learning workers. For instance, in many domains an aim is to "minimize experiences of failure and especially of serious failure" (Lave, 1990, p. 313; see also Goller et al., 2019; Lave & Wenger, 1991). Tailor apprentices, for instance, start to engage with underwear and other cheaper garments before they are allowed to work on more expensive clothes (Lave, 1990). The idea behind this logic is that mistakes that affect expensive clothes have much more severe consequences than mistakes affecting less expensive garments. Another task sequencing logic is to assign tasks in a reverse production order and to start with the

last production step before going to the one before, which was observed for tailors (Lave & Wenger, 1991), room attendants (Billett, 2014), and food production workers (Billett, 2000, 2011b, as cited in Billett, 2014, p. 70). This way it is made sure that learners understand the outcome of each working step before engaging with the tasks that follow (Billett, 2014). Yet another logic is that novices start working on peripheral tasks before being assigned to core tasks of their specific domains. For instance, hairdresser novices are reported to engage in interactions with customers first to build trust before being allowed to cut men's hair (considered to be easier) and later women's hair (Billett, 2001a, 2011a, 2014). Similarly, construction site managers need to prove themselves on peripheral tasks before being entrusted with the management of the whole construction site (Gherardi et al., 1998; Goller et al., 2019). Contrary, it is the reverse with nurse aides who work on peripheral tasks later (Goller et al., 2019).

Regarding the domains of sales representatives and leadership coaches, it is yet unclear which logic and reasoning the task sequencing follows. Insights into existing curricula are important as they allow us to assess both their efficacy and efficiency for employees to develop expertise. In the long run, both intended and enacted curricula can be shaped towards an ideal workplace curriculum that provides employees with a higher chance at developing expertise.

### **3.2 Pedagogically Rich Activities**

Learning in the workplace often occurs without a formal teacher as a by-product of employees' active engagement in tasks and problems afforded by the particular work environment (Billett & Noble, 2020; Eraut, 2004). However, some work activities are more conducive to learning than others as they enable "rich learning experiences" (Billett, 2011a, p. 39; Billett & Noble, 2020). Typically, such tasks are goal-directed, structured, as well as reoccurring, include experts to verbalize knowledge, enable discussions among workplace actors with different expertise and even among individuals from different but related domains (Billett & Noble, 2020; Billett, 2023) or invite learners to reflect on their experiences and newly acquired knowledge (Billett, 2023; Goller et al., 2019). Hence, learners can utilize pedagogically rich activities to "mediate their [own] learning" in the domain (Billett, 2023, p. 94). Furthermore, work-related discussions generally involve a certain pressure to perform which in turn motivates learners to live up to their expectations (Billett, 2011a; Billett & Noble, 2020). In nursing, for instance, shift handovers have been described as such pedagogically rich practices in which nursing staff - that is, both novices as well as experts - cooperatively engage in meaningful interactions that result in learning and expertise development (Billett, 2011a; Billett & Noble, 2020; Goller et al., 2019). In general, team meetings inherit learning potential as they often revolve around how to solve particular work-related issues that help both novices as well as more experienced employees to get insights into potential problem-solving

strategies as well as particular solution alternatives that go beyond already internalized working routines (Billett & Noble, 2020). Moreover, nurses and nurse aides (Billett & Noble, 2020; Goller et al., 2019), construction site managers (Gherardi et al., 1998), midwives (Lave & Wenger, 1991), and coal miners (Billett, 2001a) have been reported to engage in one-to-one discussions with more experienced peers helping them get further insights into their work domain and to understand context-specific approaches to solve problems (Billett & Noble, 2020; see also Collins et al., 1991). Furthermore, opportunities to jointly work with more experienced colleagues have also been reported as being conducive to learning. In these situations, novices can observe their more experienced peers (Billett, 2001a, 2011a, 2014; Goller et al., 2019; Lave, 1990) through which they get the chance to adopt problem-solving strategies through imitation and mimicry. In such situations, learners can also actively ask questions to understand how to adequately perform or engage in discussions with more experienced peers about different strategies to solve difficult tasks at hand (Billett, 2011a, 2023; Billett & Nobles, 2020).

For the domains of sales representatives and leadership coaches, pedagogically rich activities have yet to be described in detail. Insights about pedagogically rich activities are important since not all individuals in the workplace have equal access to them (Billett & Noble, 2020; Goller et al., 2019). Hence, organizations should identify what work activities are pedagogically rich in nature and make sure that all learners indeed have the chance to engage in them (Billett, 2023). This in turn can foster expertise development. Pedagogically rich activities are furthermore conducive to acquire hard-to-learn knowledge within a domain (Billett, 2023).

### 3.3 Hard-to-Learn Knowledge

While some knowledge is readily accessible in manuals and other texts (Eraut, 2004), not everything can be learned from reading, observation, or direct experience alone (Billett, 2011). Especially knowledge that is "symbolic or conceptual" in nature (e.g., how regulations and laws must be followed when processing tasks) cannot be easily acquired through observation, imitation, or practice-based trial and error (Billett, 2011a, p. 28; Goller et al., 2019). This presumably also holds true for certain "cultural knowledge" (e.g., unspoken rules) (Eraut, 2004, p. 263). In the context of WPC such knowledge is referred to as hard-to-learn. For nurse aides, for instance, moving and handling patients without hurting them or themselves are regarded as hard-to-learn as such activities require complex motor skills that cannot be observed directly (Goller et al., 2019). Similarly, for craftsman novices, it might be easy to observe how drywall panels are installed. Observation alone, however, does not allow to learn what pressure to drill with or how to handle the drywall panel correctly without damaging the drywall or even injuring themselves. For construction site managers it has



been suggested that the organization of the construction site can be considered hard-to-learn since novices need to understand how they can coordinate workers engaged in different activities (Gherardi et al., 1998). For midwives, dealing with difficult cases is hard-to-learn since there is little room for experimentation and small errors can lead to dire results (Lave & Wenger, 1991). In essence, to acquire such hard-to-learn knowledge, novices usually need more experienced peers or even designated trainers that create appropriate pedagogical interventions to help them to understand the phenomena in question as well as how to deal with it (Billett, 2011a; Collins et al., 1991). In other words, learning such knowledge requires direct guidance from experienced peers (Billett, 2011a) and "participation in social activities" in the workplace (Eraut, 2004, p. 263).

