Professional Development at the Workplace –

Investigating the Relevance of the Work Environment for Learning

Inaugural Dissertation

to Obtain the Academic Degree

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submitted by

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Abstract

Professional development at the workplace is a multi-faceted topic. The most diverse variants and combinations of professional development activities are conceivable, ranging from incidental and often unnoticed development steps, to strategically planned and rather consciously chosen development paths. This variety of opportunities is necessary to meet individual prerequisites and needs of different employees – from prospective employees to the experienced specialists. Learning and development opportunities tailored to the individual may help these employees keep pace with the ever-changing world of work and, consequently, maintain or even strengthen their employability. The work environment plays a considerable role in this context, as the design of a workplace can offer sufficiently diverse and adaptable opportunities for professional learning and development at the workplace.

Against this background, the dissertation at hand aims to contribute to research regarding the design of work environments that are conducive to learning and professional development at the workplace. Based on investigations of the relevance of the work environment for learning, the dissertation provides implications for designing workplaces that support employees in coping with current and future professional challenges. The underlying research projects were conducted close to the everyday work of employees seeking to gain authentic insights into their professional realities.

The findings of this dissertation underline the relevance of the work environment to learning and professional development of prospective and experienced employees alike. On the one hand, technical, social, and metacognitive competences taught in the phase of vocational training serve to prepare prospective employees for exercising a profession, but also for maintaining their employability in the long-term. Moreover, the protected and at the same time authentic framework of vocational training favors a sound and realistic preparation for subsequent employment. On the other hand, the learning and development opportunities a work environment holds, play a remarkable role after the phase of professional qualification. Hereby, and above all, the social structures at the workplace are essential for offering and accessing learning and development opportunities at the workplace. This is because employees use interpersonal relationships as a resource to obtain work-relevant content. At the same time, the social network at the workplace helps employees to cope with challenging situations and thus contributes to their well-being at work. Considering these findings, employers may succeed in creating a work environment that is in line with the personal and professional needs of their employees.
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<tr>
<td>ASCOT</td>
<td>Technology-based Assessment of Skills and Competences in Vocational Education and Training</td>
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| BBiG         | Vocational Training Act  
*In German: Berufsbildungsgesetz* |
| BIBB         | Federal Institute for Vocational Education and Training  
*In German: Bundesinstitut für Berufsbildung* |
| BMBF         | Federal Ministry of Education and Research  
*In German: Bundesministerium für Bildung und Forschung* |
| BMFSFJ       | Federal Ministry for Family Affairs, Senior Citizens, Women and Youth  
*In German: Bundesministerium für Familie, Senioren, Frauen und Jugend* |
| BMWi         | Federal Ministry for Economic Affairs and Technology  
*In German: Bundesministerium für Wirtschaft und Technik* |
| BMWK         | Federal Ministry for Economic Affairs and Climate Action  
*In German: Bundesministerium für Wirtschaft und Klimaschutz* |
| Cedefop      | European Center for the Development of Vocational Training |
| CET          | Continuing Education and Training |
| DESI         | Digital Economy and Society Index |
| DGP          | German Psychological Society  
*In German: Deutsche Gesellschaft für Psychologie* |
| ELGPN        | European Lifelong Guidance Policy Network |
| ESPAS        | European Strategy and Policy Analysis System |
| EU           | European Union |
| GERA         | German Educational Research Society  
*In German: DGfE – Deutsche Gesellschaft für Erziehungswissenschaft* |
| HwO          | Crafts Code  
*In German: Handwerksordnung* |
<p>| ICT          | Information and Communication Technology |</p>
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| KMK          | Conference of the Ministers of Education and Cultural Affairs  
*In German: Kultusministerkonferenz* |
| KOFA         | Competence Center for Safeguarding a Skilled Workforce  
*In German: Kompetenzzentrum Fachkräftesicherung* |
| OECD         | Organization of Economic Co-operation and Development |
| TOTE model   | Test-Operate-Test-Exit model |
| VET          | Vocational Education and Training |
| VUCA         | Volatility, Uncertainty, Complexity, and Ambiguity |
| VVR unit     | intention/anticipation-change-recoupling unit  
*In German: Vor(weg)nahme-Veränderungs-Rückkopplungs-Einheit* |
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1 Introduction

This thesis commences with an overview on the relevance of learning at work from an individual perspective as well as an organizational point of view (section 1.1). Proceeding this exposition, the research questions on which this thesis is based are briefly described (section 1.2) and an overview of the structure of this work is given (section 1.3).

1.1 On the Relevance of Learning at Work

From an individual perspective, learning and work are closely linked. Already during preparation for employment, learning on the job serves as a recognized method to gain professional qualification. Whether in the context of an internship as part of academic qualification or during the practical phases of dual vocational training and education, learning within the work environment is part of the curriculum (BMBF, 2020, p. 10 ff.; Brodsky, 2022, p. 40). Later, in the course of professional employment, learning is often about meeting the day-to-day demands placed on employees as part of their employment relationship. This need for learning may stems, on the one hand, from the fact, that job requirements tend to change over time. As a result, the match between one’s job requirements and the respective employee’s employment qualifications is usually not permanent. On the other hand, employee development processes can also lead to an imbalance between one’s job requirements and one’s employment qualifications and needs. In this case, either the requirements of the current job need to be adjusted, or the employee needs to move to another, more suitable position.

Regarding changes in job requirements, a wide variety of events is conceivable that may impact an employee’s professional activities and thus the demands placed on the respective employee. For instance, new colleagues, a new supervisor, modified or disrupted work processes, or even strategic corporate decisions can lead to changes in day-to-day operations and thus to altered job requirements. Drivers for such change include economic developments, especially against the backdrop of current technical potentials and global economic interrelationships (keywords: digitalization and globalization). For instance, the Digital Economy and Society Index – abbreviated with DESI – illustrates that European companies are increasingly integrating digital technologies into their business processes (European Commission, 2022, Table 1, p. 4). Moreover, national economies are increasingly involved in international trade relationships. Germany’s foreign trade quota¹, for instance, recently reached 88.7 % (Federal Statistical Office, 2022b).

¹ The foreign trade quota (German: Außenhandelsquote) expresses the sum of exports and imports of goods and services of an economy in relation to its gross domestic product (Federal Statistical Office, 2022a).
Fragmentation of value chains and outsourcing of single manufacturing processes have in addition led to an increasing demand for highly qualified workers in resource-poor countries such as Germany (Mündler, 2018, p. 61). Consequently, digitalization and globalization may result in structural changes of work requirements, which are reflected in altered job profiles and resulting job requirements (Autor:innengruppe Bildungsberichterstattung, 2022, p. 344). Thus, it is necessary for employees to continuously develop in line with these trends to meet the daily professional requirements of their jobs – currently and in the future. Through successfully developing consistent with one’s work environment, employees can meet changing requirement profiles and thus remain employable in the long term (Zutavern & Seifried, 2019). Figures on individuals’ educational efforts show that employees are aware of the need for ongoing (professional) development. In recent years, learning activities have increased both in leisure time and at the workplace (Autor:innengruppe Bildungsberichterstattung, 2022, p. 234 f.).

Parallel to the corporate developments and global economic trends just outlined, the needs and demands of employees have gained in relevance. Especially the needs of younger professionals and prospective employees, referred to as Gen Z and Millenials, are subject of much discussion. Family and leisure time are important to them, and work-related satisfaction stems from opportunities for professional development, but also from a cosmopolitan corporate culture and organizational values that are consistent with social responsibility and sustainability (Deloitte, 2022, p. 4, 13, 16 f.). These priorities are also reflected in movements intended to change the world of work (keyword: New Work). In accordance with a humanistic perspective on employment, work is supposed to serve employees and to offer freedom and self-determination (Bergmann, 2017, p. 12). Against the backdrop of numerous job vacancies employers are increasingly reliant on meeting the needs of potential employees to attract the best qualified candidates. In Germany, a new all-time high of 1.93 million open positions was reached in 2022 (Kubis & Popp, 2022), reflecting the currently very favorable labor market situation for qualified candidates.

In view of these developments, the relevance of learning at work has also increased from an organizational perspective. The following three reasons are particularly noteworthy: First, learning at work is a necessary organizational capability to keep pace with the megatrends outlined above and thereby ensure economic success. Thus, from an organizational perspective, learning is about developing in line with, or even determining, changing economic conditions (Cook & Yanow, 1993, p. 387; see also Göhlich, 2018, for a comprehensive overview of theories on organizational learning). Second, learning and development have evolved into a marketing tool used to attract the best qualified employees (keyword: employer branding). In this
context, employers use their learning and development opportunities to differentiate from competitors (Kanning, 2017, p. 139). Third, learning and development opportunities are to be interpreted as an investment in an organization’s future. By offering its employees learning and development opportunities, an organization pursues a promising strategy to qualify its personnel and, moreover, retain these qualified personnel in the long term (Bender et al., 2019, p. 245).

In conclusion, learning at work is of particular relevance for the professional development of employees to successfully shape their careers and at the same time secure an adequate private life. Furthermore, learning at work is also immensely important for employers, as a work environment conducive to professional development can make a lasting contribution to the organization’s economic success.

1.2 Research Questions of this Thesis

From what has been outlined so far, professional development at the workplace clearly matters to employees and employers alike. Focusing on employees’ professional development, the question arises as to how work environments should be designed to meet the learning and development needs of employees and, furthermore, assist employees and employers in coping with the changing demands of the economy and work. The thesis at hand addresses this question, by investigating employees’ perception of the workplace conditions constituting their work environment. A focus on the workplace as such seems reasonable, since a great deal of work-related learning happens in the workplace and while performing one’s job duties (Harteis et al., 2020, p. 1; OECD, 2019, p. 4). Based on the analysis of concrete insights into the daily work of employees, this thesis aims to provide employee-centered implications for the design of work environments that support employees in their everyday professional activities. Thereby the focus was to identify conducive factors as well as hindrances to learning and development in the workplace.

Accounting for the fact that employees’ needs may change in the course of their employment biography, the studies on which this thesis is based refer to different phases of a typical employment biography (see Figure 1.1 and Table 1.1): Study 1 focuses on preparation for employment. Specifically, the focus is on the dual vocational education and training system (VET) in Germany. Although the number of new trainees has been declining since 2011 (Federal Statistical Office, 2022, August 30), dual vocational training still plays an important role in the vocational qualification of school graduates (BMBF, 2021, p. 37f.). Especially in the IT sector, the number of new training contracts even increased slightly in 2021 (Federal Statistical Office,
Thus, the question of how vocational qualification via dual VET can prepare prospective employees for the demands of the world of work is certainly relevant. To this end, study 1 discusses whether dual VET in Germany fosters trainees’ successful transitions from training to working life and trainees’ acquisition of vocational competences. Moreover, it is debated how uniform quality standards for VET in Germany may be ensured.

Study 2, 3, and 4 focus on the subsequent phase of employment. Employment typically spans a comparatively long period in an individual’s employment biography. During the employment phase, various learning and development triggers may arise. One such trigger for learning and development is starting with a new employer (Ashforth, 2012, p. 161; Harvey et al., 2010, p. 168). For instance, around 80% of more than a thousand full-time German employees surveyed have changed employers at least once since starting their professional career (Statista, 2017). More recent figures show that especially young employees have a high propensity to switch (Deloitte, 2022, p. 12). By supporting employees in successfully integrating into a new work environment, affected employers can promote new employees’ organizational socialization, thus, laying the foundation for learning and development processes as well as a long-term employment relationship. In this sense, research conducted in study 2 aims to contribute to a sound organizational socialization by investigating the challenges new employees may perceive, when starting with a new employer. Furthermore, the purpose of study 2 is to reveal supportive practices that will help new employees deal with the challenges they experience when entering a new organization.

Beyond the successful organizational socialization of new employees, it is important to design an attractive work environment for the long term as well. Thereby, the emphasis should be on
supporting employees in the performance of their daily job duties, as the conditions given to perform one’s job affect an individual’s job satisfaction as well as employees’ physical and mental health (Van der Heijden et al., 2020, p. 14f.). To contribute to the design of work environments that are oriented towards the needs of employees, research conducted for study 3 examines how employees perceive the factors constituting their individual work environment. This involves an investigation of each factors’ conducive to carry out every day work tasks, and how these factors are realized in the daily work context. Furthermore, the authors explore whether there are differences in employees’ perception of the work environment due to socio-demographic aspects and whether there is a relationship between employees’ perception of the work environment and their commitment to the employer. Considering employees’ perception of the work environment, allows employers to design a workplace that supports employees in performing their professional tasks and thus promotes employees’ well-being at work.

Finally, study 4 focuses on knowledge sharing in the workplace. Passing on and receiving knowledge are fundamental processes in everyday work (chapter 4) and thus play a crucial role for the job-related development of an employee as well as for achieving and maintaining one’s employability – especially in a dynamic world of work in which job requirements are volatile. To enable smooth sharing processes of work-related knowledge among employees, research conducted for study 4 aims to capture any hurdles employees perceive regarding organizational knowledge sharing. Taking on a process-oriented perspective, situations are investigated in which knowledge sharing fails in employees’ day-to-day work. In addition, other challenges employees experience in connection with knowledge sharing are recorded, as well as potentials they perceive as conducive to knowledge sharing.

The research question raised in this thesis are answered with a focus on German IT specialists. In Germany, IT specialists are currently particularly scarce (Bitkom, 2022). To gain empirical insights into professional practice of this group of employees, three of the four studies constituting this thesis were conducted in cooperation with an IT service provider. The cooperating organization is a medium-sized enterprise that employs approximately 450 employees. Especially in Germany, medium-sized organizations play an important role for the economic power of the Federal Republic (BMWK, 2022). Insights into the challenges and opportunities offered by such a work environment can thus provide valuable insights into the adaptation of comparable learning and work environments and thus contribute to the professional development of many employees.
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<th>Sample</th>
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<td><strong>Study 2</strong></td>
<td>Birkle, S., &amp; Seifried, J. (2023). Perceived Challenges when Changing Employers – What Newcomers Experience as Helpful during their Organizational Entry [Manuscript submitted for publication]. Chair of Economic and Business Education, University of Mannheim.</td>
<td>Investigation of 1. challenges newcomers perceive when starting with a new employer, and 2. how onboarding helps newcomers overcome perceived challenges during organizational entry.</td>
<td>Qualitative case study with semi-structured interviews</td>
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<td>10 employees of a German medium-sized IT service provider</td>
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Considered in summary, the results of the four studies are intended to serve as a guide for employers to support the professional development of their employees. A workplace designed in accordance with the findings of this thesis may foster employees’ learning and professional development in two ways: First, by supporting employees in fulfilling everyday job requirements, as conducting one’s job duties holds enormous learning potential. Second, a workplace design that is conducive to learning and development can help maintain employees’ employability in the long term by supporting professional development when needed. In other words, whenever employers succeed in adapting and successfully implementing the findings of this thesis to their specific work environment, employees will benefit from a work environment conducive to professional development.

1.3 Structure of this Thesis

The inaugural dissertation at hand comprises four studies and is organized in seven chapters. The thesis begins with an introduction to the relevance of learning at work (section 1.1) and the research questions explored in the four studies constituting this thesis (section 1.2). Following an overview of the structure of the thesis (section 1.3), the conceptual foundations framing the four studies will be discussed in chapter 2. Therefore, the chapter opens with an introduction to employment in the 21st century (section 2.1), explaining the influences on today’s world of work and their effects on the requirements of work for employees and employers. Subsequently, the workplace is presented as a learning environment (section 2.2). For this purpose, different forms of learning as well as models of learning are addressed, and knowledge management and organizational socialization are described as two processes of learning at the workplace. The chapter concludes with a theoretical overview of action regulation theory explaining employees’ perception of the work environment and resulting effects (section 2.3). Chapters 3, 4, 5 and 6 comprise the four studies that constitute this thesis. Hereafter, key findings of the four studies are summarized and its limitations are highlighted and discussed. Finally, recommendations to transfer the results into corporate practice are proposed.

1.4 References


2 Conceptual Foundation

In the following, the conceptual foundations underpinning the four studies in this thesis are explained. The chapter starts with an introduction on influences on today’s world of work and how they have shaped and still shape the demands placed on employees as well as employers (section 2.1). Afterwards, different forms of learning as well as different models of learning in the workplace are described to characterize the workplace as learning environment. Furthermore, knowledge management and organizational socialization are explained to show how workplace learning can unfold in an organizational context (section 2.2). Finally, a brief theoretical foundation of action regulation theory is provided to explain how employee perceptions of the work environment are relevant for understanding the workplace as learning site (section 2.3). The chapter closes with a summary of the content discussed (section 2.4).

2.1 Employment in the 21st Century

Dynamics of the World of Work

The world of work has undergone considerable change in recent decades. Megatrends, such as globalization, digitalization, and population growth have altered the demands placed on work and the way of working. For instance, employees’ desire for more autonomy and flexibility at work has increased, often combined with the wish of achieving a better work-life-balance (Meissner & Chang-Gusko, 2019, p. 164). In this context, new and easily accessible opportunities to connect with each other have enabled more (flexible) communication and mobility (ESPAS, 2019, p. 18, 2021, p. 7) and favored opportunities for remote work or even the emergence of the gig economy (OECD, 2022, p. 38). Moreover, increased connectivity allowed work and learning to be linked in new ways. Digital and physical work and learning opportunities have become more and more independent from place and time, making them “[u]nbound learning resources [which are] blurring the lines between work, life, and learning” (Clark et al., 2019, p. 78).

Furthermore, the megatrends have led to increased pace, unpredictability, lacking transparency, and unclear causality of events as well as multiple opportunities for action and problem solution – summarized in the acronym VUCA which stands for Volatility, Uncertainty, Complexity, and Ambiguity (Mack & Khare, 2016, pp. 5-7). Characteristics of the VUCA world result in ever changing demands for employees as well as employers, making it hard to plan development paths and careers (Segers et al., 2021, p. 10). Rapidly outdated knowledge and skills require constant updating and development of knowledge, skills, and competences. This idea of lifelong
learning is already reflected in educational pathways in Germany. For instance, the Education Report 2022 shows that learning in later phases of life has gained in relevance in that, among other things, further vocational qualifications or retraining have become more common in this phase of an individual’s employment biography (Autor:innengruppe Bildungsberichterstattung, 2022, p. 357).

In addition to the increased need for learning and qualification, the content requirements of qualification have also changed. This trend can be traced back to the economic developments of recent decades, which have led to what has been described as “job polarisation” (OECD, 2020, p. 223). The term job polarization denotes the fact that the demand for workers with medium qualification level has decreased, while workers with low and high qualification levels are in greater demand (OECD, 2020, p. 222). Consequently, middle-skilled workers need to become better qualified to find an appropriate job. If they fail to do so, they will tend to be employed overqualified or even become unemployed. Thus, the outlined developments illustrate that “apart from their initial training, learning in the context of working life is considered to be of particular relevance for workers’ development of required skills and competences” (Harteis et al., 2020, p. 1) and is consequently also pivotal for ensuring economic security and independence.

**Demands Placed on Employees**

Taking on the perspective of an employed person and following the idea of economic security and independence, accepting employment primarily serves to earn one’s living. More abstract needs, such as self-fulfillment, are oftentimes relevant as well, but subordinate compared to covering more basic needs such as food and shelter. In any case, satisfying one’s needs through employment has become more challenging because meeting the professional requirements of a job has become more difficult in a more dynamic and complex world of work. Consequently, to compete and thrive on the labor market and earn one’s living, employees must be enabled, on the one hand, to meet the requirements of their current job and, on the other hand, to respond to and perhaps even shape the dynamics of the world of work (Harteis et al., 2019, p. 242). This competence can be referred to as employability.

“Employability represents a work-specific form of (pro)active adaptability composed of three interrelated dimensions: personal adaptability, career identity, and social and human capital. These dimensions and their specific aspects are conceptualized as supporting workers to identify and realize career opportunities within and between organizations” (Maggiori et al., 2019, p. 258).

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2 A hierarchy of human needs has been introduced, for example, in Maslow’s theory of human motivation (1943), which has been recently discussed by Bridgman, Cummings, and Ballard (2019).
Professional skills are considered to be part of human capital and thus represent only one relevant aspect of employability (Maggiori et al., 2019, p. 258). Consequently, the definition emphasizes that it takes more than professional competences to meet the demands of the world of work.