It is not yet known what constitutes hard-to-learn knowledge in the domains of sales representatives and leadership coaches. However, the identification of hard-to-learn knowledge in these domains would allow organizations to develop appropriate instructional strategies that help novices to quickly acquire knowledge that is otherwise characterized as hard-to-learn. In other words, organizations are empowered to lay out the best approach for novices to facilitate learning. Additionally, strategies such as scaffolding can be deployed deliberately (Billett, 2011a).

#### **4 Research Contexts and Research Questions**

Sales representatives and leadership coaches are two professional domains that are highly relevant for company success in many organizational contexts. In both domains, individuals work autonomously and are responsible for their own success (e.g., high sales volume and returning clients), since, for instance, customers must be convinced, no deal can be closed, and no coaching can take place if potential customers are not actively approached. To address this research gap, a WPC perspective is adopted as a theoretical framework in two separate studies. The aim is to investigate how sales representatives and leadership coaches learn and develop by investigating how tasks are sequenced, what tasks are pedagogically rich activities, and what knowledge is hard-to-learn in those two domains. These insights might help to understand how organizations can foster workplace learning and expertise development. Thus, the following research questions will be answered in this contribution:

- RQ1: In what order do sales representatives and leadership coaches learn tasks and what are the reasons?
- RQ2: What are the pedagogically rich activities of sales representatives and leadership coaches?
- RQ3: What knowledge is hard to learn for sales representatives and leadership coaches?

## 5 Study 1: Sales Representatives

Sales representatives must develop high competence and gain extensive knowledge to appropriately consult customers so that their individual needs are met. In addition, to build trust they also need to be perceived as capable by customers who are looking for the most suitable solution for their specific problems. Furthermore, high competence allows individuals to solve demanding tasks aimed at creating revenue for their employers. This includes negotiating prices of terms of product sales and services, answering customers' questions, and dealing with customer complaints regarding former sales and services (National Center for O\*Net Development, 2022). The first study focuses on this professional domain.

### 5.1 Method

To answer the research questions, a qualitative interview study was conducted with sales representatives. The following subsections contain information on participants, data collection, and analysis.

#### 5.1.1 Participants

Three organizations in wholesale and manufacturing agreed to participate in this study. Organization 1 (approximately 1,000 employees) specialized in trading tile stove ovens. Three interview participants work there. Two sales representatives are from organization 2 (approximately 300 employees) that specialized in producing as well as trading windows and glass doors. Another six sales representatives work at organization 3 (approximately 300 employees) which trades construction components (e.g., door locks, bathroom tiles etc.). All three organizations sell to professional craftsmen working on construction sites. The participants' average age and average work experience is 44.73 years old ( $SD = 12.59$ ) and 27 years ( $SD = 12.88$ ), respectively. Although time alone does not necessarily lead to high competence (e.g., Ericsson, 2008), the chosen participants are seen as highly competent among their peers who participated in selecting participants. The following selection criteria were communicated to the contact persons, who in turn asked peers in the formal work units to nominate individuals for interviewing: (a) The individuals should have work experience in the domain for at least six years; (b) the individuals should be regarded as experts in their field by colleagues; and (c) they are frequently consulted in cases of domain-specific problems. These criteria were communicated to account for differences in an individual's definition of expertise and the expertise understanding of the authors. All nominated individuals were chosen as participants. Unfortunately, more objective performance measurements, such as, key performance indicators (KPIs) were not available in the organizations. Nevertheless, as

pointed out by Köhler and Rausch (2022), if more objective measurements are not available, peer-nomination is a valid tool to identify highly competent individuals (Goller, 2017; Sonnentag, 1998; cf. Ericsson, 2008, 2018b; Ericsson & Smith, 1991). All participants completed typical German formal education programs (secondary education, vocational education, and training as well as further education) early in their career. Study participation was voluntary and written consent to participate in the interviews was provided by the participants.

### 5.1.2 Interview

Data collection was based on a semi-structured interview guideline. The introduction of each interview included project related information, the research procedure, and data protection instructions. The main part included open questions from the interview guideline and context-specific ad-hoc inquiries (e.g., "Why?", "Could you give examples?"). The interview questions aimed at addressing the task sequencing, pedagogically rich activities, and hard-to-learn knowledge for novice, advanced beginners, and so forth at the participants' workplaces ("Which tasks do beginners learn first?" and "In what order do beginners learn the tasks?", followed up by questions regarding tasks for higher competence levels, "What is a really difficult task?", "Which tasks help the most to learn?", "Which situations are helpful for learning?", "What is difficult to learn?", etc.). At the end, the participants were asked if there were any relevant issues that had not been addressed. All interviews were conducted in person at the three organizations by the primary author of this paper and digitally recorded as well as fully transcribed afterwards.

### 5.1.3 Analysis

The eleven transcripts have a total word count of 123,852 words ( $M = 11,259$ ,  $Min = 8,227$ ,  $Max = 16,515$ ). Categories (see Table 1) were developed deductively, based on the WPC framework, with a thematic qualitative text analysis and were then inductively revised, based on the first critical reading of the interview transcripts, which led to some of the subcategories (Kuckartz, 2014). A randomly selected ten percent of the material was coded by the first author and an independent coder and revealed an inter-coder reliability across all final categories of Cohen's  $\kappa = 0.78$ , which can be assessed as acceptable (Landis & Koch, 1977). Table 1 shows main categories, number of subcategories and the category definitions.

Table 1: Categories to Analyze the Workplace Curriculum

Main category (Number of subcategories)	Definition of categories
1 Task sequencing (4)	Category captures statements regarding the task sequencing learned. The inductively revised subcategories encompass initial tasks, subsequent tasks, advanced tasks, and highly advanced tasks.
2 Pedagogically rich activities (-)	Category captures statements regarding activities which foster learning and expertise development
3 Hard-to-learn knowledge (-)	Category captures statements regarding especially hard-to-learn knowledge which must be tackled by apprentices and more experienced employees.
4 Residual category (-)	Category captures general statements regarding the workplace curriculum which were not coded into the other categories. The content is concerned with mainly time and the difficulty of different approaches to solving tasks which results in having to give newcomers certain leeway in finding their own solution.

## 5.2 Findings

Below, the findings for task sequencing (RQ1), pedagogically rich activities (RQ2), and hard-to-learn knowledge (RQ3) are addressed.