The fact that the demands placed on employees have changed was noted by policymakers, academics, and business more than 20 years ago and led to the “emergence of the term 21st century skills” (Bourn, 2018, p. 64). The term 21st century skills is used to compile what is required of workers in today’s labor market. Based on an interview study among OECD countries, the skills and competencies required for this were differentiated into the three categories information, communication, and ethics and social impact (Ananiadou & Claro, 2009, pp. 8-11):

The category ‘information’ has gained in relevance due to “the information explosion triggered by ICT [i.e., information and communication technology]” (p. 9), as this resulted in increasing importance of handling sometimes huge amounts of information. This requires, on the one hand, competences and skills necessary to deal with information as a source, such as “searching, selecting, evaluating, and organising information” (p. 9). On the other hand, it involves dealing with information as a product and covers “the restructuring and modelling of information and the development of own ideas [what requires a certain degree of] creativity, innovation, problem solving, and decision making” (p. 9). While the skills and competences just described focus on processes on the individual level, the category ‘communication’ subsumes skills and competences that become relevant at the interpersonal level. Aiming at successful communication and collaboration encompasses proficient and reflected use of language and communication tools in analog, face-to-face interaction as well as in virtual contexts. Furthermore, working with others requires sufficient flexibility and adaptability as it enables to respond ad hoc and appropriately to changing needs of communication partners and new contextual circumstances. Finally, the category ‘ethics and social impact’ covers the societal and multicultural level. Here, the focus is on “critical thinking, responsibility, and decision making” (p. 11) which are necessary to anticipate the effects of one’s actions in social, economic, and cultural terms.

More recently, van Laar and colleagues (2017) confirmed the list of 21st century skills that was derived from the OECD survey reported by Ananiadou and Claro (2009). However, unlike Ananiadou and Claro (2009), they distinguish between core skills and contextual skills, include two additional skills in their framework, and emphasize that “21st century skills are not necessarily underpinned by ICT” (van Laar et al., 2017, p. 577). Core skills are technical skills, information management, communication, collaboration, creativity, critical thinking, and problem solving; contextual skills are ethical and cultural awareness, flexibility and, in addition to
Ananiadou and Claro (2009), self-direction and lifelong learning (van Laar et al., 2017, p. 583). By adding self-direction and lifelong learning, the authors emphasize the relevance of planning and taking responsibility for one’s career as necessary to become and, more importantly, remain employable. Kirpal and colleagues (2007) refer to these skills as elements of an “entrepreneurial work attitude” (p. 308). Such an attitude, they argue, has become necessary for employees because employers have increasingly shifted the responsibility for building an employable workforce to the employees themselves (Kirpal et al., 2007, p. 308). Consequently, skill development and career planning are now in the hands of the individuals (Kirpal et al., 2007, p. 308). Some employees experience these changed demands as challenging, raising the question of how (future) employees can be prepared for these new responsibilities. Zutavern and Seifried (chapter 3) discuss this very question. They show that the dual vocational training system (VET) in Germany proves quite suitable – despite some limitations – for preparing prospective employees for the demands of the labor market and furthermore offers experienced employees the opportunity to obtain new qualifications (chapter 3). Considering the “job polarisation” (OECD, 2020, p. 223) described in the context of the dynamics of the world of work, the opportunities dual VET offers for experienced employees have become more important. Finally, the diverse demands on employees also require a certain degree of resilience and ability to safeguard one’s personal well-being. The demands placed on employees have thus become more complex and require more initiative from the individual to successfully manage one’s professional career.

**Demands Placed on Employers**

While the requirements for employees have changed, the outlined megatrends and dynamics of the world of work also have implications for employers. Specifically, the fact that economic structures have become increasingly complex, full of interdependencies and uncertainties (introduced above as the VUCA world), has led to more complex workplace structures and underlying job requirements. To remain competitive in these circumstances, employers need to find employees who can fulfill those very job requirements, because “regardless of sector or industry, an organization’s success pivots around its human talent” (Belderrain, 2019, p. 45). An increasing shortage of qualified personnel complicates this task. For instance, on the German labor market, the proportion of employable persons is falling, and numerous vacancies cannot be occupied (BMWK, 2022; Kubis & Popp, 2022; KOFA, 2019, p. 6). Supply and demand for skilled workers are thus currently not in line with each other (chapter 3). While the resulting excess demand puts employees in an advantageous position, around half of the German organizations feel threatened by the shortage of skilled workers (BMWK, 2022). Consequently, to
attract qualified personnel, employers must urgently develop an employee-friendly profile and increasingly emphasize their positive profile in relation to their competitors.

One strategy for shaping an employee-friendly organizational profile is to start analyzing and if necessary, modifying the conditions in one’s own organization. In this way, the intention is to design a work environment that is tailored to the needs of employees and thus helps to prevent negative effects of work, such as stress or physical diseases (Pot, 2017, p. 102). As a result, employees’ well-being at work may increase (chapter 5) and employees are more likely to perceive their employer as attractive. Pot calls this strategy the “conditional approach” (2017, p. 96). Once an organization has identified and, as appropriate, improved its work environment, the underlying workplace characteristics can be used to derive an employer profile. Such a profile should encompass objective characteristics (e.g., job duties or development opportunities) as well as symbolic characteristics (e.g., taking on social responsibility or engagement for environmental sustainability; Kanning, 2017, p. 139). Overall, an employer’s profile summarizes the characteristics of an employer and aims to build an appealing employer image known as employer brand (Foster et al., 2010, p. 403). Considering the shortage of skilled workers mentioned above, employers can use their employer brand as a recruiting tool to attract qualified personnel.

Finally, it should be noted that continuous reflection of the work environment is necessary to keep the design of the respective workplace attractive and to achieve positive effects in the long term (Di Fabio, 2017, p. 4). Continuous reflection enables employers to constantly adapt their work environment to the volatile socio-cultural and economic conditions and resulting needs of their employees which were discussed earlier in this chapter. Moreover, continually evaluating one’s employer characteristics allows organizations to maintain an attractive employer brand that supports the recruitment and long-term retention of qualified personnel (Zutavern & Seifried, 2019, p. 201).

2.2 The Workplace as Learning Environment

The workplace assumes a prominent role for employees’ professional development. This is reflected, for instance on the German labor and education market, in the relevance of employer-provided learning opportunities for job-related continuing education and training (CET). According to the 2022 Education Report, most CET activities take place in corporate settings. The

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3 For a detailed description on how to build an employer brand, see Zutavern and Seifried (2019).
4 “Continuing education and training (CET) is learning undertaken by adults who have already completed their initial education and training and entered working life. Job-related CET helps adults to acquire new skills, in order
The importance of the workplace as learning site even increases, when one considers that the data reported in the 2022 Education Report only include structured and planned learning activities. This procedure neglects the fact that workplace learning often occurs in a rather unstructured and unplanned way (Eraut, 2004, p. 249; Gruber & Harteis, 2018, p. 160; Schwartz, 2019, p. 486). Such learning activities are usually referred to as informal learning and have been proven to be “far more important in incidence and intensity” than formal or non-formal learning activities (OECD, 2019, p. 4). OECD analyses on different forms of job-related learning revealed that about 70% of employees participate in informal learning (OECD, 2019, p. 35). Moreover, the study demonstrates that about 80% of time spent on job-related learning is on informal learning activities (OECD, 2019, p. 37). Thereby, most learning happens through learning-by-doing – both on average across OECD countries and for Germany in particular (OECD, 2019, p. 45). It is also interesting to note that informal learning activities predominate other job-related learning regardless of employees’ individual characteristics (i.e., gender, age, to retrain, change career, increase their employability and for their professional development.” (OECD, 2021, p. 10)

5) Reported data on continuing education activities in the corporate context refer to non-formal education as defined by the International Standard Classification of Education – ISCED 2011. According to this definition, non-formal education comprises learning opportunities, that are “institutionalised, intentional and planned by an education provider” (UNESCO Institute of Statistics, 2012, p. 11). Such learning opportunities are offered “in addition, alternative and/or complement to formal education within the process of lifelong learning [and] successful completion of a non-formal education programme and/or a non-formal education qualification does not normally give access to a higher level of education” (UNESCO Institute of Statistics, 2012, p. 11–12).

6) Reported data on incidence and intensity of informal learning were calculated based on the 2012 and 2015 Survey of Adult Skills (PIAAC). In these surveys, informal learning is measured as learning-from-others, learning-by-doing, and learning as requirement of the job (OECD, 2019, p. 17, 29-30).
job tenure, and education level; OECD, 2019, p. 48 ff., Figures 4.11–4.15). Work environment characteristics in contrast, appear to influence employees’ learning behavior. Namely, employees in jobs that offer comparatively high levels of autonomy, teamwork, and peer exchange – also referred to as High Performance Work-organisation Practices (HPWP, p. 7) – are considerably more likely to learn informally than employees in jobs where these characteristics are less prominent (OECD, 2019, p. 51 and p. 52, Figure 4.16).

Overall, the reported findings demonstrate that the work environment plays a considerable role in employees’ professional development. First, because the workplace is one of the most frequently used learning locations for work-related learning. Second, because workplace characteristics influence employees’ learning activity. To further describe the workplace as learning environment, some conceptual considerations in this regard are introduced in the following four paragraphs: First, several characteristics are explained, that are commonly used to describe learning activities in the workplace. Second, four models of workplace learning are presented to give an overview of determinants – and in some cases also effects – of workplace learning activities. Third, processes for managing knowledge in the workplace are explained, as knowledge is to be understood as an input to and output from learning activities, respectively. And fourth, the process of organizational socialization is presented as a kind of use case in which some of the considerations described in the previous paragraphs come to bear.

**How to Learn at Work – A Brief Introduction**

“Workplace learning refers to the acquisition of new knowledge and skills that are of importance in order to be able to function in the work environment” (Taris, 2006, cited after Raemdonck et al., 2014, p. 189). Thereby, participation in such learning activities is usually not aimed at learning an occupation from scratch. Rather, workplace learning is about developing existing job-related skills to respond appropriately to changing professional demands or to prepare for anticipated future professional demands (Harteis et al., 2020, p. 1 f.). In other words, learning in the workplace can be reactive as well as proactive. Either way, the employee conducting workplace learning attempts to meet the professional performance expectations that are placed on him or her – at present and in the future (Kyndt & Baert, 2013). Beyond that, workplace learning may also be leveraged to achieve personal goals (Choi & Jacobs, 2011, p. 240). These are not necessarily aligned with employer performance goals and can also be more long-term and employer-independent toward shaping one’s professional career (Kyndt & Baert, 2013, p. 275). Thus, “workplace learning is not an abstract idea or about learning for learning’s sake. It needs to be understood as *learning for something particular*” (Manuti et al., 2015, p. 13).
Concrete practices of workplace learning are commonly differentiated into formal and informal learning activities (Zutavern & Seifried, 2022, p. 352). This distinction is to be understood as a continuum that “comprise[s] structured as well as more practice-based processes” of competence development (Brandi & Iannone, 2021, p. 319). Formal learning activities constitute one end of this continuum. Such learning opportunities are typically well structured as they are “planned in advance by a teacher” or trainer (Cho & Kim, 2016, p. 407). In the course of advanced planning, the learning content and underlying learning objectives are determined, as well as the time frame for achieving these learning objectives (Cerasoli et al., 2018, p. 204). Moreover, formal learning activities are usually conducted in an institutionalized setting outside the workplace (Choi & Jacobs, 2011, p. 241). Informal learning activities, in contrast, tend to be less structured. They “occur while carrying out daily activities and tasks” (Schürmann & Beausaert, 2016, p. 131) and, thus, do not follow a set curriculum (Cerasoli et al., 2017, p. 204). However, informal learning activities can also contain an element of reflection (Watkins & Marsick, 1992, p. 290), as they are conducted with the intention to acquire or improve knowledge, competencies, skills, and/or attitudes related to the performance of one’s job duties (Smet et al., 2022, p. 2; Tannenbaum et al., 2010, p. 306). Given such close connection to the

Figure 2.1: Three-dimensional matrix of workplace learning activities
Source: Tannenbaum & Wolfson, 2022, p. 394
learner’s professional activity, informal learning is assumed to serve the learner’s needs better than formal learning (Cho & Kim, 2016, p. 407).

In addition to the formal–informal learning continuum, Tannenbaum and Wolfson (2022, p. 394) propose two more continua along which learning activities can be positioned (see Figure 2.1): The first additional continuum they propose maps the degree of self-direction of the learning process. Depending on who initiates the learning activity, it is positioned at or in between the poles of other-directed learning and self-directed learning. The second additional continuum the authors propose, maps the degree of intentionality with which learning at work is conducted. Here, the continuum ranges from incidental learning on the one end to intentional learning on the other end. Whereby incidental learning “occurs as a by-product of something else” (Watkins & Marsick, 1992, p. 293), a learner purposively initiates a learning situation in intentional learning processes (Bereiter & Scardamalia, 2016, p. 363). Altogether, the three continua form a matrix to describe various learning activities in the workplace.

Models of Learning at the Workplace

Complementing the characteristics used to distinguish workplace learning activities, models of workplace learning provide an overview of determinants – and in some cases also outcomes – of learning at the workplace. The first model to be presented here is the expansive–restrictive continuum proposed by Fuller and Unwin in 2004. The authors distinguish workplaces into environments that either promote or inhibit employees’ learning activities. Whether a workplace is assessed as promoting or inhibiting learning, depends on how certain pedagogical, organizational, and cultural factors of the respective work environment are shaped. “Environments [that] foster learning at work and the integration of personal and organizational development” (p. 127) are called “expansive learning environments” (p. 126). In such workplaces, learning and development is typically a tradition and anchored in the organization’s vision and strategy. Thus, high priority is given to the development of employees, for instance by providing time resources, materials, and leadership support for learning and competence development, or by encouraging employees to inter-disciplinary and inter-organizational cooperation and exchange. Individual and professional characteristics such as tenure, qualification level, organizational position or division are not decisive for receiving organizational support. Rather, diverse skills and knowledge are recognized and appreciated. “Restrictive environments” (p. 127), on the opposite, do not fulfill these characteristics. In such workplaces access to knowledge, skills, and competences is limited and organizational support is lacking or only
granted for selected organizational groups or individuals. Overall, learning and development are utilized in a purely functional way to achieve the organization’s (economic) objectives.\(^7\)

While expansive and restrictive environments have been presented here as opposites, it should be noted that most workplaces cannot be identified as purely expansive or purely restrictive learning environments. Rather, Fuller and Unwin’s differentiation is to be understood as a continuum and workplaces mostly show tendencies in one direction or the other (Fuller & Unwin, 2004, p. 129). Furthermore, it needs to be stressed that the expansive–restrictive continuum does not map the learner itself. The authors are aware that “individuals can, of course, exercise choice over the extent to which they engage in learning” (Fuller & Unwin, 2004, p. 127). In doing so, employees are influenced by their prerequisites, such as education or personal background (summarized as ‘learning territory’ in Fuller & Unwin, 2004, p. 127). Nevertheless, Fuller and Unwin have focused on the design of the work environment as “the creation of expansive learning environments can act as a mechanism for ‘smoothing’ out individual differences and fostering more even take up of opportunities and, by so doing, facilitate the integration of personal and organizational development” (Fuller & Unwin, 2004, p. 133).

Unlike Fuller and Unwin’s conceptualization, there are other approaches that depict the individual employee as influencing factor on learning in the workplace. For instance, Billett’s model of Co-participation at Work and Eraut’s Two-Triangle Model explicitly include the employee as one part of their conceptualization. According to Billett’s model of Co-participation at Work (2001, 2002), learning at the workplace only occurs when two conditions are fulfilled (see Figure 2.2): First, the work environment needs to provide opportunities and support for learning. Billett calls this a workplace’s “readiness” for employees’ learning activities (2001, p. 209) or “workplace affordances” (Billett, 2001, p. 211). Workplace affordances are constituted by the work practices enacted in the respective workplace as well as the artefacts, tools, procedures etc. that are required to initiate and perform these work practice (Billett, 2001, p. 211). Social conditions in the workplace – such as hierarchies or group affiliations – also play an important role, as they can contribute to the development of work practices on the one hand and may regulate access to workplace affordances on the other hand (Billett, 2002, p. 462). Moreover, socioeconomic developments can determine the affordances of a workplace by affecting the content of job profiles and the design of work and employment arrangements (Billett, 2002, p. 467).

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\(^7\) A detailed comparison of learning-promoting and learning-hindering factors of work environments is provided in the original text in Figure 8.1 (see Fuller & Unwin, 2004, p. 130).
Second, employees need to take advantage of the opportunities and support provided by the workplace. In doing so, employees draw on their individual prerequisites, such as knowledge, values, and personal experiences from previous (work) contexts (Billett, 2001, p. 210 f., 2002, p. 463). The combination of workplace affordances and individual preconditions ultimately results in workplace-related employee (inter-)actions (Billett, 2002, p. 466). These (inter-)actions may change the conditions of the workplace and the individual (Billett, 2001, p. 210, 2002, p. 468), which in turn can lead to changes in employees’ (learning) behavior. As part of this ongoing mutual influencing between the workplace and the employee, “individuals are required to renegotiate and reposition themselves in work practice through their working lives” (Billett, 2002, p. 463). This interdependence between the workplace and the employee is titled “co-participation” (Billett, 2001, p. 209, 2002, p. 467).

Compared to Fuller and Unwin’s approach, Billett’s model of Co-participation at Work emphasizes more clearly the relevance of the employee to initiate workplace learning because workplace conditions “[…] alone cannot guarantee rich learning outcomes when individuals decide not to engage in the work practice” (Billett, 2001, p. 212). Furthermore, it is stressed, that workplace learning is not limited to a specific employment relationship. Rather, learning at work shapes an employee throughout the entire employment biography. Conclusively, it should be noted that Billett agrees with Fuller and Unwin on the tremendous importance of workplace design to stimulate employee learning (Billett, 2001, p. 213).
The second approach that includes the learner as part of the model is the Two-Triangle-Model introduced by Eraut in 2004 (see Figure 2.3). In his approach, Eraut does not differentiate between work context and individual, as Billett does. Rather, he distinguishes learning factors (upper triangle) and context factors (lower triangle), each constituting a layer of the model. “In each triangle the left apex relates to the work itself, the right apex to relationships at work and the lowest apex to the individual worker” (Eraut, 2004, p. 270). Among these three influencing factors, Eraut describes the following interdependencies within and between the triangles (2004, p. 268 ff.): Regarding learning factors mapped in the upper triangle, an employee’s confidence as well as his or her commitment to the work and the work environment are decisive for the initiation of a learning activity. More confident employees are more likely to perceive learning opportunities (challenges) and the more learning opportunities have been successfully encountered, the greater an employee’s confidence. In addition, it is assumed that committed employees experience their work as more meaningful for others and their own careers (value of work), which can have a positive effect on learning and in turn may also increase their commitment. Finally, employee commitment may be promoted when they receive feedback on their work.

![Figure 2.3: Two-Triangle Model](source)

*Source: Eraut, 2004, p. 269*
Regarding context factors mapped in the lower triangle, ‘allocation and structuring of work’ are quite critical factors for workplace learning. On the one hand, they interplay with the other contextual factors by conditioning opportunities for exchange and relationship building with other actors in the work environment. Such encounters and relationships can then help employees gain clarity about what is expected of them. On the other hand, ‘allocation and structuring of work’ also influence the learning factors that make up the upper triangle. This is because the design of the work largely determines the creation of challenges as well as opportunities for feedback and support, which in turn can initiate or foster employees’ learning activities. Considered in summary, Eraut (2004) describes learning in the workplace as a result of the complex interaction of learning and contextual factors, whereby the influence of the individual employee is primarily reflected in the learning factors. Furthermore, and in contrast to the previously described models, Eraut illustrates that there are interrelationships between both the individual and the work environment, as well as between various factors of the work environment itself, which can either promote or hinder learning.

The last model to be presented in this thesis is Tynjälä’s 3-P model (2013, p. 13 ff.; see Figure 2.4) and its extension to the i-PPP model developed by Gruber and Harteis (2018). In the 3-P model, Tynjälä, like Billett and Eraut, maps the learning context and the learning individual as influencing factors on learning in the workplace – together termed presage factors. The learning context encompasses all factors that arise from the specific work environment in which the learning activity will be conducted. The learner factors relate to the individual employee and

![Figure 2.4: 3-P Model of Workplace Learning](source:Tynjälä, 2013, p. 14)
Conceptual Foundation

encompass all person-related inputs that are brought in the learning process. As opposed to her colleagues, Tynjälä adds the learning process and potential learning outcomes as model components. The process component is further subdivided into the learner’s interpretation of the presage component and the specific learning activities that the learner performs. Finally, the product component comprises learning outcomes on either the job level, the individual level, or the organizational level. Altogether, the three P’s – Presage, Process, Product – and the reciprocal relationship between presage and product component compose the core of Tynjälä’s model. Furthermore, Tynjälä accounts for the sociocultural environment in which workplace learning occurs. Thereby, she accounts for the broader context which may influences all the three P’s.