### 5.2.1 Task Sequencing (RQ1)

In each organization, task sequencing starts slightly differently. In organization 1, the apprentices enter the warehouse to learn about products, product combinations and product movement. In organization 3, the apprentices start by working at the counter where products are sold to craftsmen.

*And we send them to the warehouse first. ... They need to get to know the products. In the office they just have the catalog. (Participant 2, organization 1)*

*I was familiarized with the direct customer contact at the counter. I sold and got to know the product directly, saw them, and partly also had them explained to me by the craftsmen. (Participant 7, organization 3)*

However, in organization 2, the apprentices start directly in the office. After the time in the warehouse and the counter respectively, apprentices in organizations 1 and 3 transfer to the office. In the office, apprentices work closely with an experienced peer. Simple orders are selected and entered into the computer under supervision of this colleague.

*A fax or an e-mail comes from some customer. And then you say, 'Sit down at the computer, and we'll just go through the order: you go ahead and find the customer.' Or I first introduce the task to be done, then I show how it works and then work through it with him until he can do it independently. (Participant 9, organization 3)*

Across the three organizations, apprentices get access to more and more difficult variations of already learned tasks and access to completely new tasks which are perceived by the more experienced peers as inherently more difficult. The explicit aim is to prevent loss of customer trust and to prevent financial loss. There is a perceived inherent order of difficulty for tasks, which affects in what sequence apprentices are confronted with tasks. Apprentices start with processing customers' orders as well as customer complaints, then take over delivery planning, in-time problem solving on the phone, and lastly the most difficult tasks are to actively sell and to order new products. Furthermore, for each task type, there again is a perceived order of within-task difficulty (e.g., a customer orders two products vs. a customer orders dozens of items with variability in possible combinations of different products, which the sales representative has to consider). Nevertheless, apprentices do not get access to every task due to division of labor (e.g., customer complaint management is centralized in organization 2). Furthermore, it takes a long time to get proficient in certain tasks. For instance, our interview partners estimate that after completing formal training, staff need at least two more years to be able to handle different scenarios when talking to customers on the phone. Additionally, different to organizations 1 and 3, in organization 2 there are no recurring weekly or monthly customer order patterns due to the products' project specific manufacturing. Furthermore, participants emphasized sequencing and introducing tasks as they themselves encountered them as novices.

*The way I experienced it myself 28 ago is how we deal with our apprentices. (Participant 9, organization 3)*

In addition, the interview partners emphasized the importance of a newcomer having the drive and will to participate as important for learning.

### **5.2.2 Pedagogically Rich Activities (RQ2)**

Apprentices get access to different pedagogically rich activities at specific times. In organization 1, apprentices start by working in the warehouse where they constantly engage in informal discussions with peers. In organization 3, the first distinct pedagogically rich activity is contact with customers at the counter. At the counter, an apprentice can interact in person with experienced customers and learn quickly because customers help to solve the task at hand, such as a product order, by telling which non-listed parts are needed, or even explaining the desired product to the apprentice. This kind of intense and benevolent contact with customers is not available after the transfer to the office. Neither of these two pedagogically rich activities is available in organization 2.

After entering the office, an apprentice can observe more experienced colleagues and ask questions, which is the same across all three organizations. However, such intensive

supervision over several days or weeks takes place not only at the start in the office, but also for each new type of task.

*We put our apprentices next to us, show them what we do, and then let them do it themselves as soon as possible. (...) And then, when they think they've mastered it quite well, they're given small tasks that they can solve independently, and we check them. (Participant 4, organization 2)*

In the office, besides these interactions with peers, the most valuable interaction is with customers on the phone. This contact with customers surprises and at times even baffles apprentices who must put their previously learned knowledge to the test. The interview partners emphasized that learning during the call is facilitated by asking peers who are standing by. However, newcomers must decide for themselves when to independently take over the phone and start processing customer calls. In organization 2, however, there are no specific occasions when apprentices can contact customers, since in contrast to the other organizations, orders are placed exclusively digitally. To compensate, apprentices in organization 2 experience closer supervision by peers and are encouraged to write every piece of information down compared to organizations 1 and 3. In organizations 1 and 3, a later, more advanced task is to work with service technicians who are at the construction site. Together, they must figure out in real time what products to choose.

*What helps most is to get on the phone and really talk to the customer extensively. Just browse through the catalog while the customer (...). (Participant 3, organization 1)*

*They must answer a phone call. Then there's a question and if they don't know what to do, someone sits next to them and helps them. (Participant 10, organization 3)*

### 5.2.3 Hard-to-Learn Knowledge (RQ3)

The scope of the product portfolio, the amount of technical understanding, legal standards, and norms are described as hard to learn. This extensive knowledge is usually only available in an organization's technical department and requires strenuous studying by the apprentice. In addition, interviewees highlighted that the pace of technological change and the amount of technological knowledge has become excessive in the last years. Therefore, in organization 3, weekly workshops take place to explain products to apprentices. Additionally, in all three organizations, apprentices are sometimes sent to visit the manufacturer to get to know their staff and productions or to customers to understand their point of view and how products work in the field. Nevertheless, this does not take place often due to time constraints.

*But in the past, and we still do it today, we used to take the apprentices to visit a customer so that they could see how the individual components were processed. (Participant 2, organization 1)*

However, the scope of information to memorize can be so extensive that apprentices cannot easily learn it by heart, but rather need to develop some kind of 'general sense' over time through practice and understanding. Hence, in organization 2, novices must understand the system behind the glass products rather than learning the several thousand possible combinations available.

*The feeling that will probably develop in the next four or five years that cannot be just learned, that comes with time, with experience. (Participant 4, organization 2)*

Furthermore, dealing with orders that contain only vague technical specifications is hard to learn since products must be selected and combined in a way that meets customer requirements, which needs a lot of experience and knowledge. Additionally, dealing with customers' phone calls is hard to learn, because as soon as customers notice that a sales representative knows too little, they want to switch to another (more competent) employee. This can be the case when customers do not yet know what they want, but still expect a solution during the call or if the sales representative tries to actively sell products. Other customers may be known to have temper problems or be justifiably upset because the wrong products were delivered.