Little consideration, however, is given to the influence of social relationships on the learning activities of an individual and his or her professional development regardless of a particular job or occupation. To account for this, Gruber and Harteis modified Tynjälä’s 3-P model into the i-PPP model (integrated Premise-Process-Product model; 2018, p. 160). With this refinement the authors focus on explaining professional and expertise development and rely on the understanding of learning as “an integral part of working and performance, [so that] the proportions are fuzzy to which daily activities can be split into ‘working’ and ‘learning’” (Gruber & Harteis, 2018, p. 158). Furthermore, the authors assume that all three model components simultaneously effect individuals’ learning activities, are mutually dependent, and always include an intra-individual and social dimension (Gruber & Harteis, 2018, p. 161). Thus, the i-PPP model emphasizes that work-related learning and the professional development of an individual are subject to multiple interdependencies. Above all, it is highlighted that the individual can influence not only the learning process, but also the social context in which learning takes place. Based on the learning outcomes and the resulting professional performance, an individual may set the conditions for future learning activities, for instance, by developing new work techniques followed by changes in professional standards. At the same time, the individual is influenced by social relationships and his or her integration into the social fabric of society.

In conclusion, the four models presented in this section gain complexity in the order in which they were introduced. The section started with Fuller and Unwin’s conceptualization of expansive and restrictive work environments, that focused on contextual factors influencing employees’ workplace learning. Next, Billett’s model of Co-participation at Work and Eraut’s Two-Triangle model were discussed. Both models are more complex than the expansive-restrictive continuum as they include the learner as model component and account for interdependencies between learner and work environment. Tynjälä’s 3-P model further increases complexity by,
first, embedding the entire workplace learning process into a sociocultural environment as a kind of external input factor. Second, the inputs and outputs of the workplace learning process are described in more detail compared to the other models. Third, it incorporates the learner’s perception of his or her prerequisites and the learning context, which is crucial for initiating the learning process. And forth, the 3-P model considers that learning activities may be realized in various ways within the work context. Finally, Gruber and Harteis’ i-PPP model stresses the influence of social relations and the interdependencies between the model components on workplace learning and professional development.

Knowledge Management

After discussing factors that potentially influence learning in the workplace, it is equally important to properly handle the achieved learning outcomes. Knowledge management research addresses this very issue by investigating both, the construct of knowledge as well as the processes intended to manage it. A common approach to define knowledge is its distinction from data and information. This distinction can be traced back to the widely used data-information-knowledge-wisdom pyramid – DIKW-pyramid for short – that emerged in the 1980s (Frické, 2019, p. 33, 34). According to this approach, data, information, and knowledge are understood as three constructs that build on each other in the aforementioned order and increase in complexity with each processing step (Davenport & Prusak, 2010; Krcmar, 2015). Thereby, complexity is achieved either by combining the content at one processing stage (e.g., grouping data into a category system), or by enriching the content at one processing stage with content that lies outside the respective processing stage (e.g., an employee’s experiences) (Davenport & Prusak, 2010, p. 4 ff.). Completing the three processing steps, results in knowledge as the most complex of the three constructs. Due to this complexity, different approaches have emerged to describe the characteristics of the construct knowledge more precisely. Widely used are the differentiation by codification form into implicit or explicit knowledge, as well as the differentiation by type of knowledge into declarative, procedural, and metacognitive knowledge (see

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8 The DIKW-pyramid is subject to some criticism, as Frické (2019, p. 39, 41) explains: Issues include the content, number, arrangement, and missing assessment of the levels, as well as the missing contextualization and alignment of the entire pyramid with an (overarching) objective. Jennex (2017) further advocates Big Data, the Internet of Things (IoT), and data analytics as relevant model components. However, the distinction between data, information, and knowledge remains despite the criticism raised. Thus, it is adopted in the following and in study 4 (chapter 6).

9 A more detailed description of the three constructs, their interrelations, and selected characteristics of the construct knowledge are provided in study 4 (chapter 6).
Pawlowsky, 2019, p. 109 ff., for more detailed explanations and further differentiation approaches). Being aware of and understanding the characteristics of knowledge can help individuals and organizations best leverage their knowledge stocks.

Effectively managing one’s knowledge stocks comprises a variety of processes. Probst and colleagues (2012) have summarized these very processes as the eight elements of knowledge management (p. 34, in German: Bausteine des Wissensmanagements).10 Their model was developed to guide organizations in knowledge management but can also be applied at the individual level (e.g., to identify training potentials or to elaborate one’s professional goals). Overall, the model can be divided into an object level and a meta level. Six of the eight elements are located on the object level. They are referred to as “core processes” (Probst et al., 2012, p. 26). The core processes are all interrelated and refer to more operational activities in dealing with knowledge (see box in Figure 2.5).

**Figure 2.5: Elements of Knowledge Management**

Source: Probst, Raub, & Romhardt, 2012, p. 34

Starting with knowledge identification, the aim is to make relevant and existing knowledge transparent and accessible to the members of an organization (Probst et al., 2012, p. 67). This “includes [on the one hand] identification of the status quo” (Probst et al., 2012, p. 66) regarding

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10 Other models depicting knowledge management processes are presented and discussed, for example, in North (2021, pp. 174–182).
existing knowledge stocks within the organization. On the other hand, it involves the “systematic elucidation of the relevant knowledge context” (Probst et al., 2012, p. 66), by recording all externally existing, relevant knowledge stocks. As a result, transparency and access to relevant knowledge should increase individual and organizational performance (Probst et al., 2012, p. 67). Furthermore, knowledge identification can reveal knowledge gaps, which in turn triggers processes for knowledge acquisition and/or development (Probst et al., 2012, p. 91).

Knowledge acquisition aims to fill knowledge gaps by acquiring knowledge from external sources (e.g., recruiting skilled personnel, purchasing patents or software, or obtaining information from stakeholders; Probst et al., 2012, p. 95 ff.). Knowledge development, in contrast, is about “all the management efforts with which the organization makes a conscious effort to produce capabilities that do not yet exist internally or even to create capabilities that do not yet exist internally or externally” (Probst et al., 2012, p. 115). Beyond these deliberate efforts, knowledge also develops unconsciously, as a “byproduct in daily organizational activities” (Probst et al., 2012, p. 142). Such learning activities are referred to as incidental learning (Watkins & Marsick, 1992, p. 293) or spontaneous learning (Doornbos et al., 2008, p. 131).

Once the required knowledge is available and accessible, it must be applied and managed appropriately. For this purpose, it should first be ensured that the knowledge is shared with those who need it to accomplish their work tasks. Such a sharing process is not necessarily a one-way process. Rather, “organizational knowledge sharing [is] a reciprocal exchange process in which the knowledge stocks of all participating organizational members can be expanded” (chapter 6).

While the idea of knowledge sharing seems quite simple and plausible, its effective implementation “is one of the most difficult and underestimated obstacles to successful knowledge management” (Probst et al., 2012, p. 145). Barriers for knowledge sharing might result from deficits in motivation, communication, documentation, resources, organizational-structural aspects of work, or an organization’s culture (chapter 6). Depending on how these deficits affect the sharing process, it can be thwarted or become inefficient (chapter 6). Beyond that, deficient sharing processes can lead to negative experiences regarding knowledge sharing, which in turn can inhibit future sharing processes (chapter 6).

However, if knowledge has been shared successfully, individuals need to apply the knowledge they have gathered – and, of course, also the knowledge they already had. While knowledge application is supposedly rather at the end of the linkage of knowledge management processes,
it should certainly be considered in the preceding processes (Probst et al., 2012, p. 183). “Because only through the productive application of knowledge can the efforts of knowledge management be translated into tangible results” (Probst et al., 2012, p. 183). Finally, it is important to retain relevant knowledge stocks. This process of knowledge preservation comprises three critical procedures (Probst et al., p. 203): First, knowledge assets worth preserving must be determined. Second, this body of knowledge must be stored in an appropriate format. And third, the stored knowledge must be continually updated.

The remaining two processes – knowledge assessment and knowledge objectives – are more strategic in nature. They form the meta level of Probst and colleagues’ model and serve to guide the entire knowledge management in a proper direction. Knowledge assessment is initially “about making changes in the organizational knowledge base visible” (Probst et al., 2012, p. 225). After determining the knowledge changes, it is necessary to evaluate whether the organization’s knowledge objectives are achieved by its new knowledge base (Probst et al., 2012, p. 225). The Knowledge objectives should be consistent with and contribute to the achievement of the organizations’ strategy, vision, and mission (Probst et al., 2012, p. 42, 61). And now we come full circle: Based on the knowledge objectives, it can be derived which knowledge is to be classified as relevant within or outside an organization, and which of these knowledge components are already available in the company. Hence, the knowledge objectives constitute the basis for the process of knowledge identification (Probst et al., 2012, p. 65 f.).

Organizational Socialization

To close the section on the workplace as a learning environment, the process of organizational socialization will be introduced hereafter. An introduction to organizational socialization seems appropriate at this point, as several of the considerations described earlier in this section come into play within this process. Thus, organizational socialization can be interpreted as a ‘use case’ of the workplace as learning environment and is therefore an appropriate process to merge the previously discussed considerations.

In general, socialization occurs whenever “individuals enter new social settings where new patterns of social behavior may be needed” (Maccoby, 2015, p. 4). Starting with a new employer represents one such socialization trigger called organizational socialization (Ellis et al., 2015, p. 318). In the case of organizational socialization, the workplace – embedded in a broader

11 Undoubtedly, the question of how to operationalize knowledge arises at this stage. Suggestions and guidelines for knowledge assessment are provided by, for example, Vollmar (2016, 2017), who introduces the ‘Knowledge Scorecard’, or the BMWK (2013, former BMWi), which has developed the ‘Wissensbilanz – Made in Germany’ particularly for small and medium-sized organizations to help them map their knowledge assets.
organizational structure – is the social setting into which an individual enters in the role of employee. As part of this process, the new employee attempts to successfully integrate into the new environment to become an accepted member of this particular social setting (Saks & Gru- 

man, 2018, p. 12). However, organizational socialization is not only about learning social behaviors. Rather, a new employee also needs to learn the professional requirements of the new job, as well as the cultural aspects underlying the new work environment (Van Maanen & Schein, 1979, p. 211 ff.). Furthermore, changes in the general work conditions as well as any changes in the private sphere may also affect the socialization process (chapter 4). In summary, organizational socializations is about learning the social, professional, and contextual aspects of the new job “necessary to assume an organizational role” (Van Maanen & Schein, 1979, p. 211 ff.). Given that employees usually work at different workplaces in different organizations during their employment biography (Bachmann et al., 2020, p. 86), organizational socialization is a thoroughly relevant process for employees and employers. In addition, organizational socialization is of great interest for research on the workplace as a learning environment because of the learning processes on which it is based.

Organizational socialization and how to learn at work. Various forms of learning can come into play when newcomers attempt to learn all relevant socialization content. Principally, all learning activities are conceivable that can be placed on the three continua proposed by Tannenbaum and Wolfson (2022), resulting in different combinations of formal and informal learning, intentional and incidental learning, as well as self-directed and other-directed learning (see Figure 2.1). However, early approaches attempting to describe the socialization process focused even more on the influence of the organization on shaping newcomers’ learning activities. Two prominent approaches in this respect are Van Maanen and Schein’s six “tactical dimensions of organizational socialization”, 1979, p. 230 ff., and its further development by Jones (1986) into individualized and institutionalizes socialization tactics (p. 263). Meanwhile, “organizational socialization has been recognized as a joint process” (Ellis et al., 2015, p. 301) between the organization and the newcomer. This traces back to researchers, who paid more attention to newcomers as active agents in the socialization process and the learning activities associated with it. For instance, Cooper-Thomas and colleagues (2012, p. 46 ff.) investigated newcomer adjustment strategies, and research from Kammeyer-Müller and colleagues (2003, p. 789, 2010, p. 8f.) or Bauer and colleagues (2016, p. 8, 2019, p. 360) focused on newcomers’ proactive

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12 A more detailed description of the three levels of organizational socializations – that is the social, professional, and contextual level – is offered in study 2 (see chapter 4).
behavior. Moreover, findings from Jia, Zhong, and Xie (2021, p. 406 f.) demonstrate, that helping behavior from newcomers themselves and colleagues’ perception of newcomers’ helping behavior drive newcomers’ socialization. Recently, research on how newcomers learn organizational socialization content also focuses on the role of social interactions and stresses the impact of the colleagues as “socialization agents” (Ashforth, 2012, p. 169). For instance, Harris and colleagues (2020, p. 205) expose the process of sense-giving, sense-making, and sense-testing between newcomers and their colleagues. Takeuchi, Takeuchi, and Jung (2021, p. 407) confirm new colleagues’ relevance to organizational socialization by concluding that perceived co-worker support positively influences newcomers’ organizational socialization. Birkle and Seifried (chapter 4) also confirm the significance of the new colleagues. However, they further demonstrate that newcomers make use of several support options to find their way in the new work environment.

**Organizational socialization and models of learning in the workplace.** Since organizational socialization “is considered to be primarily a learning process” (Saks & Gruman, 2018, p. 13), models of learning in the workplace are well suited to depict this very process. Among the workplace learning models presented in this thesis, Tynjälä’s 3-P model (2013, p. 14, see Figure 2.4) is particularly well suited to illustrate the organizational socialization process. First, this is because the 3-P model represents both relevant input factors for organizational socialization (see presage component in Figure 2.6) – namely, the characteristics of the newcomer as learner factors and the characteristics of the organization as learning context.

![Figure 2.6: 3-P Model of Organizational Socialization](image)

Source: Adapted from Tynjälä, 2013, p. 14; Saks & Ashforth, 1997, p. 239; Saks et al., 2007, p. 417; Gruman & Saks, 2013, p. 216; Ashforth et al., 2007, p. 457; Bauer et al., 2007, p. 713; Bauer & Erdogan, 2011, p. 52
Second, the model indicates that a process is necessary to achieve the desired socialization outcomes (process component). On the one hand, this process is triggered by the newcomer. Based on the perception of his or her own characteristics and the characteristics of the organizational environment, the newcomer derives possible options for learning activities and thus for socialization (chapter 4). On the other hand, the perception of the actors in the organizational context may also play a role for newcomers’ socialization process (Jia et al., 2021, p. 406 f.). This is because these actors’ interpretations of the newcomer’s characteristics and the organizational context may influence access and opportunities for learning and thus socialization progress. In the best case, both interpretations of the presage components are inline and result in activities that favor the socialization of the newcomer. Such socialization efforts can be described very well in terms of learning activity attributes. For instance, information seeking which is rather informal, intentional, and self-directed learning activity, or participation in training activities which is a formal, intentional, rather other-directed learning activity.

Third, the 3-P model (of organizational socialization) maps the desired outcomes of these (socialization) efforts. In contrast to Tynjälä’s 3-P model the literature on organizational socialization differentiates between short-term and long-term outcomes (proximal and distal outcomes). However, both types of outcomes can be assigned to the product component of the model. Fourth, influencing factors outside the organization as socialization environment may also have an impact on the progress of newcomers’ socialization (e.g., private circumstances, chapter 4). Such external factors are represented in the model as extra-organizational environment (sociocultural environment in Tynjälä’s original model).

Organizational socialization and knowledge management. As explained in the preceding sections, learning processes and the associated transfer and acquisition of knowledge are fundamental to organizational socialization. Within this context, learning processes are aimed at bringing together – or, in other words, manage – the knowledge stocks of the hiring organization and the newcomer to enable successful collaboration for both parties. Thus, organizational socialization, can also be viewed from the perspective of knowledge management. To illustrate how knowledge management becomes relevant during organizational socialization, the eight elements of knowledge management are applied to the socialization process hereafter.

From the perspective of the newcomer, the socialization process begins with knowledge identification. When starting the new job or even during the recruiting process, the applicant, i.e., the potential newcomer, compares which of the knowledge stocks relevant for the position he or she already possesses. The greater the match between the expected and actual knowledge,
the more likely the candidate will perceive the position as suitable and agrees upon an employment contract. As soon as the new position has been taken up, any minor or major knowledge gaps should be filled. One possible strategy to gain missing knowledge is knowledge acquisition with the help of resources outside the organization, for example, research on the internet (chapter 4). Furthermore, deficits can be reduced through knowledge development with the help of organization-internal resources, for instance, through exchange with the new colleagues, the supervisor, or by reading process documentations (chapter 4).

Prerequisite and at the same time result of knowledge development is knowledge sharing. Only if the organization makes knowledge available to the newcomer, he or she will be able to assimilate it. The same applies to the transfer of knowledge from the newcomer to the organization. Following successful knowledge sharing, it is equally important that the newcomer applies the respective knowledge stocks by fulfilling the new organizational role (knowledge application). Of course, new knowledge can also be developed through performing one’s organizational role (e.g., through learning by doing or incidental learning), as “learning is an ongoing and inevitable process arising from participation in work practice” (Billett, 2001, p. 31). Knowledge preservation serves the newcomer on the one hand as a resource and on the other hand as a method. Resource, because the newcomer can draw on the documentation of relevant knowledge stocks for knowledge development (cf. knowledge development). Method, because the newcomer can document existing and newly learned knowledge stocks to foster the socialization process (e.g., by writing down instructions, chapter 4) and thus contributes to the organizations’ overall knowledge base.

Finally, knowledge assessment and knowledge objectives serve to evaluate the progress of organizational socialization. To this end, the newcomer assesses socialization progress – supposedly rather unconsciously – based on the short- and long-term outcomes listed in the 3-P model of organizational socialization (see Figure 2.6). Of course, scenarios are conceivable in which the assessment process happens very deliberate, e.g., through employee appraisals or feedback rounds. In each case, the newcomer should consider further, maybe different, socialization activities (constructive approach), if the expected outcomes have not (yet) been achieved. Alternatively, the newcomer may leave the organization (avoidance strategy). In an ideal situation, the assessment reveals that all or at least most of the intended socialization outcomes have been achieved and that pending objectives can be met with the available resources.

From the perspective of the hiring organization, knowledge identification precedes the socialization process. By matching existing and required knowledge stocks, a knowledge gap has been
identified that cannot be filled with the knowledge available within the organization. Consequently, the knowledge deficit is closed by (external) knowledge acquisition, i.e., the recruitment of qualified personnel. Recruiting usually marks the first contact between the potential newcomer and the organization. At this point, the socialization process begins from the perspective of the organization, because it is during recruiting that first socialization relevant contents are conveyed (e.g., professional requirements, organizational culture; Bauer, 2010, p. 9; Klein & Polin, 2012, p. 271). If the applicant appears to meet the job requirements, he or she is hired and thus considered a newcomer.

To further socialize the new employee on the professional, social, and contextual level of socialization, knowledge acquisition, knowledge development, knowledge sharing and also knowledge application become relevant – as already described from the perspective of the newcomer. For the hiring organization, the practices underlying these four elements of knowledge management can be summarized under the term onboarding. Onboarding is considered an umbrella term for “all formal or informal practices, programs, and policies enacted or engaged in by an organization or its agents to facilitate newcomer adjustment” (Klein & Polin, 2012, p. 268). Thereby, processes of knowledge development and knowledge sharing can be facilitated by careful knowledge preservation, as this makes an extensive knowledge base accessible. At the same time, it is important to record experiences and newly acquired knowledge as part of the socialization process to benefit from them in upcoming socialization processes.

Finally, the hiring organization evaluates the newcomer’s socialization progress through knowledge assessment and predetermined knowledge objectives. Depending on how socialization progress is assessed, the employment relationship with the new hire will be continued or terminated. If socialization outcomes have not yet been (fully) achieved, further onboarding activities may be initiated. To avoid an undesirable development of the newcomer’s organizational socialization, knowledge assessment should take place from the very beginning of the employment relationship and in dialogue with the newcomer (e.g., through regular feedback with the supervisor).

In summary, organizational socialization represents a process in employees’ employment biographies that involves an enormous amount of learning. This is because starting with a new organization, requires “learning about and understanding one’s new work environment [and furthermore, learning] one’s new job duties” (chapter 4). In this context, it is revealed how well the design of the work environment as learning environment works for the newcomer. Effective knowledge management, especially the processes of knowledge acquisition, development, and
sharing, can support the newcomer in acquiring all relevant socialization content and thus promote his or her organizational socialization.

2.3 Employees’ Perception of the Work Environment

Understanding the way an individual perceives his or her environment is relevant to studies of workplace learning – and thus this thesis – because “determining factors [for learning activities in the work environment] are how [employees] see themselves as workers and learners as well as how they see their workplace as a working environment” (Tynjälä, 2013, p. 15). The perception of the requirements and opportunities in a specific work situation thus conditions the way in which this situation is dealt with (Hacker, 2021, p. 28 f.) – for instance, whether employees engage in learning activities or not (Fuller & Unwin, 2004, p. 133). Empirical findings on the effects of employees’ perception of the work environment on employees’ learning behavior at work are outlined in study 3 and 4 in this thesis (chapter 5 and 6). Given the relevance of employees’ perception for professional learning, perception itself has only been briefly addressed in this thesis so far (see section 2.2: Tynjälä’s 3-P Model and its adaptation as 3-P Model of Organizational Socialization). To consider the topic in more detail, a theoretical foundation for employees’ perception of the work environment will be provided hereafter.

Employees’ perception of the workplace is approached by researchers from various disciplines (chapter 5). With the advancement of technology, human perception has become of particular interest, for instance, regarding human-machine interaction, experience in extended reality, and the use of artificial intelligence. However, economic and business educators, and especially psychologists, have long been interested in human perception. Research efforts in economic and business education focus, among others, on teaching and learning activities at work and on the design of learning-enhancing work environments (Eckert & Tramm, 2004; GERA, 2023). Considering individual perceptions of the work environment can provide valuable guidance for the design of work and learning environments, as the results of studies 2, 3, and 4 in this thesis show. As subject to psychologically oriented research, which broadly speaking deals with the “experience and behavior of human beings”, human perception is understood as one process of human experience (Rosenstiel & Friedmann, 2011, p. 2). Various research branches of psychology are dedicated to this broadly defined field of research; the German Psychological Society differentiates 17 specialist groups (DGPs, 2022). Industrial and organizational psychology – I-O psychology in short – is one of them. Comparable to economic and business education research, researchers in I-O psychology are also dedicated to the question of how employment in organizations can be designed to be conducive to employees’ development (Nerdinger et al., 2019, p. 4). Early on, “it has been recognized that the context or situation surrounding human
behavior will make a big difference when it comes to efforts at both understanding and predicting. [Furthermore, it was] acknowledged that while the ‘facts on the ground’ will make a difference in shaping behavior, so will the way that the individual will perceive or interpret what is going on around him or her” (Klimoski, 2020, p. 293).

An approach that represents this view and is accordingly well suited to study employee perception of the work environment is Winfried Hacker’s action regulation theory. In Hacker’s theory of action regulation “it is assumed that the execution of an activity is conditioned by environmental and individual factors, and the perception of the employees is considered crucial for the processing of the environmental factors” (Zutavern & Seifried, 2021, p. 4). Hacker is “often considered the father of action theory” (Feitosa & Sim, 2020, p. 69), however, the theory of action regulation was developed based on Miller, Galanter, and Pribram’s Test-Operate-Test-Exit model – TOTE model for short (Nerdinger et al., 2019, p. 370). The TOTE model has been adopted from cybernetics and serves in psychology to explain human action in the context of work (Nerdinger et al., 2019, p. 370). The model is based on a cognitivist understanding of learning, as it assumes that individuals make behavioral decisions based on their processing of information from the environment (Kopp & Mandl, 2014, p. 33). Thereby, it is premised that human behavior or the actions underlying it are always goal-directed (Nerdinger et al., 2019, p. 370). Knowing the desired outcome, a behavioral decision is made based on a comparison of the target and actual conditions (Test). Depending on the result of this target-actual comparison, the individual initiates an action to achieve the desired outcome (Operate). The action is followed by a renewed target-actual comparison (Test). This approach – test, operate, test – continues until the desired outcome is achieved (Exit) (Kopp & Mandl, 2014, p. 33f.; Nerdinger et al., 2019, p. 370). In a commercial office work context, action regulation based on the TOTE model could occur, for instance, as follows: An employee shall post an invoice in his employer’s ERP system. However, he has never performed this process before and consequently lacks the necessary knowledge to complete the task (Test). To comply the work instruction, he needs to close the knowledge deficit, and thus consults an experienced colleague (Operate) who explains the posting process in the ERP system to him. Following the instruction, the employee feels competent to post the invoice (Test) and consequently tries to fulfill the task (Operate). During this process, he continues to ask the experienced colleague for help (Test, Operate, Test, etc.) until the posting has been successfully completed (Exit).

Hacker adapts the idea of the TOTE model into “Vorwegnahme-Veränderungs-Rückkopplungs-Einheiten” – VVR units for short (Hacker, 2005, p. 217-229). In contrast to the TOTE
conceptual foundation model, “the designation as VVR unit [...] foregrounds the processual aspect of mental regulation: one anticipates something, changes, and comparatively couples back” (Hacker, 2005, p. 220). In the work context, the goal one anticipates is mostly predetermined by an employee’s job duties (Hacker, 2021, p. 27). However, the employee remains decisive for the achievement of such “leading specifications” (in German: Führungsvorgaben, Hacker, 2005, p. 218), as it is the employee who anticipates this very goal and forms the intention to reach it. This process of “intention and anticipation” (in German: Vornahme und Vorwegnahme, Hacker, 2005, p. 219) forms the beginning of a VVR unit (Hacker, 2021, p. 16). Subsequently, the employee needs to determine how he/she will achieve the aspired goal. To this end, he/she compares the actual and target conditions. While the target conditions are determined by the respective goal, the actual conditions are determined by the work environment as well as the characteristics the employee brings along (Hacker, 2021, p. 27 f.). Crucial for the comparison of actual and target conditions are the operative representation systems (in German: operative Abbildsysteme) to which the employee falls back. Operative representation systems are “temporarily relatively stable, ‘invariante’ representations of the aspired goals, plans, and the conditions of one’s own actions that need to be considered” and thus enable goal-directed action (Nerdinger et al., 2019, p. 376). Hence, the employee designs one or more approaches for achieving the aspired goal, based on his/her operative representation systems – or in other words: based on his/her perception of the actual and target conditions (Hacker, 2021, p. 16; Nerdinger et al., 2019, p. 376). While designing appropriate approaches for achieving the target conditions, it may be necessary to set up additional (partial) goals that are required to achieve the target conditions (Hacker, 2005, p. 218). From the range of possible approaches, the employee finally chooses and executes one alternative (Hacker, 2021, p. 16). This results in a new status quo of actual conditions, e.g., by achieving partial goals. The execution of certain actions thus leads to “changes in the environment, which have an effect on the mental regulation process” (Hacker, 2005, p. 218), so that there is no hierarchical structure, but rather a heterarchical structure of the action (Hacker, 2005, p. 220). The modified actual conditions are then compared again with the target conditions to determine whether they have been achieved or whether further changes are necessary. Such feedback takes place formative, after each change process until the target conditions have been achieved (Hacker, 2021, p. 16). Consequently, employee’s perception of his/her individual prerequisites and the external conditions is fundamental for the planning, execution, and evaluation of work activities.
2.4 Summary

As outlined in this chapter, the megatrends evolved in recent decades have led to a more dynamic world of work characterized by connectivity and change. Resulting from this development, the demands on employees as well as employers have changed. For employees, competences such as information processing, communication and collaboration have become more prominent. In addition, professional development and career planning are increasingly within their responsibility. For employers, (strategic) recruitment of qualified personnel has become challenging due to the dynamic global economic situation and the shortage of skilled workers. As a result, the need to align the working conditions of one’s organization with the preferences of potential employees has become even more urgent for employers to position themselves as attractive employers.

Designing the work environment specifically to the needs of employees is particularly desirable, as the work environment is one of the most important and influential learning sites for the professional development of employees. Drawing on the models presented in this thesis, it became clear that workplace learning activities are conditioned by the physical design of the work environment as well as social circumstances and the macroeconomic embeddedness of the workplace. In addition, the characteristics and perception of the employee determine learning activities, which in turn affects future learning processes. Finally, effectively managing individual and organizational learning outcomes is essential for creating a solid and connectable knowledge base for employees and employers.

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3 Vocational Education and Training in Germany: Benefits and Drawbacks of the Dual Approach as Preparation for Professional Employment

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### 3.1 Abstract

Employees increasingly need to keep pace with the dynamics of the labor market to be professionally successful in the long term. This requires flexibility in shaping one’s employment biography by continuously adapting one’s skills portfolio to the current labor market conditions. 21st century skills are becoming increasingly important in this context. In addition, risk management, as well as planning and organizational skills, are also required of employees. Since not everyone has these skills per se, the vocational training system can be seen as jointly responsible for preparing future employees for these work-related requirements.

In Germany, training companies and the state pursue a cooperative approach that has become established for the majority of training occupations. In the German dual system, apprentices complete both practical phases at a training company and theoretical phases at a vocational school. By linking these two elements, apprentices can gain practical experience and at the same time acquire in-depth theoretical knowledge to make the best possible use of the opportunities to learn offered by both learning sites. The development of the dual system to date, however, raises doubts as to whether a fundamental shift is underway here away from a holistic vocational qualification that also includes the trainees’ personal development and toward a system geared one-sidedly to the usability of competencies on the labor market.

Against this background, it will be discussed whether the German system of dual vocational training can prepare trainees for the requirements of their future workplace. To this end, the extent to which the dual system fosters successful transitions from training to working life will be examined. Furthermore, it will be discussed whether the dual approach is suitable for the acquisition of vocational competencies and how uniform quality standards can be ensured.

\(^{13}\) Note: The chapter headings, figures, and tables of the published version have been numbered according to the numbering of this thesis. Spelling and grammar have been adjusted to American English standards. Any misspellings and typographical errors detected in the course of a further thorough proofreading have been corrected.
Learning for and in the Workplace in Times of Change

Changing jobs or breaking new ground have become part of modern employment biographies. On the one hand, such changes may be due to factors that lie beyond the individual such as new production or management techniques, new business segments, mergers and acquisitions, and so on. On the other hand, the individual himself/herself can also bring about change. Young employees in particular tend to change their employer (Eurostat, 2021c) and occupation frequently (Kalleberg & Mouw, 2018). Over and above the age groups, retraining, further education, and other training activities also play a role for individual employment biographies. On average, 43.7% of EU employees participate in such practices (Eurostat, 2021a). The OECD average even approximates half of the workforce (OECD, 2018).

These short remarks may highlight that “work and career are no longer static and predetermined entities” (Manuti et al., 2015, p. 2). Rather, they develop in the sense of a constant reaction to external and individual conditions. One factor that has kept the labor market on its toes for the past decades is the shortage of skilled workers and the struggle for the best minds it has brought with it (martially called “war for talents”; Chambers et al., 1998). This situation can be seen as a result of a combination of two developments: First, there is a continuous decline in birth rates (Eurostat, 2021b) accompanied by an increase in life expectancy (Eurostat, 2021d), which leads to a reduced number of (young) people available for work. Second, the demand for qualified workers is increasing with a stable economic situation (Cedefop, 2016) and new qualification requirements that arise, for example, from the digitalization of business processes (Brynjolfsson & McAfee, 2014; Frey & Osborne, 2017; Harteis, 2019). This leads to a contrary development of supply and demand for qualified personnel and thus an excess demand.

In particular, new technologies and industries, digitalization, and globalization have caused a change in the competencies and skills demanded. These developments have shaped the concept of 21st century skills. In the OECD approach, 21st century skills and competencies include those skills and competencies that have gained in relevance for mastering work-related demands and social participation in today’s knowledge society (Ananiadou & Claro, 2009). This does not define new skills and competences, but rather emphasizes their significance in the current labor market context and for managing individual life circumstances. For instance, in addition to individual problem-solving competence, information and media competence is becoming increasingly relevant (OECD, 2019). The focus here is on the ability to process information and
to communicate and collaborate digitally and non-digitally. At the same time, social responsibility, and the ability to assess and evaluate the consequences of one’s own actions are gaining in relevance (Binkley et al., 2012; Dede, 2010; van Laar et al., 2017).

Kirpal (2007) also recognized the changing demands workers are confronted with. By replacing stable employment relationships, fixed tasks, and fixed areas of competence, risk management and the demand-oriented provision of relevant competences are transferred from the employer to the employees. These more flexible employment patterns force employees to not only continuously improve their skills and competencies, but also to plan individual career paths independently of a single company. Such individualization underlines the relevance of metacognitive competences such as planning and organizing future actions—the “career management skills” (European Lifelong Guidance Policy Network [ELGPN], 2012, 2015). According to this development, Kirpal (2007) formulates the necessity of a change from a classical work attitude to an entrepreneurial work attitude, which is characterized by the willingness for multiple qualification, flexibility, and mobility. Goller (2017) and others (e.g., Jääskelä et al., 2016; Vähäsan-tanen & Eteläpelto, 2018) highlight the relevance of agentic behavior. This means that learners and workers must actively seek learning opportunities and find their own ways to develop their competences. Since not all individuals per se possess these skills, one can see the vocational training system as jointly responsible for preparing future employees for these work-related demands. Against this background, a fundamental discussion took place in Germany on, for example, questions of the relationship between occupation and employability. There are concerns of a fundamental change from a holistic vocational qualification including the personal development of trainees to a system that is one-sidedly oriented towards the usability of skills on the labor market (e.g., Seifried et al., 2019). This development is to be judged critically because employers around the world still attach high value to personality characteristics such as integrity, honesty, respect and team spirit or work ethics (Ju et al., 2012; Suarta et al., 2019).

In this light, an individual’s composition of skills and competencies as well as attitudes, agency, and initiative has become increasingly important in two respects: (1) From an individual’s perspective, the above-mentioned developments underline the relevance of lifelong learning. With regard to their employability, employees should constantly match their own skills and competences to the skills and competences currently in demand on the labor market. This enables them to uncover and tackle any gaps in their own repertoire. In addition, it is important to identify job profiles that can be exercised with the existing bundle of knowledge, skills, and competencies. In this way, employees can achieve and maintain maximum employability in the long term. Lifelong development efforts are also necessary with regard to aspects such as per-
sonality development, meaningful work, and the balancing of one’s own interests and aspirations and operational requirements. (2) From an organizational and economic point of view, competitive advantages are opening for employers who develop along with these changes and are open to individual skills and competences. Such employers can succeed in retaining qualified personnel and attracting new qualified personnel. Taken these two perspectives together, it is illustrated that the concept of employability is not limited to specific job profiles and the individual level. Rather, it also encompasses the career and life planning of employees. It also touches on the organizational and economic level, which shapes and changes the labor market.

To sum up: Organizations as well as individuals need to respond to the outlined changes and become as adaptive as the environment in which they operate. Accordingly, learning and adaptability have become an increasingly important competence of employees and employers. Ultimately, this is because the successful response to change determines economic success on an individual and organizational level. However, the question of how to prepare future employees within dual apprenticeship for such an agile work context remains largely unanswered. Certainly, this cannot be done by only one learning site. Rather, the characteristics of both learning sites need to be considered in order to prepare young adults for employment in practical and cognitive terms. This is particularly true if one does not look one-sidedly at operational or economic requirements but also at the personality development of young people. Against this background, the objectives of vocational education and training are diverse and address both directly subject-related and interdisciplinary perspectives (Baethge et al., 2003). Three overarching objectives should be mentioned, namely (1) the development of the individual’s ability to regulate (autonomy), (2) the safeguarding of a society’s human resources, and (3) the promotion of social participation and equal opportunities. The ability to regulate as an action-related category is regarded as the most complex and at the same time the most general person-related target category. With the aim of securing human resources, two dimensions are addressed: In addition to the socio-economic component, there is also an individual perspective. Both dimensions are closely interlinked and highlight the relationship between the business and economic requirements (securing the qualitative and quantitative demand for labor) and the people working in it or their desire for a satisfying and livelihood-securing gainful activity while at the same time making good use of their own skills on the labor market.

With a special focus on the German vocational education and training (VET) system, the purpose of this paper is to discuss whether the German dual vocational training system can prepare future employees for the requirements of their workplace. To this end, we characterize the work context as a learning site and portray the system of dual VET in Germany (section 3.3). In the
following, we will discuss to which extent dual VET prepares future employees for the learning and development-related requirements of their workplace (section 3.4). Finally, we will make recommendations for the practical implementation of the points discussed and for future research (section 3.5).

3.3 Workplace Learning and the Vocational Education and Training System in Germany

As outlined above, the development of vocational skills and competences and the willingness to acquire new work-related skills and competences have become crucial for working life. Such characteristics make it easier for employees to cope with changes that affect their work environment. This increases employees’ adaptability while promoting their individual employability and professionalism. In addition—and this seems to us to be of even greater importance here—such skills and attitudes help with individual professional development and with regard to professional participation and personality development in the process of work (Gerholz & Brahm, 2014). The question is how to achieve these objectives. An overview of possible forms of work-related learning and models for conceptualizing work-related learning can provide insights in how workplaces function as learning environments. Furthermore, a closer look on the conceptualization and objectives of the dual VET system can enlighten its impact on preparing apprentices for their new role as skilled workers. However, the dual model of vocational training is only one option through which young adults can be guided to vocational qualification. Since the Industrial Revolution, the market model and the school-based model have also become established in Europe (Greinert, 2005). While the market model (e.g., England) is regulated via the labor market and training companies, the school model (e.g., France) is controlled by the state. In Germany, training companies and the state follow a cooperative approach. Their collaboration is central for the dual model, which has become established for the majority of training occupations. For this reason, we will only discuss the dual model in greater detail.

Learning in Professional Contexts – All Roads Lead to Rome

The topic of workplace learning attracts different research disciplines and subdomains whereby each subject area investigates the topic with different approaches and specific research interests (Tynjälä, 2013). Starting with studies that investigate workplace learning from a learning-theoretical perspective—for instance studies on personality traits or competence and expertise development—the spectrum ranges to studies that take an organizational perspective, e.g., studies on work conditions or knowledge management. Despite the different approaches, there are
overlaps and similarities between the research directions, which make it possible to identify valid interdisciplinary characteristics of workplace learning:

First, workplace learning aims to support employees in successfully fulfilling their work tasks. To this end, employees are to be encouraged in their role as learners in order to promote the acquisition and development of work-related competences, skills, and knowledge (Raemdonck et al., 2014). This highlights that workplace learning is primarily an individual-level process designed to achieve personal goals. By continuously targeting and achieving new goals, the sum of these individual learning processes leads to the training of professionalism in a particular occupation (Metso, 2014). Expanding this dynamic developmental perspective, Choi and Jacobs (2011) point out that an individual’s development contributes to further development of the whole organization in the long run. Thus, by increasing individual performance as well as organizational performance, workplace learning creates a win-win situation from which employees and employers can profit (Crouse et al., 2011).

Second, a single and individual learning process can take place in a variety of different forms and situations. In order to distinguish such learning processes, the distinction between informal and formal learning has been established across disciplines. Thereby, goal orientation of the learning process and the formal conception of the learning environment are central distinguishing features.

Formal learning typically does not take place in the learner’s direct work environment. Rather, they “are separated from their day-to-day work” (Choi & Jacobs, 2011, p. 241) in order to enter learning environments that have been specially designed and prepared for knowledge transfer (Manut i et al., 2015). The aim is to impart knowledge and skills to the learner that enable and promote the completion of specific job duties (Manuti et al., 2015). Concrete learning objectives, which are evaluated at the end of the learning unit, as well as previously defined learning materials and temporal structuring of the learning unit, are typical. Furthermore, learning activities are guided or accompanied by a teacher or trainer (Malcolm et al., 2003). This applies to, for example, formalized settings such as design thinking spaces or project days (e.g., FedEx-Days, 20% time) for creative-disruptive and interdisciplinary development of problem solutions. Besides such offerings that are primarily intended to stimulate the innovativeness and creativity of employees, formal learning offers also include psychologically based training courses or counselling services. Mindfulness training, for example, aims to teach employees how to deal with the demands of agile work environments and to maintain their individual well-being. Counselling services can be provided as training or one-on-one interviews and are designed to support employees in their individual career planning. Through the prior conception and preparation of the learning process, formal learning is strongly influenced by third parties.
Thus, the learning process can be determined less by the learner himself/herself. At the same time, the planning and didactic preparation of learning content enables learners to select formal learning activities according to their individual development needs. From the learner’s point of view, formal learning can be planned and therefore takes place consciously.