*It becomes more difficult when we approach a customer. And say, 'We would like to do business with you. What are your tasks, what kind of things do you do? What products do you need, what are your specific requirements?' to understand what products they need. So, I don't know anything in advance, and I must ask the right questions to derive what we might offer this customer. (Participant 9, organization 3)*

*And then there are still moments [during phone calls] that can shake you up because a customer is a hot-tempered type. There are a lot of things that can crash down on you. And till you manage to deal with this it takes time. (Participant 2, organization 1)*

### 5.3 Discussion

Differences in task sequencing within a single domain across organizations have been documented before (Billett, 2001a). These differences have been traced back mostly to cultural factors (Billett, 2001a). In the context of sales representatives, however, differences in task sequences can mainly be explained by structural factors that manifest themselves in different products and infrastructures. To clarify, organizations 1 and 3 deal with construction products (e.g., door handles, hinges, tools, ovens, steel beams) and small to large organizations. This enables apprentices to interact with customers fairly easily. Organization 2, however, trades with project-specifically produced glass windows and doors, which hinders interaction with customers on the phone since most information must be transferred via

email to prevent any misunderstanding. Based on the different products, organization 1 has a warehouse on site and organization 3 even has a sales counter on site for craftsmen to buy products, while organization 2 has neither a warehouse nor a sales counter since the product cannot be stored as it is produced only after an order has been placed. Hence, sales representatives' task sequencing starts with (a) getting to know their customers, the products as well as the product combinations at the sales counter as they do in organization 3, (b) getting to know the products as well as the product combinations in the warehouse as they do in organization 1, or (c) just starting in the office right away and learning the products as well as the product combinations at the desk as they do in organization 2.

Hence, if the products and infrastructure allow it, task sequencing starts with the peripheral tasks of customer contact which is already documented for hairdressers (Billett, 2001a) to learn mannerisms and vocabularies as well as to get to know the products. After transferring to the office, novices cannot see what happens after an order is sent off to the logistic department. Hence, the goal is to enable novices to learn as much as possible and as quickly as possible about the products and customers before being transferred to the office. Additionally, for different task types (e.g., processing customer orders) as well as for tasks within each task types, task sequencing for sales representatives is based on perceived difficulty, as has been documented for other domains (Gherardi et al., 1998; Goller et al., 2019; Lave, 1990; Lave & Wenger, 1991; van der Maas & Wagenmakers, 2005 as cited in Ericsson, 2008, p. 989). The underlying logic for difficulty-based task sequencing is to enable novices to pull their own weight as soon as possible which is also documented for other domains (Goller et al., 2019). Furthermore, financial loss and loss of customers' trust must be avoided.

Interestingly, older peers reproduce what they themselves have experienced, which has also been documented for construction site managers (Eraut, 2004; Gherardi et al., 1998; Rausch, 2014). If the former novices picked up wrong ideas about instructing newcomers, they might carry forward ineffective approaches about learning in the workplace. Furthermore, when starting in the warehouse, sales representatives start in an entirely different domain, the logistics department. Hence, an individual within the sales domain does not only develop expertise in sales but also in logistics (e.g., Dreyfus & Dreyfus, 1986).

Access to certain pedagogically rich activities depends on the sequence of tasks, so that some pedagogically rich activities are only available in the warehouse (e.g., personal contact with customers for small orders) and others are only in the office (e.g., contact with customers on the phone for extensive projects). Again, this has not yet been documented in other domains. Since social support is essential for expertise development, this is of particular importance. The first kind of pedagogically rich activity occurs as novices interact face-to-face with customers at the counter or in informal conversations with peers in the logistics department to gradually improve their competence under the guidance of the social environment (Cole et al., 1978; Gruber & Harteis, 2018). This is pedagogically rich, as this can be



interpreted as a goal-directed interaction with far more experienced individuals explaining products and workflows to novices and guiding them (Billett & Noble, 2020; see also "zone of proximal development", Cole et al., 1978, p. 86).

The second kind of pedagogically rich activity occurs after being transferred to the office. A newcomer is placed in contact with peers through observation and in scaffolding situations (Collins et al., 1991). For the scaffolding situations, a more experienced peer does not simply pick tasks at random but rather selects specific tasks because of their exemplary nature. The selected task is used to provide apprentices the opportunity to form a basic understanding of the workflows. The newcomer can follow along and is expected to ask questions to learn. Thereafter, the newcomer solves easy tasks under supervision of the peer. An experienced peer helping a newcomer has a wealth of cases in mind. Among similar ones, a case might be exemplary and especially meaningful for the peer as a story, representing a specific body of knowledge that the newcomer needs to learn (Aamodt & Plaza, 1994; Jonassen & Hernandez-Serrano, 2002). The experienced peer selects these specific past customer orders or a similar present case as an example to help the newcomer gain general and specific knowledge on order processing. Additionally, in this phase of learning, an experienced peer might be able to switch between the roles of the teacher and a team member to enable the newcomer to overcome the tasks and decide on how to solve the chosen story. Hence, this early phase also enables the newcomer to become familiar with the social environment. Furthermore, it could be possible that this kind of pedagogically rich activity is started by the newcomer or the peer at certain times in the learning process. At the beginning, the more experienced peer presumably starts the activity to introduce a new task type. While working on that task type, the newcomer triggers the activity due to engaging in a too difficult task of a certain task type.

The third kind of pedagogically rich activity occurs later in the learning process and becomes the predominant kind of learning opportunity even for very competent sales representatives. After a certain time, apprentices engage with customers on the phone supervised by an experienced peer. However, interactions on the phone are demanding and are high-stakes situations at the edge of an individual's competence which requires the help of more experienced colleagues (Cole et al., 1978). Furthermore, it became clear through the interviews that a certain drive, willingness, agency, and interest from the novices is essential to engage in the available tasks and to develop expertise (Goller, 2017). However, this individual component is not yet as prominent in the WPC approach as discussed by Billett (2006, 2011a). Nonetheless, organizations might either select novices based on their interest in the sales representatives' domain or allow novices to achieve success to inspire interest in the field and enable the development of expertise.