In contrast to formal learning, informal learning “occurs during critical moments of need embedded in the context of practice” (Manuti et al., 2015, p. 5). Informal learning processes therefore usually occur ad hoc, are directly related to the activities of the individual work environment and aim to solve a current problem situation. Due to the proximity to the work reality of the learner, they can meet the needs of the individual particularly well (Cho & Kim, 2016). This means that work-related knowledge and skills tend to be acquired in passing, during the performance of the task, and thus unplanned, so that learning objectives, duration, and learning materials are not known at the beginning of the learning process (Kyndt et al., 2009). Possible learning situations, which come about mainly through discussions with colleagues and ad hoc support, can be promoted through modern office concepts (e.g., flexible workplaces or coffee corners) and the use of appropriate technologies (e.g., video conferencing). In addition, the learning process is not guided by a teacher or trainer (Eraut, 2004). Rather, the teacher-learner constellation results from the competences, abilities, and experiences possessed by the people involved. Furthermore, the reflexive moment can be missing, so that the learner is not aware of the acquisition of new content. In this case, Watkins and Marsick (1992) used the term “incidental learning”, which can be seen as a sub-form of informal learning. However, due to their spontaneous nature, informal learning activities promote flexible and contextual learning, thus increasing the practical transfer of the learned content and the immediate resolution of work-related problems. This can increase the flexibility, employability, and adaptability of the individual learner (Manuti et al., 2015).

All forms of learning activities on the continuum from formal to informal learning are important for the individual and organizational development towards professionalism. “Specifically, in a knowledge and information society, collective training or formal education alone limit creativity and professionalism” (Cho & Kim, 2016, p. 407). In order to make optimum use of the potential of learning formats, the question arises which factors determine participation in learning opportunities in professional contexts. Billett’s (2001) model of co-participation at work emphasizes that it is neither the work environment nor the individual learner alone that make learning activities successful. He describes their interplay as a supply-demand model. The supply side is composed of the design of the actual work activities, possibilities for participation in formal interventions as well as the degree and quality of guidance and support offered by the
employer. Since workplaces are usually competitive environments, this package of learning opportunities is not equally available for all and, accordingly, there is no guarantee for high quality learning outcomes. Rather, the success of learning and development is determined individually and therefore depends on how individuals use the available offer. Hence, the demand side of his model is composed of human agency, previous knowledge as well as personal experiences and values of the individual employee and learner.

Based on the idea of legitimate peripheral participation (in the communities of practice approach, Lave & Wenger, 1991, learning is defined as the successive growing into a practical community, whereby an initially marginal (peripheral) position is regarded as legitimate). Billett (2002) defines the workplace curriculum as an individual path of practical experience at the respective workplace. The curriculum is not institutionalized but depends on the learner and his or her previous knowledge, talents, interests, etc., and on the practice lived at the respective workplace. The curriculum then arranges the work activities according to increasing complexity and responsibility. Prerequisites for such a concept are the identification of complexity, the anticipation of learning difficulties, and the adequate support of the learners, i.e., the presence of experts and their willingness to offer assistance.

The idea of mutual participation is further specified in Tynjälä’s (2013) 3-P model (see also Gruber & Harteis, 2018).\(^\text{14}\) Comparable to Billett’s model, it considers the individual learner and the specifics of the work environment as two separate influencing factors. Together, factors of the learner and learning context constitute the model’s input component (presage). In contrast to the co-participation model, the interpretation of these input factors is separated from the individual learner factors and mapped upstream of the actual learning process. The learning process forms the center of the model and can take place in various learning activities on the continuum between formal and informal learning (process). In addition, learning outcomes constitute the third model component. They are distinguished into outcomes at an individual and an organizational level. Finally, Tynjälä shows that the relationship between presage, interpretation, process, and product is not unidirectional. Rather, the achieved learning outcomes lead to changed influencing factors, which in turn affect future learning activities. Furthermore, the learning process is embedded in the sociocultural environment what makes clear that job-related learning activities should always be interpreted against this overarching background.

\(^\text{14}\) The i-PPP model (Integrated-Premise-Product-Process-Model of Gruber and Harteis (2018) as further development of Tynjälä’s 3-P-Model) also considers the effect of individual and contextual factors on learning at work. However, the influence of social aspects is extended to all model components. In addition, the authors assume mutual relationships between all three model components.
Hence, in contrast to the co-participation model, the 3-P model also takes the social and macroeconomic situation into account, which—as explained at the beginning—can point the way for learning in professional contexts.

In summary, learning in the workplace should always support learners in learning and performing their work tasks. Thereby, the underlying learning process can take many different forms on the continuum between formal and informal learning. In addition, the learning process is embedded in a complex network of learners, learning environment, and socio-cultural environment in which the individual components are mutually dependent.

### The Dual Vocational Education and Training System in Germany

The dual vocational education and training (VET) system is the most important sector of occupational education in Germany (Seeber & Seifried, 2019). Approximately 320 job profiles are currently being trained (BMBF, 2020). In order to answer whether it can prepare future employees for the requirements of the vocational context, it is necessary to understand the concept of the dual VET system in Germany as well as its content and objectives. Thus, this section gives a description of the German dual VET system in order to show its potentials for preparing future employees for professional employment.

In contrast to other vocational training concepts, the combination of two learning sites—the workplace and the vocational school—is a special characteristic of the German dual VET system. The corporate training part is structured and organized by the employing company. For this purpose, trainees are hired on the basis of a training contract under private law. When the contract is concluded, the employing company undertakes to provide the trainee with the contents contained in the training regulations. These are formulated for single training occupations on the basis of the Vocational Training Act (BBiG) and the Crafts Code (HwO) and create a uniform national standard for each training occupation (BMBF, 2020). During the phases at the workplace that dominate the school-based part of education (Cedefop, 2017c, 2019), the company introduces its trainees to current and authentic organizational work processes (BMBF, 2020). The factual and temporal sequence of the corporate training part is regulated by the training plan, which is part of the training contract (BMBF, 2020).

Visiting a vocational school is mandatory within the concept of the dual VET system. In addition to the corporate training part, the vocational school represents the second learning site. Within the framework of the lessons, the trainees are taught both job-related content and general educational content (BMBF, 2020). Consequently, corporate topics can be prepared, deepened, and enriched through schooling. At the same time, the classroom setting enables simultaneous
teaching of ethical and moral values and norms that can serve as orientation in the working life of young adults. In order to ensure that school-based and vocational training are interlinked, the contents are taught in vocational action contexts—the so-called learning fields (KMK, 2007). They are based on the framework curriculum, which is designed at the federal state level (KMK, 2007).

At the end of vocational education—usually after three years—trainees must take a final examination/journeyman’s examination. It contains practical, written, and oral elements to examine the contents of the training regulations. Graduates are awarded a state-recognized training qualification at the European Qualification Framework level four (Cedefop, 2019), which certifies that they have acquired occupational competence. The competent bodies, usually the Chambers of Commerce and Industry, organize the examination. An independent examination board, composed of representatives of the chambers, training supervisors of employers, and vocational school teachers, conducts the examination.

The overriding objective, which is to be achieved by the described concept of the dual VET system, is to impart occupational competence for dealing with complex work situations (in German: berufliche Handlungskompetenz that means that individuals possess the competence to cope well with professional requirements). It certifies trainees, who have successfully passed their final examination, that they are qualified to act competently in the profession they have learnt (Brockmann et al., 2008). This basic idea of the dual VET system is legally manifested in the German Vocational Training Act. Here, occupational competence is defined as the occupational skills, knowledge, and abilities, which are necessary to execute a qualified occupational activity in a changing world of work. Specific facets of such an occupational competence are described in more detail in the assistance paper for developing framework curricula for state-recognized training occupations, written by the Conference of the Ministers of Education and Cultural Affairs (KMK). Besides activities in the professional context, the definition also includes behaviors in the private and social context. A person is regarded as professionally competent if he or she is able to “behave in an appropriately thoughtful as well as individually and socially responsible manner” (KMK, 2007, p. 10). Consequently, the dual VET system aims to impart vocational competence on the one hand and human and social competence on the other hand. At the same time, and as part of these three competence goals, trainees should acquire methodological competence, communicative competence, and learning competence in the course of their vocational training (KMK, 2007). Through the acquisition of occupational competence, trainees are to be prepared for their future working life in a variety of ways. By imparting occupational and cross-occupational-field qualifications, trainees are to be enabled
to achieve occupational flexibility. Furthermore, their willingness to participate in training and further education activities should increase. In addition, they should learn to take responsibility for their own actions and to shape their private lives in a future-oriented way (Billett, 2011).

To conclude, the German dual VET system is based on a joint responsibility between the public sector and the private sector (e.g., industry, handicraft, trade). In cooperation, they aim to bring vocational education and training into line with socio-political and economic requirements. While the Federal Ministry of Education and Research (BMBF) is responsible for general issues relating to vocational training (e.g., legal issues and the content of the corporate training part), the federal states are responsible for the school-based part of the training (Cedefop, 2019). Employers and trade unions—social partners—act as supportive experts by formulating training regulations and framework curricula. Furthermore, they support the reform of existing and development of new occupational profiles (BIBB, 2017). In addition, the Chambers of Commerce and Industry have an advisory and monitoring function. Exemplary duties are to monitor the corporate training part, to check the training suitability of companies and trainers, and to advise companies and trainees (BMBF, 2020).

3.4 The Dual VET Approach and Its Suitability as a Preparation for Work in the 21st Century

In order to prepare people in vocational training for the requirements of the desired occupational profile, appropriate forms of learning are required. Such forms of learning should “enable people to engage in transformative and innovative rather than in reproductive learning, and in networked and social learning rather than in individual learning, as well as in ethical and value conscious rather than ‘value-free and objective’ learning” (Tynjälä, 2013, p. 12). Moreover, learning formats need to equip trainees with all the relevant knowledge, skills, and competencies critical to fulfil current and future vocational tasks. Accordingly, apprentices must be qualified in two ways: On the one hand, they have to gain occupational competence. On the other hand, they must be taught metacognitive skills in order to remain employable in the long term. How can this be achieved within the framework of the German dual VET system?

The question is particularly interesting because the dual system is not the only form of vocational training in Europe. Even in Germany, some occupations are trained in the school-based system as well (e.g., educators, physiotherapists). For instance, France and Sweden provide initial vocational education in a primarily school-based approach (Cedefop, 2017a). In this case, a selection of basic occupations are taught in state-financed schools (Greinert, 2004). The con-
tents are prepared according to curricular principles and are oriented towards theoretical, subject-specific approaches to the respective world of work (scientific orientation, Deißinger & Frommberger, 2010). Other countries follow a solely work-based approach in providing VET as further training activity (e.g., UK) (Cedefop, 2017a). The training offered and required is regulated exclusively by the market itself. The same applies in qualitative terms, since the content of the training on offer is also geared to the requirements of the labor market (Greinert, 2004) (functional orientation, Deißinger & Frommberger, 2010). In addition, there are countries where VET is understood as part of lifelong learning so that almost all occupational and educational qualifications can be subsumed under it (e.g., Finland) (Cedefop, 2017a).

The decisive factor and special feature of the German dual VET system is the cooperation of the two learning sites—vocational schools and training companies. The training occupations are based on the basic principles of professionalism, self-administration and learning on the job (Greinert, 2004) and are intended to lead the trainees to a vocational qualification that is based on typical occupational activities (vocational orientation, Deißinger & Frommberger, 2010). With regard to the design of institutional cooperation, which pursues the overarching objective of promoting vocational decision-making competence, the question to the pedagogical function of the respective learning sites and the type, quality, and intensity of cooperation inevitably arises (Euler, 2004, 2015). A distinction is usually made between three intensity levels of learning site cooperation (information, coordination, and cooperation, see Euler, 2004), whereby only the level of cooperation represents a learning site cooperation understood in the true sense. However, studies show that the implementation of learning site cooperation in vocational training practice still needs to be improved (Wirth, 2015). Potential exists especially in the inclusion of real work experience. Integrating trainees’ company experiences into the school-based development of learning content, learners can reflect on their own experiences and compare them with those of their peers (Wirth, 2015). In this way, school content can be taught authentically and its relevance for practical problems can be emphasized. By interlinking the two learning sites, it is therefore possible to combine theoretical and practical training. Thus, initial vocational education can be offered in a school-based setting that is aligned with practice-relevant competences and action-based learning accompanied by vocational training in a real work environment. Results of a study with final-year vocational trainees show that trainees’ perception of the integration between school-based learning and workplace learning has a positive effect on trainees’ generic skill development. Furthermore, trainees perceive more opportunities to learn and contribute in the workplace and actually achieve better learning outcomes the more they feel to be an active member of their workplace community (Virtanen et al., 2012). These findings for Finnish VET students are in line with results from the Cedefop (2017b) opinion
survey on vocational education and training in Europe. Compared to general education graduates, VET graduates are more satisfied with their developed sense of initiative, entrepreneurial spirit as well as creativity. Besides, they are generally more satisfied with their work-related competence development. This could be due to the fact that learning in the vocational context is predominantly problem-oriented and takes place through learning by doing, whereas school learning is typically content-oriented and passive (Endedijk & Bronkhorst, 2014). At the same time, the study results show that school learning more frequently takes place out of curiosity. Thus, it can be assumed that the combination of learning sites brings together their strengths and compensates for limitations.

However, a twin-track approach, based on the acquisition of practical competence at the workplace and more theoretical knowledge at vocational schools, is especially popular within German speaking countries. The aim is to offer young adults a protected framework for vocational orientation and for the transition from the familiar school environment to the largely unknown professional environment they experience during apprenticeship. In order to be able to assess the potential of dual vocational training, its effectiveness must be examined. There are two possible perspectives here: (1) Indicators can be a successful transition into working life or the learning outcomes of trainees. The high completion rate, for example, speaks in favor of a successful transition to employment. More than 90% of trainees pass the final examination. Once VET has been successfully completed, more than three-quarters of trainees are taken on by the training company (BMBF, 2021), which contributes to comparably low youth unemployment in Germany (7.5 % in June 2021, Eurostat, 2021e). However, it should be borne in mind that around a quarter of trainees drop out of training prematurely (BMBF, 2021). This can be due to unsatisfying workplace conditions, a lack of willingness to perform or integrate, and misconceptions of the training occupation (BMBF, 2021). In such cases, changing the training company or learning another occupation can be promising alternatives to discontinuing training. (2) Furthermore, it is of particular interest whether it is possible to achieve the skills required to successfully cope with vocational situations. The competence characteristics of trainees at the end of their training were systematically examined as part of the BMBF’s ASCOT (Technology-based Assessment of Skills and Competences in Vocational Education and Training) funding initiative. For the first time and due to technology-based instruments for competence diagnostics (mostly simulations), information on the performance of trainees at the end of their training are available for various occupations. The findings point to the fact that higher-level competences such as problem-solving competences and reflexive competences are not consistently achieved (see Seeber & Seifried, 2019 and the references given there). In this respect, from a qualification perspective, it cannot be assumed per se that the dual system can adapt
more or less seamlessly to the current requirements of a globalized service and information economy.

Moreover, Seeber and Seifried (2019) identify further critical issues facing the dual VET system: First of all, many vacant training positions and at the same time unsatisfied job searches point to a lack of fit between demand and supply in the labor market. In addition, especially young adults with no or low formal school leaving certificates have problems to get an apprenticeship. This indicates that the dual VET system has become more and more selective and therefore has lost some of its integrative function in terms of school-to-work-transition. Third, despite the degree of high selectivity, a quarter of training contracts are terminated prematurely. Some training courses are discontinued and others are changed. One reason could be insufficient information regarding the chosen occupational field and the associated occupational requirements at the beginning of the training relationship. Finally, the dual VET system needs to be modernized, starting with job profiles and their teaching and competence objectives extending to the organization of cooperation between the learning sites. For this purpose, the sometimes very differentiated job descriptions should be defined as more complex job descriptions. A stronger cross-occupational orientation can take account of the increasing expansion of professional tasks and requirement profiles and promote vocational flexibility.

Kutscha (2015) also calls for the modernization of job profiles. He considers the traditional concept of specific occupations to be endangered by the academization of the world of work and the increasing dissolution and privatization of employment. The model of “extended modern professionalism” is intended to revise this occupational concept. As a prospective “integrated vocational and educational concept” (Kutscha, 2015, p. 8), it serves as a guideline for quality assurance of VET and learning processes, detached from specific sectors of education. By combining (too) specialized single occupations into core occupations and aligning learning activities with work and business processes, the concept of occupation should be strengthened and the permeability of the education system should increase. At the same time, this creates a basis for continuing vocational training and lifelong learning. It is therefore essential to promote the individual’s ability to act independently and to plan and realize his or her own career opportunities.

An example for merging job profiles is the training occupation “office management assistant” (German: Kauffrau/Kaufmann für Büromanagement), which was created in 2014. This job profile combines the former training occupations of office administrator (German: Bürokaufleute) and office communication assistants (German: Kaufleute und Fachangestellte für Bürokommunikation). By merging the three job profiles, the new training occupation can be trained across
all sectors (industry, commerce, skilled trades, public service) (BIBB, 2021b). Evaluation results show that the qualifications needed in day-to-day vocational practice are adequately reflected in the training regulations and learning fields of the framework curriculum. The possibility of acquiring additional qualifications is also assessed positively. Nevertheless, the examination board complains that the first part of the final examination is scheduled too early, and that the elective qualification is weighted too high in the second part of the final examination. As a result, it is hardly possible to fully assess the acquired vocational competence (BIBB, 2021a). Overall, the vocational reform seems to have been successful, as apprentices are offered a wide range of tasks, which opens up employment opportunities in various sectors. At the same time, the trainees’ autonomy and decision-making ability is promoted by the choice of different specializations and additional qualifications. A similar initiative can be observed in the care sector. The training occupations of geriatric nursing, health and nursing care, and health and pediatric nursing have been combined in the new training occupation of nursing specialist (German: Pflegefachkraft) since January 2020. Choosing the training company and specialization in the last third of the training program, still allows for a vocational focus according to individual preferences. In addition, the new training occupation is intended to facilitate the EU-wide recognition of professional qualifications (BMFSFJ, 2021). It remains to be seen whether these potentials of generalist nursing training can be realized.

3.5 Implications and Future Research

If one weighs up the arguments for and against the German dual VET system as an approach to prepare young adults for agile work contexts, the following points are particularly convincing: First, the dual VET system provides a protected framework for young adults (Shavit & Müller, 2000). Within this framework, they are provided with information about working life and the chosen job profile and have the opportunity to orient themselves with regard to their career (Billett, 2011). They are to be supported in their career choice and in mastering the transition from the familiar school environment to the largely unknown vocational environment. In the long run, early experiences in authentic occupational settings are suitable to support trainees in developing a professional identity (Cedefop, 2011). Second, the entire training structure is geared to the overarching objective of occupational competence. Through the explicit orientation of the school-based training parts towards in-company practice (learning field concept) and their mutual adaptation to the special features and advantages of the other part, formal and informal learning activities are combined, so that trainees are supported in the best possible way in preparing for the demands of their future careers (Zitter et al., 2016). Third, VET aims to equip trainees for ongoing professional development. On the one hand, this function is fulfilled
by teaching trainees social- and meta-competencies in addition to professional competence. These support trainees in coping with daily work requirements and the future-oriented design of personal employment biographies (KMK, 2007). On the other hand, the VET system offers an opportunity to reorient one’s career and thus helps to maintain one’s own employability (Billett, 2011). Fourth, the completion of vocational training in the dual system also has a positive effect on the transition to the subsequent working life. The employment rate of graduates of the dual system exceeds that of graduates of general education programs (Cedefop, 2012). Here, the probability of finding a job is higher regardless of age and gender (Cedefop, 2012). In particular, the employment rate among graduates of the German dual training system exceeds that of graduates of general education and is above the EU average (Cedefop, 2013). Compared with graduates of general education, trainees also find a job more quickly after completing the training program (Cedefop, 2012, 2017b). Furthermore, they remain in their jobs longer (Cedefop, 2012). This can, above all, be explained by the strong link between their training and the requirements of the labor market, what results in a particularly high fit between the trainees’ competences and their future job requirements (Cedefop, 2012).

Nonetheless, there are still some areas of the dual VET system that can be improved. One of these areas is devoted to the question of the competences, abilities, and skills that trainees should have acquired at the end of their vocational training. The challenge here is to assess not only knowledge and cognitive abilities but also the ability at a performative level. The assessment of their professional competence can only become authentic when the trainees show how they behave in representative professional situations (Wesselink et al., 2018). Another area requiring future research efforts is the processes involved in dual vocational training. On the one hand, this refers to the learning processes that take place in the respective learning sites. On the other hand, learning processes that take place as a result of the cooperation between the two learning sites are of interest. Diary studies are particularly useful for recording processes that are difficult to observe, such as subjective learning outcomes, characteristics of social interactions or work-related problems (Rausch, 2014). Finally, there is a need for further research concerning the quality of training. To this end, indicators need to be defined that can be used to objectively assess various conditions and thus the quality of training. In addition, these indicators must be operationalized and applied in the form of instruments. The item catalogue provided by Böhn and Deutscher (2019), for example, is an instrument that can be used to assess various facets (e.g., framework conditions and work tasks) of vocational training. In conclusion, the German dual VET system should be seen as a protected environment in which young adults are introduced to the demands of working life and have the opportunity to develop a professional identity. However, there is still a need for action with regard to the training of vocational
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4 Perceived Challenges when Changing Employer—What Newcomers Experience as Helpful during their Organizational Entry

Study 2 has been submitted to the *Journal of Personnel Psychology* on February 5, 2023, and is currently under review. The confirmation of submission is attached in Appendix C. The version presented hereafter is consistent with the version submitted.

4.1 Abstract

Joining a new employer is an exciting but also challenging experience. To support new employees’ successful transition into a new work environment, we interviewed ten newcomers of a medium-sized German IT service provider about the challenges they experienced during the first, third, and sixth month of organizational entry and how onboarding helped in coping with these hindrances. Analyses revealed that participants predominantly experienced professional challenges, whereby their gender and fit to the new job duties seemed to be decisive. Moreover, participants perceived a combination of several activities—especially social support and integration into everyday work—as conducive to overcome the challenges they experienced. The findings enable organizations to design an employee-centered onboarding strategy contributing to newcomers’ successful organizational socialization.

Keywords Organizational socialization • Onboarding • Employee perception • Newcomer • Longitudinal Case Study

4.2 Introduction

Starting with a new employer confronts employees with several challenges. Some of these are professional in nature as they refer to the newcomers’ new job duties (Bauer & Erdogan, 2014). Other challenges are rooted in the social component of the new job or the new contextual conditions (Bauer & Erdogan, 2014). Such challenges may impede newcomers’ start but at the same time hold enormous potential for professional development. In successfully dealing with the challenges newcomers experience during their organizational entry, they can gain a better understanding of the new organizational environment and job duties. This process of learning and understanding enhances newcomers’ integration into the new work environment and is called organizational socialization (Klein & Heuser, 2008; Saks & Gruman, 2018; Van Maanen

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15 Note: The chapter headings, figures, and tables of the published version have been numbered according to the numbering of this thesis. Any misspellings and typographical errors detected in the course of a further thorough proofreading have been corrected.
& Schein, 1979). To support newcomers in successfully dealing with challenges in organizational socialization, employers can implement onboarding (Klein & Polin, 2012). Insights into how newcomers experience organizational entry and their new employers’ onboarding initiatives could sensitize employers to challenges during organizational socialization and provide indications for effective onboarding enhancing newcomers’ organizational socialization. Against this background, this study aims to identify challenges during organizational socialization as well as suitable onboarding initiatives to overcome such challenges. Semi-structured interviews provide in-depth insights into the experiences of ten newcomers, contributing to a better understanding of how onboarding helps newcomers overcome challenges during organizational entry. Results help newcomers to get off to a successful start with their new employer.

4.3 Organizational Socialization

The concept of organizational socialization

“In its most general sense, organizational socialization is the process by which an individual acquires the social knowledge and skills necessary to assume an organizational role” (Van Maanen & Schein, 1979, p. 211). This process of learning (Saks & Gruman, 2018) and enablement “is probably most obvious (both to the individual and to others on the scene), when a person first enters the organization” (Van Maanen & Schein, 1979, p. 213). In this case, it can be assumed that the employee has little or no prior knowledge about the new employer and work environment so organizational socialization and the underlying learning processes must be considered particularly “intense and problematic” (Klein & Heuser, 2008, p. 280). Such problems may be rooted in the uncertainty inherent in interaction between persons who do not know each other (Berger & Calabrese, 1975, Uncertainty Reduction Theory). In addition, newcomers tend to draw on previous experiences with similar situations to reduce the initial lack of information (Louis, 1980, Cognitive Sense-making). However, in most cases, this information is only partially adequate to explain the conditions and events of the new work environment. Consequently, to master the critical phase of organizational entry, recently hired employees need to learn all relevant professional, social, and contextual aspects of their new work environment (Ashforth & Saks, 1996; Bauer & Erdogan, 2014; Feldman, 1981; Van Maanen & Schein, 1979).

Socialization content at the professional level relates to the new role and includes critical knowledge and skills as well as a functional understanding of how the new job is performed (e.g., task mastery and role clarity: Kammeyer-Mueller & Wanberg, 2003; role clarity: Lapointe et al., 2014; orientation: Sharma & Stol, 2019). Socialization content at the social level refers
to interpersonal aspects of the new workplace. It includes knowledge about other organizational members as well as knowledge about the relationships between them (e.g., workgroup integration: Kammeyer-Mueller & Wanberg, 2003; affect-based trust to supervisor and coworkers: Lapointe et al., 2014; social acceptance: Bauer et al., 2007). Finally, socialization content at the contextual level comprises information about the prevailing beliefs, orientations, values, and norms (Ashforth & Saks, 1996; Kowtha, 2018) as well as desired behaviors in the new work environment (Van Maanen & Schein, 1979). All these components support newcomers’ general understanding of their new employer and serve to align their behaviors with the conventions of the new workplace (political knowledge: Kammeyer-Mueller & Wanberg, 2003; role orientation: Saks et al., 2007). Once newcomers have learned the relevant content of each socialization level, prerequisites are in place for achieving long-term positive effects such as high performance, job satisfaction, and organizational commitment as well as reduced stress and turnover (Bauer et al., 2007; Gupta et al., 2018; Kammeyer-Mueller & Wanberg, 2003; Lapointe et al., 2014; Saks et al., 2007; Sharma & Stol, 2019; Filstad, 2011).

In conclusion, during organizational socialization newcomers “learn how things are done in the organization” (Kowtha, 2018, p. 89). Through several individual learning processes, newcomers approach the status of effectively functioning (Ashforth, 2012) and fully integrated organizational members of the new work environment (Bauer et al., 2007), and ultimately assume their designated role (Van Maanen & Schein, 1979). This process of learning about and understanding one’s new work environment and one’s new job duties is referred to as organizational socialization.

**Challenges of changing employers and the role of onboarding**

Given the information deficit of newcomers and the uncertainty that accompanies it, some challenges may arise during organizational socialization. Such challenges can occur at all three levels of organizational socialization. They potentially impede newcomers’ learning process and, at worst, thwart newcomers’ integration into the new work environment. Challenges at the professional level refer to problems in fulfilling the new role. Challenges at the social level arise from difficulties in interpersonal interaction and encompass hindrances that lay in the personality of the newcomer (intra-personal challenges). Finally, challenges on the contextual level refer to difficulties with the cultural and work-organizational setting and, in addition, encompass obstacles in the private sphere as the private environment of a newcomer may be also affected by changing employers (see examples and references for each level in Table 4.1).
Table 4.1: Potential challenges during organizational socialization

<table>
<thead>
<tr>
<th>Main level</th>
<th>Sub level</th>
<th>Definition</th>
<th>Coding rule</th>
<th>Examples from the literature</th>
<th>Examples from the data</th>
</tr>
</thead>
<tbody>
<tr>
<td>Professional</td>
<td></td>
<td>Challenges at the professional level encompass deficits in knowledge and expertise required to perform the new job, difficulties in understanding one’s new role and challenges in performing one’s new job duties. Unlike inter-personal challenges, professional challenges are rooted in the new job or the newcomer’s job-related knowledge, skills, and abilities. Third parties are not involved.</td>
<td>Code text passages in which newcomers describe deficits in the knowledge and skills needed to perform the new job, difficulty understanding their new role, or performing their new job duties. In each case, the challenge is rooted in the job itself or the newcomer’s job-related knowledge, skills, and abilities. Third parties are not involved.</td>
<td>▪ deficits in technical knowledge, deficits in professional experience, and difficulties in transferring existing knowledge to the new work context (Lim et al., 2016; Unson &amp; Richardson, 2013) ▪ lack of knowledge about processes and existing conventions, lacking or even inadequate documentation, as well as a lack of technical background knowledge (Balali et al., 2018; Steinmacher et al., 2019) ▪ lengthy processes, difficulties in finding an appropriate task, high complexity of one’s new job duties (Balali et al., 2018)</td>
<td>▪ “Getting to know the new processes and simply how to behave in specific cases. The topic is completely new for me. Requesting resources is completely new for me. That was never a problem before. In the old company, there were two of us who used to be administrators, which meant that I was allowed to do everything. I had access to everything and was allowed to do everything. Now [my permissions are limited].” (Oliver – understand the new processes) ▪ “A challenge is definitely the new topic I am working on now. I previously worked [in the same field, but for other end products]. The current area is something completely new in terms of the topic.” (Tom – familiarize with the new topic)</td>
</tr>
<tr>
<td>Social</td>
<td>Inter-personal</td>
<td>Inter-personal challenges relate to difficulties in interacting and building relationships with actors in the new work environment. Such challenges can either relate purely to the social level or also affect job-related cooperation between the newcomer and the actors of his/her new work environment. Unlike professional challenges, inter-personal challenges always involve two or more parties.</td>
<td>Code text passages in which the newcomers describe difficulties in interacting and building relationships with actors in the new work environment that are either purely social or address job-related collaboration with the actors of the new work environment. Anyway, inter-personal challenges always involve two or more parties.</td>
<td>▪ conflicts with co-workers or supervisors (Nifadkar &amp; Bauer, 2016) ▪ lacking support, delayed feedback, or rude responses (Steinmacher et al, 2019) ▪ insufficient social competence, different levels of professional experience, age differences, cultural backgrounds, or an overall harsh project atmosphere (Balali et al., 2018) ▪ different ethical, moral, or cultural attitudes (Unson &amp; Richardson, 2013)</td>
<td>▪ “First of all, to work with other people – that is obvious, I think. Because of the situation I am coming from, I wondered if I even get along with anyone in the office.” (Patricia – work with new colleagues) ▪ “The normal thing. Getting to know each other first (...) getting into the processes, getting into the topics - the normal thing (...) So for me personally it is also difficult, I want to function - patience is my problem.” (Nora – getting to know the new colleagues)</td>
</tr>
<tr>
<td>Intra-personal</td>
<td>Intra-personal challenges are rooted in personality traits, behaviors, beliefs, attitudes, values, and norms of the newcomer.</td>
<td>Code text passages in which newcomers describe challenges related to their personality traits, behaviors, beliefs, attitudes, values, or norms.</td>
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<tr>
<td></td>
<td>▪ lack of self-confidence or difficulties in learning new things (Unson &amp; Richardson, 2013)</td>
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<tr>
<td></td>
<td>▪ impatience, underestimating the new job duties, or lacking communication skills (Steinmacher et al., 2019)</td>
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<tr>
<td></td>
<td>▪ too ambitious to settle for easy tasks, shyness, disinterest, or unable to deal with criticism and conflict (Balali et al., 2018)</td>
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<tr>
<td></td>
<td>▪ “And perhaps the great variety of topics that exist here. I am already confronted with the many topics. Of course, I am used to it from the last few years, I know what is going on and I am familiar with it, and of course I can start working right away and be proactive. And now I can’t do that at all. There are so many new things. And it takes 1.5 to 2 years to get used to it, because there is so much. And I am noticing that now. I first have to get used to the fact that I am allowed to learn and don’t have to deliver immediately. But it is a good thing that there is such an induction and training phase. It is an intra-personal adjustment.” (Rachel – have patience for training)</td>
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</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Contextual Organizational culture</th>
<th>The newcomer has difficulty understanding, appropriately implementing, and/or identifying with the cultural norms in the new work environment.</th>
<th>Code text passages in which the newcomer describes having difficulty understanding, appropriately implementing, and/or identifying with cultural norms in the new work environment.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>▪ understand and implement the values and norms of a new work environment (Unson &amp; Richardson, 2013)</td>
<td></td>
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<tr>
<td></td>
<td>▪ “It is hard to say. I come from a completely different industry. There, everything is hectic, everything fast, everything yesterday, everything immediately, into the cold water, learning everything on your own. Here, it is all about winding down, slowly coming in, making sure everything runs accurately. Unlike the industry I previously worked in, where everything is superficial, and you don’t know what you will end up doing. Here, learning is required and that you have a good feeling. More of a positive challenge.” (Nora – internalize the new work culture)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Work setting</th>
<th>The newcomer has difficulty settling into the new work organizational environment.</th>
<th>Code text passages in which the newcomer describes having problems settling into the new organizational work environment.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>▪ changes in work conditions, such as the weekly workload (Unson &amp; Richardson, 2013)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>▪ “Another challenge is the understanding of how the whole company is structured. Who the holding company is, where the IT department is, what committees there are etc. The whole organization behind it.” (Katie – understand organizational structure)</td>
<td></td>
</tr>
<tr>
<td>Private sphere</td>
<td>Starting with a new employer has changed the newcomer’s private context, resulting in additional effort for the newcomer.</td>
<td>Code text passages in which the newcomer describes having problems in his or her private context that are due to the new job.</td>
</tr>
<tr>
<td>----------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td></td>
<td>▪ “The building itself and finding my way around. I am glad that I found my workplace at all, because I didn’t know my way around at all and it is a big building, and everything looks the same.” (Rachel – <em>find your way around in new premises</em>)</td>
<td>▪ “And the private side. I have moved here, so of course I had to get used to the surroundings a bit and settle in and so on. (Quinn – <em>settle in at new place of residence</em>)</td>
</tr>
</tbody>
</table>

Polach, 2004 |
To support newcomers’ organizational socialization, employers can implement onboarding. Onboarding encompasses “all formal or informal practices, programs, and policies enacted or engaged in by an organization or its agents to facilitate newcomer adjustment” (Klein & Polin, 2012, p. 268), or in other words, to support new employees’ organizational socialization (Meyer & Bartels, 2017). Such a bundle of activities guides organizations and newcomers during organizational entry and helps newcomers structure their experiences as they move through the socialization process (Klein & Heuser, 2008). Hence, the idea of onboarding is to support newcomers in resolving initial uncertainty, encourage sense-making, and provide all resources needed to perform the new role (Klein et al., 2015; Moon, 2018). Over the long term, onboarding can help strengthen the psychological bond between newcomers and the organization (Caldwell & Peters, 2018). Specific onboarding activities can be distinguished, for instance, according to their purpose, as suggested in Klein and Heuser’s Inform-Welcome-Guide Model (2008, p. 319, see Table 4.2 for definitions and examples). The categories of the IWG model – respectively the onboarding activities assigned to them – address precisely those needs of new employees that may arise from the challenges they perceive during organizational entry. Hence, if onboarding activities fulfill their intended purpose, they are potentially well-suited to help newcomers successfully overcome perceived challenges upon joining the organization. In conclusion, onboarding describes the activities performed by an organization or its agents to foster newcomers’ organizational socialization, whereas organizational socialization refers to the underlying processes (i.e., individual learning and understanding) that lead to newcomer integration into a new work environment (Klein & Polin, 2012).
Table 4.2: Extended Inform-Welcome-Guide model for organizational socialization, adapted from Klein and Heuser (2008)

<table>
<thead>
<tr>
<th>Main category</th>
<th>Sub-category 1</th>
<th>Sub-category 2</th>
<th>Definition</th>
<th>Coding rule</th>
<th>Examples from the literature</th>
<th>Examples from the data</th>
</tr>
</thead>
<tbody>
<tr>
<td>Onboarding</td>
<td>Inform</td>
<td>Communication</td>
<td>Planned efforts to facilitate communication with newcomers. Includes both the provision of one-way messages and opportunities for two-way dialogues.</td>
<td>Code text passages in which the newcomer describes communication efforts undertaken by agents of the new employer. This includes both the provision of one-way messages and opportunities for two-way dialogues.</td>
<td>▪ Providing a brochure during recruitment outlining benefits and opportunities. ▪ Scheduling a conference call question and answer session for new hires. ▪ Meet representatives from Human Resources or a senior leader. ▪ The supervisor blocks time to spend with the newcomer.</td>
<td>“So, the two activities we had were both very helpful in coping with the challenges. The training for the professional issue. The coordination with the supervisor for both, the professional issue and the interfaces and making contacts.” (Quinn, meetings with the supervisor)</td>
</tr>
<tr>
<td>Resources</td>
<td>Make</td>
<td>Assimilation</td>
<td>Making materials or assistance available to new hires. These efforts differ from communication in that the new hire has to take the initiative to access them.</td>
<td>Code text passages in which the newcomer describes the provision of materials or support. Unlike communication efforts, the new employee must take the initiative to access these resources.</td>
<td>▪ Having a section of the company website just for a new hire with things like a glossary of company terms and a list of key contacts. ▪ Having a newcomer hotline. ▪ Providing an initial plan outlining development opportunities. ▪ The workplace is fully equipped (including all supplies, materials, and equipment).</td>
<td>“There is a relatively large amount of documentation in the company, which helps; you can work your way through it.” (Sam, documentation)</td>
</tr>
<tr>
<td>Training</td>
<td>Plan</td>
<td>Acquisition</td>
<td>Planned efforts to facilitate the systematic acquisition of skills, behaviors, knowledge.</td>
<td>Code text passages in which the newcomer describes activities to systematically acquire skills, behaviors, and/or knowledge.</td>
<td>▪ Formal orientation programs (online or classroom-based, companywide, or specific to the work unit). ▪ Attending a session where presentations were given by fellow associates who were experts on certain tasks or procedures.</td>
<td>“The introductory seminar helped a bit because you got an overview of the architecture and the application landscape. That was useful” (Sam, introductory seminar)</td>
</tr>
</tbody>
</table>

“So, with the processes, when I did something wrong, I was...”
<table>
<thead>
<tr>
<th>Perceived Challenges when Changing Employer</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Welcome</strong></td>
</tr>
<tr>
<td>Activities that provide opportunities for new hires to meet and socialize with other organizational members and/or celebrate the arrival of the newcomer.</td>
</tr>
<tr>
<td>Code text passages in which the newcomer describes activities that provide opportunities to meet and socialize with other members of the organization and/or in which the newcomer’s arrival is celebrated.</td>
</tr>
<tr>
<td>• Training on job skills (on-the-job or off-the-job).</td>
</tr>
<tr>
<td>• Watching a new employee video.</td>
</tr>
<tr>
<td>• Observing fellow associates for a period of time.</td>
</tr>
<tr>
<td>• Having a tour of company facilities.</td>
</tr>
<tr>
<td>• Nudged in the right direction by my colleagues in the office and the other offices. (Oliver, <em>on-the-job training</em>)</td>
</tr>
<tr>
<td>• “In the beginning my colleagues walked around with me and showed me everything.” (Rachel, <em>tour of company facilities</em>)</td>
</tr>
<tr>
<td><strong>Guide</strong></td>
</tr>
<tr>
<td>Activities that provide a personal guide for each new hire.</td>
</tr>
<tr>
<td>Code text passages in which the newcomer describes activities that serve as a personal guide.</td>
</tr>
<tr>
<td>• Planned activities to ensure new hires meet their coworkers and other key individuals.</td>
</tr>
<tr>
<td>• Receiving a welcome phone call/email/letter from a senior leader/executive/supervisor.</td>
</tr>
<tr>
<td>• Receiving a welcome kit, company t-shirt, or other items with the company logo or name on it.</td>
</tr>
<tr>
<td>• Participating in an exercise/gathering/welcome lunch to meet and get to know fellow associates.</td>
</tr>
<tr>
<td>• Having a welcome celebration for newcomers.</td>
</tr>
<tr>
<td>• Inviting newcomers to participate in a social event/social activity outside of work.</td>
</tr>
<tr>
<td>• Announcing the newcomers’ arrival in an email, on the company website, or in a company newsletter.</td>
</tr>
<tr>
<td>• Yes, attending the team meeting [when I was still in the hiring phase]. That is where I got to know the people, and that is when you can tell if the chemistry is right, if there is someone who doesn’t like you at all.” (Marc, <em>day-t-look-in</em>)</td>
</tr>
<tr>
<td>• “The introduction round was not just to me, but also the colleagues. They told me ‘I am here, if there is anything you want to know, just ask. Feel free to ask me 100 times.’ It was all very frank.” (Nora, <em>introduction round</em>)</td>
</tr>
<tr>
<td>• “Another thing that has helped very well with the private issue [are the] group events. [...] We have been playing soccer golf more often in the last few weeks, so you see the people again and you can talk privately.” (Quinn, <em>group event</em>)</td>
</tr>
<tr>
<td>• A formal ‘buddy’ system that assigns an experienced coworker to each new hire.</td>
</tr>
<tr>
<td>• “In the meetings that I and my colleague have with our buddy every day, we also learn about the technical area. It is not just about organizational stuff, but also...”</td>
</tr>
</tbody>
</table>
**Perceived Challenges when Changing Employer**

<table>
<thead>
<tr>
<th>Individual efforts</th>
<th>Code text passages in which the newcomer describes how he or she has helped overcome challenges through his or her efforts.</th>
</tr>
</thead>
</table>
| In contrast to onboarding activities, individual efforts are initiated by the newcomer him/herself. Oftentimes, they are based on the newcomer’s personality or motivation. And contrary to Resources, individual efforts do not rely on organizational capacities. | “I ask questions, that is, to probe deeper when they were presenting their individual topics. So, taking the initiative is important.” (Quinn, *information seeking*)

<table>
<thead>
<tr>
<th>Other activities</th>
<th>Code text passages in which the newcomer describes activities that helped overcome perceived challenges and do not represent onboarding activities or individual efforts.</th>
</tr>
</thead>
</table>
| All activities that helped the newcomer overcome perceived challenges and do not represent onboarding activities or individual efforts can be assigned to this category. | „I got my microwave in the break room.” (Rachel, *received extra equipment*)

- “The activities that I would assign to ‘getting to know colleagues’ [are] simply being there and working with them. Nothing was already there as an activity, but the work itself, and that is how I get to know my colleagues. And that has worked perfectly.” (Rachel, *doing the job*)

- “Well, there are some private activities I do. [...] Usually, I listen to music loudly on the way home, that is a good 20 minutes that I have. And while I am doing that, I can relax a little bit, but also do some good reflecting.” (Oliver, *relaxation techniques*)

- “For the topic of getting to know contacts and interfaces, the induction plan helps; it also contained information about which departments we work with and with which people.” (Quinn, *induction plan*)

- A welcome coordinator oversees all aspects of the orientation process.