Rather unexpectedly, interacting with customers on the phone is not only conducive to learning but also hard-to-learn. Hence, organizations are in a predicament in terms of enabling expertise development and the argument that task sequencing is done to avoid losing

customers' trust. Novices must be pushed to engage with customers on the phone without losing the customer's trust. Additionally, novices face two distinct problems. They must learn about products without knowing how to use the products in practice and when solving a task, they must internally visualize products and product combinations. In organization 3, apprentices therefore get access to a weekly prepared session to learn about products by more experienced peers which is not done in either organization 1 or 2. Additionally, in all 3 organizations apprentices are sometimes but rarely sent to manufacturers and customers to learn more about the products.

## 6 Study 2: Leadership Coaches

In organizations, coaching is necessary to minimize employee turnover, create effective leadership, and to help new managers to transfer between positions (Freas, 2000; Ulrich, 2000). This work is often taken over by leadership coaches. Their job is not to give ready-made solutions but rather to help clients to find a solution on their own, encourage in the face of change, and help to remove obstacles (Lyons, 2000). To reach this goal, leadership coaches set up meetings with clients and apply a variety of methods and tools such as psychometric testing, goal analysis or systemic questions. Leadership coaches are often self-employed or in small teams as contractors. Nevertheless, some larger organizations also employ an internal coaching team. In addition to their daily coaching work, they are also responsible for developing training programs with specific goals such as formalized support for new team leaders. Another aspect of leadership coaches as part of an organization is the coaching of whole departments or teams (Hawkins, 2011).

### 6.1 Method

To answer the research questions, a qualitative interview study was conducted in one organization employing leadership coaches. The following subsections contain information on participants, data collection, and analysis.

#### 6.1.1 Participants

Ten leadership coaches participated in this study. They were selected based on their perceived high competence as coaches by their peers. The same selection process as described in 5.1.1 took place. Eleven out of twelve suggested participants were chosen. The leadership coaches work in organization 4 which is a large-scale bank (approximately 80,000 employees) which engages in typical banking operations such as taking deposits and granting loans to borrowers, as well as creating various financial products and services. The participants' average

age and work experience is 46.5 years ( $SD = 3.47$ ) and 26.9 ( $SD = 4.61$ ), respectively. All participants completed typical German formal education programs (vocational education and training as well as further education) early in their career within organization 4 and further education regarding coaching methods outside of organization 4. Study participation was voluntary and written consent to participate in the interviews was provided by the participants.

### 6.1.2 Interview

The interviews were conducted in the same manner as the interviews of Study 1. The same interview guideline was used by the primary author of this paper. However, all but two interviews were conducted by phone.

### 6.1.3 Analysis

The ten transcripts have a total word count of 120,826 words ( $M = 12,082$ ,  $Min = 9,475$ ,  $Max = 15,353$ ). The same category system that was developed in Study 1 was applied (see Table 1). A randomly selected ten percent of the material was coded by the first author and an independent coder and revealed an inter-coder reliability across all categories of Cohen's  $\kappa = 0.79$ , which can be assessed as acceptable (Landis & Koch, 1977).

## 6.2 Findings

Below, the findings for task sequencing (RQ1), pedagogically rich activities (RQ2), and hard-to-learn knowledge (RQ3) are addressed.

### 6.2.1 Task Sequencing (RQ1)

First, newcomers must complete a formal course to understand the coaching process and gain methodological knowledge. After passing the course, newcomers are encouraged to start at the team leader or smaller team level before moving on to the senior executive and larger team level. Additionally, newcomers try to get involved with supposedly easy cases that are either assigned by peers or selected by the newcomers themselves. Such a case might be a client who has previously booked coaching for minor issues or to get a different perspective that promises not to be too challenging. To avoid unforeseen challenges, newcomers are also given assignments with fixed content, such as established coaching formats, pre-planned team training, or even just a part (e.g., the introduction) of pre-planned team training.

*I first looked for team leaders, or lower-level managers with less management responsibility (...) before the senior manager level. (Participant 21, organization 4)*

More difficult coaching situations encompass, for instance, accompanying a client for personal development to bring about a necessary change (e.g., the client lacks interpersonal skills, which hinders clear communication with team members). Coaching is even more difficult with clients who want to develop themselves and resolve conflicts between team members to turn a conflict-ridden team into a high-performance team. Although there are different levels of difficulty depending on the level of leadership and leadership responsibility, a supposedly simple case can become difficult in the blink of an eye due to unexpected events.

*A difficult coaching situation is when the manager tells me: 'I can't cope with my job anymore, (...) I have so much pressure that I don't know what to do anymore (...)'. And a difficult coaching case is certainly given when the manager also has several employees to deal with. (Participant 16, organization 4)*

In addition, the participants highlighted a newcomer's motivation to actively approach problems as highly important. For instance, leadership coaches are expected to actively look for clients and to actively embrace difficult coaching situations.

## 6.2.2 Pedagogically Rich Activities (RQ2)

Newcomers are assigned to an experienced peer in their geographical region as a mentor. Furthermore, team training sessions are usually conducted in collaboration with a peer. Informal exchanges take place during breaks.

*I learned from other colleagues. When I started, I went along with a lot of people. Then at some point I was allowed to take on more and more parts. And (...) we always discussed 'what was good, what wasn't good'. And the colleagues still play a role nowadays because we sometimes give seminars together and have a weekly exchange with 'what went well, what didn't go well'. (Participant 17, organization 4)*

*There are a whole range of things where a second person is helpful. For example, when it comes to team training sessions, when you're standing at the front of the stage with two trainers and teach the participants the content. (...) if there are challenging situations, you can give each other advice. (Participant 12, organization 4)*

Nevertheless, shadowing more experienced peers in one-on-one coaching sessions rarely occurs due to confidentiality issues. The participants have emphasized that it is important to gain a lot of experience in the coaching sessions themselves. Certain situations have to be experienced in order to be able to deal with them better in the future.

*Because as I said, when they [the coachee and the leadership coach] are in this two-person constellation, they often discuss very confidential things, very personal things. Even if we're talking about a management context and a professional context, there are still things where a coachee says: 'Well, that's really very confidential here and I don't want that to be passed on.' Which is of course a basic requirement, but you also notice that people feel the need to say it again and again. And if there is someone else [an unexperienced leadership coach], that's often a hindrance to this confidentiality. (...) When the coachee says: 'No, that's ok.' Then that works. But that's less often the case. (Participant 20, organization 4)*

In addition to informal exchanges, once a week, a digital conference is held to openly discuss current clients and to share experiences and possible solutions.