- Being assigned to a mentor of higher rank.

- “I got my microwave in the break room.” (Rachel, *received extra equipment*)
Research gap and research questions

As the findings on socialization content and levels show, most studies on onboarding and organizational socialization have examined the extent to which onboarding influences short- and long-term socialization outcomes. Comparatively few studies have addressed newcomers’ perception and processing of onboarding. However, precisely this information would help to tailor onboarding to the needs of new hires. There is already evidence, that new employees perceive onboarding structures differently. Whereas some newcomers value and benefit most from early and formal onboarding (Klein et al., 2015), others prefer flexible structures that allow them to define their role within the new context (Søreide, 2015). Moreover, other studies illustrate that newcomers use supplemental support resources in addition to onboarding activities to foster their organizational socialization. Especially coworkers and sometimes also supervisors serve as valuable information resources, influencing newcomers’ learning experiences, and thus contributing to a positive socialization experience (Harris et al., 2020; Korte and colleagues, 2009, 2013, 2015; Mornata & Cassar, 2018). In addition to organizational efforts, individual factors also play a decisive role in newcomers’ socialization. For instance, Fleming and colleagues (2016) reveal that particularly active newcomers can integrate socially even in a less supportive work environment. Cooper-Thomas and colleagues (2012) also show that individuals’ processing of influences from the new work environment, e.g., change of role, information seeking or interacting with others through befriending, negotiating or exchange, can have a positive impact on their adjustment success.

While these findings already provide some guidance for effective onboarding design, we aim to contribute to this body of research by delving deeper into challenging events that may occur during organizational socialization. Detailed insights into newcomers’ perception of professional, social, or contextual challenges when starting with a new employer could provide evidence of particularly effective practices to overcome those hindrances to organizational socialization. For this purpose, we investigate which challenges newcomers perceive when starting with a new employer (RQ 1) and how onboarding helps newcomers overcome perceived challenges during organizational socialization (RQ 2). By answering these research questions, we aim to gain detailed insights into the perceived effectiveness of onboarding. Such comprehensive information will support organizations in improving their onboarding and help newcomers overcome challenges during organizational entry. This in turn will potentially boost newcomers’ organizational socialization and help them to settle into their new roles more easily.
4.4 Research Design

Context of the study

The study was designed as a longitudinal embedded single-case study (Yin, 2018) with the newcomers (embedded units of analysis) of a German medium-sized IT service provider (the case). The company employs approximately 450 employees and operates in the insurance industry as full-service provider of complex IT solutions. Customer orientation, innovation, and effectiveness are top priorities, resulting in high-performance requirements. In addition to agile, constructive-disruptive work, interdisciplinary collaboration and complex problem-solving is often required. Given the ongoing shortage of IT professionals (Bitkom, 2022) and the presence of two global competitors nearby, it is extremely difficult for the medium-sized company to attract and retain qualified personnel. By initiating the scientific collaboration, the IT service provider intended to improve its onboarding to give its newcomers a smooth start and thereby lay the foundation for long-term employment relationships. Previous research projects with the IT service provider demonstrated a constructive working atmosphere and management support for change processes (the authors and colleague in press; the authors 2021) which builds a sound basis for analyzing and improving the organization’s onboarding.

Instruments

Drawing on newcomers’ experiences, the purpose of this study was to find out how onboarding supports newcomers in coping with challenges during organizational entry. Capturing individual experiences and interpreting them in the context of individual life realities (Patton, 2015; Yin, 2018) can shed light on how certain events favor newcomers’ socialization (Ashforth, 2012). Interviews are an appropriate research method for this purpose, as they “are particularly helpful for providing thick descriptions of events and at least their short-term consequences” (Ashforth, 2012, p. 163). Accordingly, new employees were encouraged in semi-structured interviews to report how they perceived organizational socialization at their new employer (see interview questions in Table 4.3). At three points in time, participants were asked in chronological order (Small & Cook, 2021) to report what onboarding activities they experienced (interview topic 1), what challenges they faced during their organizational entry (interview topic 2), and whether the onboarding activities described in the interview, any other activities, or the participants themselves contributed to overcoming the perceived challenges (interview topic 3). Capturing newcomers’ experiences in several small steps seemed reasonable because shorter intervals between the event of interest and data collection can help to reduce any recall bias (Rausch, 2014). Furthermore, “in research that seeks to answer questions about why and how
phenomena occur, a research design and research process that enables prolonged engagement with the research context will be more likely to offer a rigorous answer to the questions posed” (Anderson, 2017, p. 130).

Table 4.3: Interview questions

<table>
<thead>
<tr>
<th>Interview Number</th>
<th>Topic</th>
<th>Interview Questions</th>
</tr>
</thead>
</table>
| No 1:            | 1     | Before taking up a new position, applicants usually go through a selection process. You probably also went through such a process before you started.  
▪ What was this recruitment process like for your current position?  
After you successfully went through the recruitment process, you were able to start your new job. We are now interested in how you experienced your start:  
▪ What was the time like between the acceptance and your first day at work?  
▪ What happened on your first day at work? |
|                  | 2     | Joining a new organization means changing the work environment you are familiar with. This is often accompanied by various challenges.  
▪ What challenges did you experience around the time you joined your new employer? |
|                  | 3     | Which of the above-mentioned activities, that took place during your recruitment process and up to now, have helped you to overcome these challenges? In what way?  
▪ What else helped you overcome these challenges? In what way?  
▪ Did you have the opportunity to contribute to overcoming these challenges? In what way? |
|                  | 4     | Please think about activities you have performed before your current employment. These may be full- or part-time jobs, as well as internships or other professional experience.  
▪ Which of these activities are comparable to your current job? In what way?  
▪ How long have you performed these activities?  
▪ Are these experiences having an impact on your current job? In what way? |
| No 2:            | 1     | In our last interview, we already discussed some topics concerning your start in this company. Thus, when answering the following questions, please only think about the period between our last meeting and today’s conversation.  
▪ What activities have been conducted in the meantime that are specifically designed for new employees? |
|                  | 2     | **Stimulated recall:**  
In our first interview, you mentioned ... and ... as challenges during your organizational entry. [Interviewer repeats the challenges the interviewee mentioned in the 1st interview.] |
|                  | 3     | ▪ Which of the above-mentioned activities, that took place between our 1st interview and today, have helped you to overcome these challenges? In what way?  
▪ What else helped you overcome these challenges? In what way?  
▪ Did you have the opportunity to contribute to overcoming these challenges? In what way? |
No 3:

During the 6th month after organizational entry

1. In our last two interviews, we already discussed some topics concerning your start in this company. Thus, when answering the following questions, please only think about the period between our last meeting and today’s conversation.
   - What activities have been conducted in the meantime that are specifically designed for new employees?

2. Stimulated recall:
   In our first interview, you mentioned ... and ... as challenges during your organizational entry. [Interviewer repeats the challenges the interviewee mentioned in the 1st interview.]

3. - Which of the above-mentioned activities, that took place between our 2nd interview and today, have helped you to overcome these challenges? In what way?
   - What else helped you overcome these challenges? In what way?
   - Did you have the opportunity to contribute to overcoming these challenges? In what way?

---

**Sampling and data collection**

Following the purposeful sampling method (Palinkas et al., 2015), only new employees were invited to participate in the study. Potential interviewees were invited with an invitation letter sent out via email by the IT service provider’s HR department. In this email, it was explicitly stated that participation was voluntary and that responses will be processed anonymously. A total of ten newcomers were willing to participate (see Table 4.4). Most of the newcomers were hired to perform IT-related activities such as programming and development. The gender ratio is balanced. Half of the sample is between 26 and 30 years old. All participants reported having professional experience, although to varying degrees and with varying relevance to the new job.

Once a newcomer agreed to participate, the three interviews were collected over a total data collection period of six months. In the beginning, all interviews took place in face-to-face meetings with the first author. Later, it was necessary to switch to telephone interviews due to contact restrictions during the Corona pandemic. All interviews were audio-recorded and transcribed. During transcription, statements were smoothed in favor of reading fluency, for example by correcting repeated rephrasing or dialect (Mayring, 2014). In total, 17.5 hours of interview material was collected, with single interviews lasting from about 19 minutes to about one hour.
<table>
<thead>
<tr>
<th>Participant</th>
<th>Field of activity</th>
<th>Sex</th>
<th>Age (in years)</th>
<th>Professional experience ...</th>
<th>Description</th>
<th>Fit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Katie</td>
<td>Support services</td>
<td>x</td>
<td>x</td>
<td></td>
<td>Has a basic technical understanding because she previously managed the same job duties operationally for 4 years. Now she manages them strategically from a higher hierarchical level.</td>
<td>Moderate</td>
</tr>
<tr>
<td>Lara</td>
<td>IT-related</td>
<td>x</td>
<td>x</td>
<td></td>
<td>Has worked with the same technology for 6 months but has no industry experience.</td>
<td>Low</td>
</tr>
<tr>
<td>Marc</td>
<td>IT-related</td>
<td>x</td>
<td>x</td>
<td></td>
<td>Job duties are partly familiar and partly new. Has extensive experience with two products (30 and 6 years).</td>
<td>High</td>
</tr>
<tr>
<td>Nora</td>
<td>Support services</td>
<td>x</td>
<td>x</td>
<td></td>
<td>Has 20 years of industry experience and has managed the same product from a different perspective for 5 years.</td>
<td>Moderate</td>
</tr>
<tr>
<td>Oliver</td>
<td>IT-related</td>
<td>x</td>
<td>x</td>
<td></td>
<td>Was for 14 years an all-rounder in the current subject area for and now holds a specialist role.</td>
<td>High</td>
</tr>
<tr>
<td>Patricia</td>
<td>IT-related</td>
<td>x</td>
<td>x</td>
<td></td>
<td>Has 10 years of experience in the actual field of activity.</td>
<td>High</td>
</tr>
<tr>
<td>Quinn</td>
<td>IT-related</td>
<td>x</td>
<td>x</td>
<td></td>
<td>Knows the software that is being supported for 8 years and has as much experience coordinating tasks.</td>
<td>High</td>
</tr>
<tr>
<td>Rachel</td>
<td>IT-related</td>
<td>x</td>
<td>x</td>
<td></td>
<td>Has worked in organizations of comparable size for 16 years and knows the software that is being supported for 10 years. Her specific job duties, in contrast, are new.</td>
<td>Moderate</td>
</tr>
<tr>
<td>Sam</td>
<td>IT-related</td>
<td>x</td>
<td>x</td>
<td></td>
<td>Has previously performed identical job duties for approx. 6 years. However, the organization’s infrastructure and the technologies used are new.</td>
<td>High</td>
</tr>
<tr>
<td>Tom</td>
<td>IT-related</td>
<td>x</td>
<td>x</td>
<td></td>
<td>Has little industry experience but has performed the same job duties for 2.5 years.</td>
<td>High</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>3</td>
<td>1</td>
</tr>
</tbody>
</table>

Table 4.4: Sample (study 2)
4.5 Data Analysis

The data was analyzed with MaxQDA 2022 applying the structuring content analysis according to Mayring (2014). Thereby, deductive as well as inductive analysis procedures were used. Regarding the first research question on perceived challenges when starting with a new employer, a coding manual was developed first, as it is the heart of qualitative content analysis (Mayring, 2015). Its categories were derived from the empirical findings on the challenges of changing employers (deductive category assignment) as well as all statements in which participants addressed perceived challenges during organizational entry (inductive category formation). Code names were formed from the interviewees’ statements (in-vivo coding). In several material-runs, two coders repeatedly compared and refined the codes with each other and finally also supplemented the coding manual with examples from the interview data (see Table 4.1). The codes of the final material-run show satisfactory inter-coder reliability with a Cohen’s Kappa coefficient of 0.84 (Hsu & Field, 2003; Landis & Koch, 1977). Finally, the number of coded challenges per sublevel and per socio-demographic group was evaluated and compared (see Table 4.5) to reveal any differences between the participants.

To answer the second research question on how onboarding helps newcomers overcome perceived challenges during organizational socialization, another three analysis steps were conducted: First, conducive activities to overcome the perceived challenges were coded for each new employee. Again, two coders performed two material-runs in which differences in the coding were discussed until a complete agreement was reached. Second, the documented activities were assigned to the categories of the extended Inform-Welcome-Guide model by both coders (see Table 4.2) and discusses analogously to the previous analysis step. Finally, the match between perceived challenges and conducive activities to overcome these challenges was analyzed for any highlights or patterns.

4.6 Findings

RQ 1: Which challenges do newcomers perceive when starting with a new employer?

Overall, newcomers perceived 20 different challenges during their organizational entry, which they reported in 27 statements (see Table 4.5). Newcomers’ experiences related to all three levels of organizational socialization. Professional challenges were most frequently addressed (13 statements). Within this category, participants described subject-related and procedural challenges. Subject-related challenges emerged because most newcomers initially had to familiarize themselves with the new subject area and tasks (6 statements). Procedural challenges
were due to the new tools and technical infrastructure (2 and 1 statement, respectively), new job-related processes (2 statements), or lacking knowledge about connections between the organizational units (1 statement). Social and contextual challenges were perceived considerably less frequently (6 and 8 statements, respectively). On the social level, newcomers perceived it challenging to get to know their new colleagues and learn how to communicate and collaborate with them (1 statement each: inter-personal challenges). Moreover, finding patience for the socialization process (2 statements) and dealing with the responsibility gained in the new job (1 statement) were reported as intra-personal challenges. Regarding contextual challenges, some newcomers needed a bit of time to arrange with the setup and equipment of the new work setting (2 and 1 statements, respectively). In addition, unclear vacation arrangements, a diffuse understanding of the overall organizational structure, and the financial risk posed by the contractually fixed probationary period caused some anxiety (1 statement each). Finally, one newcomer perceived it challenging to familiarize with the new organizational culture, and another one with the new city to which he had to move for his new job.

Checking for socio-demographic differences suggested that female newcomers tended to perceive more challenges during organizational entry. They named professional challenges (tools, understanding of industry) and social challenges (getting to know each other, collaboration, communication, lacking patience) more frequently than their male counterparts. Also, the work setting posed a few more difficulties for the female newcomers (organizational and spatial design, vacation regulations). Contrary to gender, age groups did not show any substantial differences.
Table 4.5: Perceived challenges during organizational entry and conducive activities to overcome them.

<table>
<thead>
<tr>
<th>Perceived challenges Sublevel</th>
<th>Mainlevel</th>
<th>Professional Subject-related</th>
<th>Professional Procedural</th>
<th>Social Inter-personal</th>
<th>Social Intra-personal</th>
<th>Organ. culture</th>
<th>Contextual Work setting</th>
<th>Private sphere</th>
<th>Total number of statements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sex</td>
<td>male</td>
<td>2</td>
<td>3</td>
<td>-</td>
<td>1</td>
<td>-</td>
<td>2</td>
<td>1</td>
<td>9 (1.8)*</td>
</tr>
<tr>
<td></td>
<td>female</td>
<td>5</td>
<td>3</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>4</td>
<td>-</td>
<td>18 (3.6)</td>
</tr>
<tr>
<td>Age (in years)</td>
<td>26-30</td>
<td>4</td>
<td>3</td>
<td>1</td>
<td>1</td>
<td>-</td>
<td>4</td>
<td>1</td>
<td>14 (2.8)</td>
</tr>
<tr>
<td></td>
<td>31-40</td>
<td>2</td>
<td>2</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>-</td>
<td>-</td>
<td>8 (2.7)</td>
</tr>
<tr>
<td></td>
<td>41-50</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>3 (3.0)</td>
</tr>
<tr>
<td></td>
<td>&gt; 50</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>2</td>
<td>-</td>
<td>-</td>
<td>2 (2.0)</td>
</tr>
<tr>
<td>Professional experience in years</td>
<td>&lt; 0 &lt; 5</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>-</td>
<td>-</td>
<td>2</td>
<td>-</td>
<td>6 (3.0)</td>
</tr>
<tr>
<td></td>
<td>5-10</td>
<td>2</td>
<td>2</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>1</td>
<td>5 (1.7)</td>
</tr>
<tr>
<td></td>
<td>11-20</td>
<td>2</td>
<td>2</td>
<td>1</td>
<td>3</td>
<td>1</td>
<td>2</td>
<td>-</td>
<td>11 (3.7)</td>
</tr>
<tr>
<td></td>
<td>21-30</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>3 (3.0)</td>
</tr>
<tr>
<td></td>
<td>&gt; 30</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>2</td>
<td>-</td>
<td>-</td>
<td>2 (2.0)</td>
</tr>
<tr>
<td>Professional fit to new job</td>
<td>Low</td>
<td>-</td>
<td>1</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>1</td>
<td>-</td>
<td>2 (2.0)</td>
</tr>
<tr>
<td></td>
<td>Moderate</td>
<td>4</td>
<td>1</td>
<td>2</td>
<td>2</td>
<td>1</td>
<td>3</td>
<td>-</td>
<td>13 (4.3)</td>
</tr>
<tr>
<td></td>
<td>High</td>
<td>3</td>
<td>4</td>
<td>1</td>
<td>1</td>
<td>-</td>
<td>2</td>
<td>1</td>
<td>12 (2.0)</td>
</tr>
<tr>
<td>Professional experience</td>
<td>Communication</td>
<td>2</td>
<td>1</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>1</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>Inform Resources</td>
<td>24</td>
<td>19</td>
<td>1</td>
<td>5</td>
<td>2</td>
<td>6</td>
<td>1</td>
<td>58</td>
</tr>
<tr>
<td></td>
<td>Training</td>
<td>9</td>
<td>3</td>
<td>-</td>
<td>2</td>
<td>-</td>
<td>3</td>
<td>-</td>
<td>17</td>
</tr>
<tr>
<td></td>
<td>Welcome</td>
<td>-</td>
<td>-</td>
<td>1</td>
<td>-</td>
<td>-</td>
<td>1</td>
<td>-</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Guide</td>
<td>3</td>
<td>1</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>4</td>
</tr>
<tr>
<td>Activities</td>
<td>Individual efforts</td>
<td>11</td>
<td>7</td>
<td>1</td>
<td>3</td>
<td>-</td>
<td>4</td>
<td>1</td>
<td>27</td>
</tr>
<tr>
<td></td>
<td>Other Integration in work</td>
<td>3</td>
<td>2</td>
<td>2</td>
<td>3</td>
<td>2</td>
<td>2</td>
<td>-</td>
<td>14</td>
</tr>
<tr>
<td></td>
<td>Learning by doing</td>
<td>10</td>
<td>3</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>-</td>
<td>-</td>
<td>17</td>
</tr>
<tr>
<td></td>
<td>Team event</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>1</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Professional experience</td>
<td>1</td>
<td>-</td>
<td>-</td>
<td>1</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Single mentions</td>
<td>-</td>
<td>-</td>
<td>2</td>
<td>-</td>
<td>-</td>
<td>2</td>
<td>-</td>
<td>4</td>
</tr>
<tr>
<td>Total number of statements</td>
<td>63</td>
<td>36</td>
<td>8</td>
<td>16</td>
<td>5</td>
<td>20</td>
<td>4</td>
<td>152</td>
<td></td>
</tr>
</tbody>
</table>

* The number in brackets indicates the average number of challenges mentioned per participant for each sociodemographic characteristic.
More interesting were the differences in terms of professional experience. Newcomers with a moderate fit between their professional experience and their new job duties perceived, on average, more than twice as many challenges as the newcomers with low or high fit. Compared to participants with a high fit, newcomers with a moderate fit described familiarizing themselves with the new tasks and topics as challenging. This is presumably because the respective three participants had previously performed similar, but not directly comparable work tasks. Rachel, for instance, explained that her “experience regarding the operating system is very helpful”. However, her current tasks concerning the operating system are only “similar, it is different from what [she] knew before.” In addition, Rachel emphasized that she is “not at all” familiar with the new topic she is supposed to work on in her new position. Katie and Nora also have only limited useful professional experience for settling into their new tasks. Katie is new to the industry and now works on a higher hierarchical level. Nora, in contrast, has many years of industry experience and is quite familiar with the topic. In her new position, however, she is working on the topic from a different perspective, so her tasks are “more specific and concrete” and she has to “update herself again”. Newcomers with a high fit of professional experience were more concerned with procedural challenges, i.e., learning about new tools (Patricia) and processes (Oliver), new infrastructure (Sam) and connections between organizational units (Quinn). Noteworthy, Marc did not name any professional challenges. During more than 30 years of professional experience he was able to acquire technical expertise beyond his current area of responsibility. For him, only contextual changes were relevant. It was also noticeable, that Sam and Tom each named only one challenge. Both have a high fit with their new job as they have performed very similar job duties in previous employment.