*And colleagues approach me, but also other colleagues, so not just me, with the request: 'Can we just brainstorm?', 'How would you approach a story like this?', 'Have you ever had something like this before?' That's the classic. And we don't just do that bilaterally, we also do it, in our calls. All of us talk on the phone once a week. (...) And then one says: 'I have this coaching case. Have any of you had a similar situation like that?' That's worth its weight in gold. (Participant 21, organization 4)*

### 6.2.3 Hard-to-Learn Knowledge (RQ3)

To be able to provide coaching, extensive methodical knowledge such as communication strategies, established personality tests, leadership models etc. must be learned. The application of methodological knowledge and, due to the embeddedness in an organization, extensive organizational knowledge is hard to learn.

*What you need to be able to apply as a leadership coach are the tools. 'How do I conduct a coaching conversation'. For me, of course, the fact that I also come from a managerial and banking background means that I know many relevant topics, and that's something that's helpful for the coachees. That they know 'this is someone who understands me and my business, and then I'm also prepared to get involved in the conversation with him personally'. (Participant 12, organization 4)*

*And then (...) to use the methods variably if something goes in a different direction, so that you don't say 'but that was agreed so and so.' (...) because unforeseen things just happen, and you have to react to them. (Participant 16, organization 4)*

Moreover, it is difficult for newcomers to recognize and understand clients' real issues that may be hidden in unclear problem statements. For instance, team demotivation is the alleged problem, while the real problem turns out to be the client's trust issues.

*Well, you don't know beforehand what will come out and that, in case of doubt, the topic that the coachee presents is just a pretext and then you have to find out the actual topic behind the pretext topic. And ultimately deal with it [the actual topic]. (Participant 12, organization 4)*

Additionally, it is hard to learn how to prepare for the coaching process, the correct and creative use of methods, the ability to ask the right questions, and typical reaction patterns.

*The human factor. So, that's the exciting thing, I think that's almost the danger in the job. Of course, you can say at the end: 'This is a routine task.' Because if you've been doing it for a few years, you feel you've heard the problem 50 times or 100 times. But it's not always the same problem, even though it sounds the same. I think it would be the death of a coach if you slipped into a routine. (Participant 19, organization 4)*

*Every coaching session is actually highly complex. (...) There is no routine pattern. (...) It's different every time. Different person, different personality style, different topic, different environment. (Participant 12, organization 4)*

Over time, the coaches within the organization have gradually compiled the various methods and concepts used in their work into a method toolbox. This method toolbox is used in daily work and is continuously expanded. To learn methods that were not used before and to get a better hold of already familiar methods, smaller team meetings exist, in which scenarios are played through (e.g., one leadership coach takes on the role of the manager with a potential problem in mind and another leadership coach tries to apply the new method).

*A new leadership coach has to work through all our, toolkit, so to speak, that we use. It contains our coaching tools and methods. And we have the same for team development, so the team development folder. They [the new leadership coaches] have to learn all that and then ask their colleagues in case they don't understand something. (Participant 21, organization 4)*

*With the entire team, we always use a certain amount of time to exchange ideas with each other, and this is sometimes more or sometimes less structured. So sometimes it's prepared for us to say, 'Let's talk about this and that method, um, what are your experiences? How exactly do you do it? What alternative methods do we have that we use?' (Participant 21, organization 4)*

### 6.3 Discussion

At the very beginning, leadership coaches participate in a short, designated course to study coaching methods. Thereafter, newcomers start with the coaching by engaging in supposedly non-difficult cases. Compared to other domains, task sequencing is only roughly laid out by more experienced peers based on the coaching objective (e.g., to just listen vs. to help to solve problems within a team), degrees of freedom in designing (e.g., a fixed format vs. open coa-

ching), the coachee (e.g., known to be non-confrontational vs. confrontational), and by the leadership responsibility of a client (e.g., a team leader vs. a senior department leader). There are two reasons why a fixed sequence of tasks does not exist. First, leadership coaches are not as young as sales representatives when entering the domain and leadership coaches are picked to be part of the team. Newcomers in the leadership coaching domain therefore already have an extensive amount of experience in the workplace, seniority, and high intrinsic motivation. Hence, peers expect a certain independence and furthermore presumably do not wish to be perceived as patronizing a new peer. Second, even during presumably easy coaching a problem might arise with external help not being available since the interactions are highly dynamic (e.g., Shanteau, 1992). Therefore, more experienced peers tend to hand over smaller parts of a consulting assignment to novices, for instance, an introduction within a team training, or assign novices presumably easy clients for one-on-one sessions. Nevertheless, the goal is to avoid failure and especially severe consequences of unsuccessful coaching situations which might result in individuals or even a team being left desolate and the leadership coach facing repercussions which renders the whole process high stakes. Although in other domains the aim is also to avoid the consequences of severe failure (Goller et al., 2019; Lave, 1990; Lave & Wenger, 1991), there are qualitative differences of what constitutes a severe failure in different domains (e.g., garments being wasted, teams being left desolate, or patients suffering extreme health consequences).

Three activities were identified to be especially conducive to learning for leadership coaches. The first activity encompasses all kinds of informal discussions during breaks in team training, which can itself be interpreted as a coaching situation: Newcomers conduct team training with a more experienced peer who coaches them during these informal break discussions (Collins et al., 1991). The second activity is the weekly phone conference which encompasses storytelling to give examples on how to solve certain cases which enables peers to learn of similar cases and also to learn of what not to do when working on specific tasks (Barone, 1992; Orr, 1996; Oser et al., 2012). Such meetings help experts to bring forth rather implicit knowledge that they learned over time. Additionally, this meeting is also similar to shift handovers in nursing (Billett, 2011a; Goller et al., 2019). The third pedagogically rich activity is, not surprisingly, the coaching itself. Coaching might be similar to phone contact for sales representatives. Both are high-stakes interactions that are a major source of learning, even for highly competent individuals. However, while both interaction types are similar, they are not identical. For instance, a sales representative's phone call is probably of a more advisory nature in that options are suggested, while the leadership coach helps the client to find a solution on their own during a one-on-one coaching session. However, in both domains, participants emphasized that newcomers must decide for themselves to start with the phone calls and one-on-one coaching, respectively. However, while sales representatives can listen to more experienced colleagues' phone calls, leadership coaches rarely attend more

experienced coaches' one-on-one coaching sessions due to data protection concerns. Hence, organizations might have to stage the first couple of one-on-one coaching sessions for the unknowing newcomers as a sort of an initiation. As discussed for the sales representatives, leadership coaches have to be willing to participate in the WPC. However, since the leadership coaches are older and were chosen for the domain, they are rather motivated.

Different to leadership coaches that provide their service to different organizations on the free market, the interviewed leadership coaches must additionally learn organization-specific knowledge. This puts the leadership coaches in the interesting position of not being external and detached specialists who are brought into an organization but rather internal specialists. However, it remains unclear if this leads to gaining trust more easily or not and how it affects the outcome of leadership coaching. Nevertheless, since the interviewed leadership coaches work in the closed system of organization 4, they do not have to learn how to lead their own coaching business or how to attract clients. Leadership coaches working in the open market, however, need to learn such business management skills to run their small business, which might be hard-to-learn knowledge.

## 7 Concluding Discussion

This study aimed to further understand expertise development in different vocational contexts. As a rather novel approach, the WPC was used for this purpose in the two ill-structured domains of sales representatives and leadership coaches. Both domains share some similarities regarding customer interactions while having markedly different intended curricula. In general, it can be stated that the WPC has proven useful for analyzing learning in the different workplace contexts, regardless of differences between the domains.

An important result is variations regarding the task sequencing within the same domain across organizations due to primarily structural factors which have not yet been documented for other domains. Furthermore, in both domains, some knowledge can be accessed by learners in an explicit form. For sales representatives, the product knowledge is codified in manuals and for leadership coaches, the methodological knowledge is also rather explicitly described in manuals and books. Whereas sales representatives are supposed to learn about the products in the warehouse, the leadership coaches are supposed to learn the methods in a designated course. However, it is rather implicit and therefore difficult to learn how products can be combined and how coaching methods can be productively applied as well as how to interact with customers and clients. The workplace learning sequence therefore mirrors that explicit knowledge is learned first before implicit knowledge is acquired. Therefore, newcomers start by learning about basic tools, namely the products, the customers, or the methods as the initial part of the task sequencing. Additionally, regarding differences between domains, the core tasks of the domain such as working with objects rather than subjects



(Shanteau, 1992) seem to constitute the WPC. In the domain of sales representatives which has at its core dealing with objects such as construction materials, a clear task sequencing can take place. However, the hard-to-learn knowledge also includes highly dynamic human interactions. At its core, the domain of leadership coaches is not concerned with objects, but with highly dynamic interactions between subjects. This results in a diminished chance to clearly sequence tasks based on difficulty since any presumably easy interaction can become difficult rather unexpectedly. Therefore, individuals start with learning about methods as this is rather explicit knowledge. The question arises as to whether ideal types of task sequencing can be found based on common characteristics of different domains based on the domains' characteristics such as working with objects or working with subjects (Shanteau, 1992; see also "constitutive problem" of a domain, Bereiter & Scardamalia, 1993, p. 97; Köhler & Rausch, 2022). This might help to simplify analyzing different domains regarding learning processes (e.g., pedagogically rich activities), based on, for instance, the similarity among domains regarding frequency and kind of interactions with customers. However, access to certain tasks and hence differences in sequencing within the same organization might be influenced by other factors, such as, by a newcomer's or the peers' personalities (Billett, 2001b). However, within the data of this study no evidence about such effects could be found.

Additionally, in both domains, newcomers are encouraged to participate in customer or client interactions. These interactions are the main source of learning even for highly competent sales representatives and leadership coaches that have already passed the novice or even competent stage (see Sect. 2). It remains, however, unclear how important interactions with peers are compared to interactions with customers for learning. Interactions with customers often challenge and at times baffle individuals. This is an addition to the current understanding of pedagogically rich activities as being goal-directed, authentic, structured, involving discussion, and even crossing domains as well as expertise levels (Billett & Noble, 2020). Such interactions encourage individuals to get out of their competence-related comfort zone to learn while being challenged by different stakeholders (e.g., customers, clients) and peers who knowingly or unknowingly take up the role of a teacher (see also Cole et al., 1978).

Outside of the WPC concept, tasks are characterized as conducive to learning if they are challenging but not too difficult, have transparent consequences, are holistic, are varying, involve interactions as well as feedback, and are meaningful (Cole et al., 1978; Harteis et al., 2015; Rausch, 2013). Although it seems fairly reasonable to presume that pedagogically rich activities have these characteristics in common, it is unclear how far the pedagogically rich activities in the two investigated domains and other professional domains would be rated regarding these characteristics.

Furthermore, the WPC only describes structural and cultural aspects of the workplace and learning environment such as task sequencing, social interactions that are conducive to learning, and hard-to-learn knowledge. However, the WPC does not help to understand how

and why an individual engages in the WPC and what happens after engaging in the WPC (e.g., reflection) to develop expertise. Hence, the WPC model might be expanded to encourage a fourth dimension, the learner, focusing on motivation (see also agency; Goller, 2017 as well as Goller et al., 2019; Goller & Paloniemi, 2022).

## 7.1 Practical Implications

The insights of this study about professional learning and expertise development within two different domains are intended to be a practical example outside of Ericsson's classical acquisition of expert performance model (Ericsson et al., 1993; Ericsson & Harwell, 2019) to encourage organizations to investigate their own workplace learning schemes using the WPC as a starting point and based on their findings to practically facilitate expertise development. For instance, organizations should document the task sequencing, pedagogically rich activities, and hard-to-learn knowledge for different domains to further facilitate expertise development. After all, an existing curriculum might contain room for improvements. However, since structural factors (e.g., the nature of the product type or the infrastructure) cannot be changed easily, the development of expertise could be facilitated by aligning cultural factors. For instance, newcomers could be closely mentored, trained on previous orders, and closely follow current projects, with certain responsibilities assigned to them early on. Furthermore, organizations should identify pedagogically rich activities and situations for each of their different domains and encourage newcomers to seek out these activities and situations as well as to encourage more experienced peers to grant access to newcomers and help them to engage in these tasks. Additionally, newcomers should have easier access to less readily available pedagogically rich activities especially in the case of shadowing for leadership coaches or close supervision by peers and early access to customer phone calls for sales representatives. While pedagogically rich activities are essential for workplace learning and expertise development, organizations must focus on planned training sessions. These training sessions could be used to allow newcomers to learn about products such as technical details and applications of said products as well as how to deal with difficult customers, etc. This could allow newcomers to process phone calls with customers earlier. For leadership coaches, these training sessions could encompass knowledge about how to choose the right method during a one-on-one coaching session and how to unveil the client's problem at hand. Since older peers reproduce what they themselves have experienced, an organization that had ineffective training of novices in the past, would do well to investigate current instruction processes to facilitate expertise development. This would enable that organization to increase expertise development by allowing newcomers to, for instance, have earlier access to certain pedagogically rich activities or to get more adequate feedback.

## 7.2 Limitations

There are several limitations of this study that should be kept in mind. First, the sample is too small to generalize. Second, the samples from the different organizations are not the same size. It can therefore not be ruled out that some findings might have been more strongly weighted due to a higher number of interview partners referring to them. Third, the retrospectivity of the interviews might have led to recall errors (e.g., Hyman & Loftus, 1998; Rausch et al., 2022). However, the interviews did not focus on events several years ago but focus on currently ongoing events in the respective organizations. Fourth, leadership coaches are often self-employed and the direct employment of coaches within organization 4 is a rather uncommon and advantageous situation. The leadership coaches in our sample have therefore not to learn about managing one's own small business, approaching organizations to get access, and the leadership coaches in our organization have an intimate knowledge about the organization their clients work in. However, the leadership coaches still must attract clients as they do not simply get clients assigned and the coaching process itself is comparable to freelance coaches. Nevertheless, some of the findings might therefore not easily be transferred to self-employed coaches. Fifth, all results stem from the context of the German VET and employment system. Therefore, results might not be transferable to different countries operating VET or employment systems that are not comparable (e.g., sole market-based or state-based systems). Sixth, interviews were only conducted with employees who had longer work experience and were attributed a certain kind of expertise. No data was gathered from apprentices as such. However, these individuals are involved in training novices and competent peers alike for decades. Hence, the sample has a good understanding of needed skills in their respective domain and how to sequence tasks, what social interactions to partake in to learn, and what knowledge is hard to learn. Seventh, it remains unclear how far particular contextual factors influence the workplace curriculum. For instance, a supportive workplace culture might allow newcomers to access difficult tasks more quickly or encourage newcomers to take risks more readily (Gruber & Harteis, 2018). Eighth, the participants were chosen through peer-nomination. Peer nominations is not without criticism (e.g., Ericsson, 2008; cf., Köhler & Rausch, 2022). Future studies should try to employ other mechanism to identify experts like key performance indicators. Ninth, only a few interview partners from organizations 1 and 2 took part in this study. It is unclear, whether or to what extent the interviews of these few participants allowed to get sufficient insights about the current workplace curriculum scheme in both organizations. At the same time, however, the interviews yielded quite similar results, indicating a certain degree of saturation regarding on how learning in these organizations is afforded to apprentices (Saunders et al., 2018).

### 7.3 Further Research

The study should be replicated with a larger sample and different expertise levels (novices, advanced beginners etc.) in more organizations. Future studies might identify additional differences in task sequencing for sales representatives, as the task sequencing of how novices are confronted with different kinds of tasks differ between all three organizations in this sample. However, it would be interesting to know what commonalities regarding the task sequencing emerge between organizations within a single domain. Hence, across organizations, variances in structural conditions, for instance, products and infrastructure, as well as variances in culture (e.g., Billett, 2001a) need to be taken into account to better understand how and when newcomers engage with new tasks at work (sequence). Similarly, different task sequences might be found for leadership coaches in other organizations. However, if the results of this study can be replicated, this would speak in favor of their generalizability and robustness. In addition, different professional domains across organizations and within the same organization should be examined. By doing so, insights could be generated into whether the aspects of the WPC differ more strongly between organizations or between domains due to, for instance, working with subjects rather than objects (Shanteau, 1992).

Furthermore, it is not only infrastructure and products that affect task sequencing and access to tasks, but also an organization's position within the supply chain. For instance, the kind of products may prevent newcomers from actively selling these products, as may be the case in highly specialized organizations such as automotive suppliers. These specialized organizations are under immense pressure to close a sale that involves many products, which is not the case for the sampled organizations. In the sampled organizations, for instance, a customer might order a small number of products (e.g., a few door handles). This type of rather low-pressure interaction presumably does not take place in highly specialized organizations that have an established place in the supply chain and little margin for failure. Hence, it should be investigated whether the task sequencing and access to pedagogically rich tasks for sales representatives is different in these highly specialized organizations. These organizations should be examined regarding task sequencing and newcomers' access to certain tasks. Access to pedagogically rich activities, in particular, should be further explored to understand how differences in such access might explain how novices professionally learn and develop. Furthermore, pedagogically rich activities need to be analyzed regarding tasks characteristics that have been shown to be conducive to learning (Cole et al., 1978; Rausch, 2013). Do pedagogically rich activities exhibit these characteristics or what else makes them conducive to learning?

Additionally, the WPC is based on three aspects that are rather limited in terms of cultural, structural, and individual factors that contribute to the development of expertise. For instance, both sales representatives and leadership coaches emphasized that newcomers must be eager to learn and need a strong intrinsic motivation to develop expertise. Nevertheless,

intrinsic motivation or agentic efforts are not an explicit part of the WPC concept. Therefore, the agency of the individual should be included in the description of a WPC (see, for example, Goller & Paloniemi, 2022). Furthermore, more experienced peers decide which client is difficult to treat. It is still unclear whether different organizational cultures lead to different types of customers being perceived as difficult. Hence, this begs the question of whether novices in different organizations get access to different kinds of customers at first. In general, the WPC has proven to be a useful approach to analyzing workplace learning and the development of expertise in professional domains within and across organizations and the concept should be embraced in further studies keeping the research implications brought forward in mind.

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## **Ethics Statement**

We implemented the ethical principles through informed consent in accordance with the IJR-VET Statement of Ethics. Potential interview partners were informed weeks before the interview as well as directly before the interview about the purpose of the study, the interview method, the duration of the interview, the voluntary nature of participation, the possibility of withdrawal of consent before, during or after the interview, and the evaluation of the data after pseudonymisation. Overall, the study was approved by the ethics committee of the University of Mannheim.

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