Overall, research question one can be answered as follows: Newcomers to the IT service provider most frequently perceived professional challenges during their organizational entry. A comparison of socio-demographic groups indicated that females named more challenges than their male counterparts. However, findings also suggested that the fit to the new job might be related to the number of perceived challenges – as in the case of Marc, Sam, and Tom.

**RQ 2: How does onboarding help newcomers overcome perceived challenges during organizational entry?**

In total, participants named 152 activities that helped them overcome the challenges perceived when starting with their new employer. More than half of the statements (86 statements) fell into the categories of the Inform-Welcome-Guide model according to Klein and Heuser (2008). ‘Resources’ was by far the most frequently addressed category (58 statements), especially sup-
port from new colleagues (44 statements). In addition, participants described ‘Individual efforts’ as conducive to dealing with the challenges during organizational entry (27 statements), i.e., for instance, writing documentations or using the internet to research information (3 statements each). Finally, about a quarter of the statements were labeled ‘Other’ activities (39 statements), in which four subcategories emerged. Of these subcategories, ‘Integration into everyday work’ and ‘Learning by doing’ were described comparably often as helpful in dealing with perceived challenges (14 and 17 statements, respectively).

Looking at the different types of perceived challenges, it is striking that most of the mentioned activities helped overcome professional challenges – especially subject-related challenges (99 and 63 statements, respectively). Regarding social and contextual challenges, a similar number of activities were described as helpful (24 and 29 statements, respectively). This distribution holds up when looking at the average number of helpful activities per perceived challenge. As before, most activities were mentioned as helpful in dealing with professional challenges (7.6 statements per challenge; 4.0 and 3.6 statements per social and contextual challenge, respectively). Thus, a bias due to the number of challenges mentioned per challenge type can be negated.

During data analyses, evidence emerged that one activity usually contributed to overcoming multiple organizational entry challenges. Furthermore, it became evident, that one challenge could usually be overcome with the help of several activities. Rachel’s organizational entry experiences exemplify these findings well: Rachel described challenges at all three levels of organizational socialization. She had to familiarize herself with the new subject matter (subject-related), and she had difficulty finding patience to learn the ropes (intra-personal). On top of this, finding her way around the new premises and the break room facilities caused initial discomfort (work setting). Successfully dealing with these challenges was predominantly due to the support of Rachel’s new colleagues. “The team being supportive helped [Rachel] and still helps [her] deal with these challenges.” Colleagues were a reliable resource for Rachel, providing a sense of safety during her early days with the new employer, because for her, “the most important thing is that [she] has someone [she] can turn to.” For three of the four challenges Rachel perceived, she identified a combination of activities as helpful in overcoming them. For instance, learning about the new topic was facilitated by the exchanging with colleagues and a handover list prepared by her predecessor (resources). At the same time, different training activities, such as the introductory seminar, job shadowing and several trainings from her predecessor, promoted Rachel’s progress regarding the new topic. Complementing this, Rachel wrote
documentation to "check back everything now and then" what she has already learned (individual efforts). "What also help[ed]," added Rachel, "[was] to do one thing at a time." This acceptance of a gradual learning phase (individual efforts), which Rachel described in the second interview, also compensated for her initial lack of patience. Finally, Rachel described "the daily doing" as helpful in getting into the new subject matter. By working on her own (learning by doing), Rachel soon recognized "that it got better and [she] got a little bit of an overview; gaps kept closing and things became full circle." Comparably to Rachel, the other newcomers repeatedly described multiple activities, mostly from different categories of the Extended-Inform-Welcome-Guide model, as conducive to overcoming one or more perceived challenges during their organizational entry with the IT service provider.

In summary, research question two can be answered as follows: Newcomers perceived a variety of activities that helped them overcome the perceived challenges during organizational entry. These activities address all categories of the Inform-Welcome-Guide model, whereby support from colleagues was most frequently cited as helpful (resources). In addition to the Inform-Welcome-Guide categories, all participants described individual efforts as well as integration in everyday work and learning by doing as helpful. Furthermore, it was striking that the newcomers mostly described one activity as helpful in overcoming several challenges. And one challenge was usually overcome with a combination of several activities.

4.7 Discussion

Analyses of newcomers’ perceived challenges during organizational entry and conducive activities to overcome these challenges revealed that gender and fit between professional experience and the new job could be related to the number of perceived challenges. However, these differences were not confirmed, regarding strategies for overcoming the perceived challenges, as all newcomers reported a combination of activities as helpful for their organizational entry. Furthermore, all participants mentioned individual efforts as well as integration into everyday work and learning by doing as beneficial. Consequently, Klein and Heuser’s Inform-Welcome-Guide Model (2008) falls short in supporting newcomers’ successful start with their new employer. Rather, findings confirm newcomers’ colleagues relevance for organizational socialization as a valuable resource of information that assists newcomers in understanding the new job duties and environment (Harris et al., 2020). Moreover, integrating newcomers into the daily work routine and performing one’s new job duties have been reported to be effective in overcoming perceived challenges, what confirms learning by doing as an effective learning strategy (Billett, 2022). Finally, findings also support newcomers’ influence as active co-creators of the socialization process (e.g., Bauer et al., 2019).
When interpreting the results, it is important to keep in mind that these are self-reported data from only ten newcomers to one organization. Further data collection, with newcomers to other organizations, could help to support the findings. Moreover, newcomers’ perception was not confirmed by other actors in the organizational socialization process, e.g., their colleagues or supervisor. In future research, these actors could also be interviewed to provide a more comprehensive picture of any challenges during organizational entry and the socialization progress of recruits. Finally, it is worth considering that the focus was on conducive activities. Other activities that were offered to the newcomers but were not named by them as explicitly conducive to overcoming challenges could represent hygiene factors as introduced by Herzberg and colleagues around the 1960s (Sachau, 2007).

In conclusion, the findings argue for offering a wide range of onboarding activities, from which newcomers can pick the ones they find most supportive for starting with their new employer. Moreover, newcomers’ colleagues should be prepared for their role during organizational socialization, so that new employees receive optimal support right from the start. Finally, regular feedback provided to and solicited from the newcomer can help intervene in the socialization process as needed.

4.8 References


Perceived Challenges when Changing Employer


5 Exploring Well-being at Work—An Interview Study on How IT Professionals Perceive Their Workplace

Study 3 was published as open-access article in August 2021 as part of Frontiers Research Topic *Well-being in Organizations*. The publication is available at [https://www.frontiersin.org/articles/10.3389/fpsyg.2021.688219/full](https://www.frontiersin.org/articles/10.3389/fpsyg.2021.688219/full)

5.1 Abstract

The workplace is particularly important for promoting well-being at work and general life satisfaction, as performing a professional activity can be perceived as satisfying and motivating. In addition, employment opens up opportunities for individual development that employees may be perceived as fulfilling. By conducting an interview study with IT professionals of a German medium-sized company, we investigate which factors of the individual work environment are perceived as conducive to the performance of everyday job duties and thus increase well-being at work. Furthermore, we analyze the extent to which participants are satisfied with the implementation of the factors that are important to them, whether socio-demographic differences are relevant, and whether the perception of the work environment has an effect on employees’ commitment. Results show that interpersonal factors in particular are considered to be important in everyday working life. About individual factors, a mixed picture emerged, whereby sociodemographic differences play only a minor role. Furthermore, there are indications of a positive relationship between the perception of the work environment and the IT professionals’ commitment. In-depth analysis of the employee statements helps to determine which aspects of the work environment should be implemented, developed, or promoted. In the long term, this can support individual learning and development paths and generates a work environment that sustainably promotes employees’ well-being at work and fosters long-term employment relationships.

**Keywords**  
Well-being at work • Perception • Work environment • Commitment • IT Professionals • Interview study

5.2 Introduction

For most people, work is a prominent part of their lives. Not at least because they spend a large proportion of their available time at the workplace. It is therefore important that employees feel
good in their work environment. This state is achieved when employees have a positive perception of their work environment (Buffet et al., 2013). More specifically, well-being at work is an individual’s assessment of his or her work environment, in which the individual positively evaluates the conditions that shape the respective work environment. A high level of satisfaction with workplace conditions is meaningful because it can have several positive effects on the individual. For instance, studies show that full-time employees rate their life satisfaction as better than the unemployed (Eiffe et al., 2016; Mousteri et al., 2018). Moreover, high subjective well-being has a positive impact on health and life expectancy (De Neve et al., 2013). Happy and satisfied individuals also benefit in terms of interpersonal relationships, as they are particularly collaborative and cooperative (De Neve et al., 2013). Furthermore, happy employees seem to be more productive in comparison to their unhappy counterparts (Peiró et al., 2019).

Given that barely one-third of well-being is attributed to genetic predispositions, nearly two-thirds of well-being can be caused by environmental influences (Diener et al., 2018). Thus, workplace interventions can help to improve employees’ well-being. Factors from the work environment that are potentially conducive to influence well-being can be grouped into three categories (empirical findings on the effects of the respective factors are presented in the section on conducive factors to well-being at work): Category 1 concerns factors of the social environment. It includes interpersonal relationships in the work context, characteristics of the work climate, opportunities for internal and external collaboration, and employees’ relationships with colleagues and supervisors. Category 2 addresses work characteristics. In addition to the opportunity to take on responsibility and act independently, the relevance of the work and its holistic nature as well as the variety of tasks and feedback also play a role. In addition, the psychological, cognitive, and quantitative requirements of the work and general working conditions are crucial for promoting employees’ well-being. Finally, employer characteristics are of relevance (Category 3). These cover aspects of work organization, such as processes and information flow, as well as culture-related topics, such as opportunities for professional and personal development, work-life balance programs, and leadership style. Whether or not employees perceive their work context positively depends largely on how they experience and assess the factors that shape their work environment (Fischer, 2010). Accordingly, employees may benefit in different ways from the available resources of their workplace (Louws et al., 2016). Employers should therefore find out which factors are relevant from the employee’s point of view. By aligning the work environment with the needs of their employees, it is more likely that employees will feel comfortable in the respective work environment.
Especially in times of a shortage of skilled workers, employers need to be perceived as attractive. This is especially true for the IT sector. Since IT specialists are currently in high demand, it is particularly easy for them to change employers. Mainly large employers offer extensive benefits to make themselves attractive to skilled personnel. Medium-sized employers—who usually have fewer resources at their disposal—are therefore faced with the challenge of retaining their employees. By creating a work environment that is satisfactory from the employee’s point of view, it is possible to successfully stand out from the competition and achieve long-term personnel ties.

Against this background, we want to learn more about how the employees of a medium-sized IT service provider in the financial sector perceive their work environment. We investigate which aspects IT professionals perceive as conducive to the performance of their everyday work since employees’ perception influences the use and application of (learning) resources (Hoekstra et al., 2009; Louws et al., 2016). Using semi-structured interviews, we provide in-depth insights into the employees’ perception of their work environment and contribute to better understand how employee perceptions can lead to satisfaction and well-being at work. This understanding can help sustain employees’ well-being at work and overall life satisfaction in the long run.

In the following section, we present the theoretical background and address the underlying empirical findings as well as our research model (section 5.3). This is followed by a description of the methodology and data sample (section 5.4). Next, we outline the results of the semi-structured interviews and classify them in the existing literature (section 5.5). The paper closes with a discussion of the limitations and scientific significance of the study (section 5.6).

5.3 On the Relationship Between One’s Workplace and Well-being at Work

Conceptualizing Well-being

By now, researchers from different disciplines (e.g., psychology, sociology, or economics) have turned their attention to the construct of well-being. Together, they share a common understanding of well-being, which can be characterized by the following three features: First, well-being is the result of a global judgement and its degree expresses an overall evaluation of life (Diener et al., 2017; Wright and Bonett, 2007). Second, affect and emotion play a role in assessing one’s life. This indicates that well-being is strongly influenced by how individuals perceive their environment (Bowling et al., 2010; Diener et al., 2017). Third, an individual’s global
judgement is influenced by various factors, which can be assigned to different life domains (Eiffe et al., 2016). Such domains are, for instance, one’s living conditions, health, and education. Also, the work environment represents a subdomain that influences an individual’s well-being evaluation. Taken together, an individual’s well-being results from the subjective overall assessment of various domains of life. This understanding of well-being is referred to as part-whole theory and is based on findings demonstrating the link between job satisfaction and well-being (recently confirmed by Cannas and colleagues, 2019, for an overview and comparison to other theoretical approaches, see, e.g., Bowling et al., 2010). Following the part-whole theory, there is a hierarchical order between one’s satisfaction with a specific area of life and overall well-being, which comprises a total of three levels. Thereby, overall well-being forms the highest level. The middle level is composed of the satisfaction scores for various life domain. Finally, the third level comprises the evaluation of all factors that make up this particular life domain. Considered in summary, the part-whole theory is based on a very broad conceptual understanding of well-being, according to which many different factors plus their perception needs to be taken into account (details are explained in the section on the relevance of employee perceptions).

Within the scope of our research project, we follow the part-whole theory and focus on the subdomain work. In this context, well-being is often specified as well-being at work or well-being at the workplace, which is about creating a work environment that is perceived as positive by employees (Buffet et al., 2013). More specifically, it is about enabling “safe, healthy and productive work in a well-led organization by competent workers and work communities who find their job meaningful and rewarding and see work as a factor that supports their life management” (Buffet et al., 2013, p. 14). In this way, employees should be allowed to unfold their potential in the best possible way (Schulte and Vainio, 2010) to reach an “optimal psychological functioning and experience at work” (Gruman and Saks, 2013). Based on these arguments, it becomes clear that well-being at work is an individual assessment of the work environment, which depends on the subjective perception of the conditions forming this setting.

Hence, by focusing on the design of the work environment employers can positively influence the well-being of their employees in two respects. On the one hand, this “conditional approach” (Pot, 2017, p. 96) aims at preventive action. Accordingly, all features of the work environment should be designed in such a way that they promote well-being at work (primary prevention, Pot, 2017). This means that the factors which positively influence employees’ well-being are specifically promoted and, at the same time, potentially negative influencing factors are re-
duced. Implementing such an approach can primarily reduce employee strain by protecting employees from the consequences of low well-being at work (e.g., exhaustion, inefficiency, and stress as consequences of burnout; Patel et al., 2018). Moreover, if primary prevention succeeds, initiatives to support employees in coping with low well-being (secondary prevention, Pot, 2017) become obsolete. On the other hand, examining the work environment can lay the foundation for the sustainable development of an organization and its employees. This perspective is introduced as the psychology of sustainability and sustainable development by Di Fabio (2017). The aim here is to implement the reflection of prevailing working conditions as a fixed process so that design potentials for a work environment conducive to well-being at work can be derived continuously. Referring to the part-whole theory, it therefore seems a promising starting point for organizations to focus on factors shaping the work environment—and thus the lowest of the three levels—to promote employees’ well-being at work.

**Conducive Factors to Well-being at Work**

Research shows that a variety of factors influence well-being at work. Concerning this connection, we have conducted literature research and identified a total of 24 factors, which—roughly speaking—can be divided into three categories, namely aspects related to either the social environment, work characteristics, or employer characteristics. The category *social environment* refers to interpersonal relationships in the work context and comprises work climate characteristics, opportunities for internal and external cooperation, as well as employees’ relationship with colleagues and supervisors. In this respect, positive influences such as social inclusion and support as well as negative influences such as bullying or discrimination play a role. For instance, work climate characteristics such as the feeling of being understood and accepted in the team, as well as social support, help employees cope with stress and heavy workload (Aalto et al., 2018), decrease the risk of burnout and foster job satisfaction (Van der Heijden et al., 2020). Moreover, work engagement is positively influenced by a collaborative and constructive team climate (Albrecht, 2012), which also reduces bullying (Olsen et al., 2017). A workplace free of bullying in turn promotes job satisfaction (Olsen et al., 2017) and reduces the risk of burnout (Steffgen et al., 2020). Also, the opportunity of making friends at work has a positive effect on job satisfaction (Morgeson and Humphrey, 2006). While these findings apply to relationships at the same hierarchical level and within the organization, other studies proved that relationships with supervisors (Chang and Cheng, 2014) as well as interaction with external cooperation partners (Morgeson and Humphrey, 2006) also affect employee job satisfaction.

Concerning *work characteristics*, studies pointed out their positive influence on employees’ satisfaction (e.g., Hackman and Oldham, 1974) and well-being (e.g., Bakker and Demerouti,
Since decades, characteristics of the work tasks, as well as requirements associated with the occupational activity and technical-organizational framework conditions to fulfill one’s job duties, are decisive. Motivational design parameters such as autonomy or participation in decision-making processes can have a favorable effect on employee engagement (Albrecht, 2012) as well as on employees’ job satisfaction and commitment (Uribeheberria et al., 2020). The same applies to the meaningfulness of one’s work tasks (Van der Heijden et al., 2020) as well as their variety and feedback through work (Morgeson and Humphrey, 2006). In addition, basic conditions for performing the job, such as available technologies and equipment or room temperature and spatial design, can have a positive effect (Morgeson and Humphrey, 2006). However, the work environment is considered unfavorable when psychological, physical, and quantitative demands become excessive from the employee’s point of view, causing burnout and physical problems in the worst case (Van der Heijden et al., 2020; Bianchi et al., 2021). In summary, responsibility and autonomy, the significance of the work and its holistic nature, task variety and feedback on the job, in addition to psychological, cognitive, and quantitative demands and general working conditions, are decisive work characteristics for promoting well-being at work.

Finally, characteristics that have an organization-wide impact can also affect employees’ well-being. About employer characteristics that apply across departments and activities, cultural and work organization aspects are particularly important. For instance, an organizational culture defined by openness, fairness, and support has a positive impact on employees’ engagement, commitment, and extra-role behavior (Albrecht, 2012). Furthermore, the health awareness of supervisors plays a role in employees’ well-being, as it is reflected in their leadership style and can positively condition employees’ mental health (i.e., depression and anxiety symptoms; Vonderlin et al., 2021). In addition, employees seem to be more proud, motivated, and overall satisfied when their employer has a positive reputation (Tanwar and Prasad, 2016). Similarly, development opportunities promote job satisfaction and commitment to the employer (Uribeheberria et al., 2020) and have a positive impact on subjective well-being (Eiffe et al., 2016). Increased well-being could also be linked to informal learning activities in the workplace (Jenkins and Mostafa, 2015; Jeong et al., 2018). At the same time, opportunities to acquire new skills and knowledge reduce the risk of burnout (Bianchi et al., 2021). In contrast, burnout is promoted when family and work are difficult to reconcile (work-life conflict, Steffgen et al., 2020; Bianchi et al, 2021). Stress is also increased when employees perceive their job or specific job features as being at risk (quantitative and qualitative job insecurity, Chirumbolo et al., 2017). In addition to cultural aspects, employee satisfaction is also conditioned by work organ-
izational aspects. For example, a well-functioning information flow provides access to information, resources, and mutual support, as well as development and learning opportunities. All these features shape an environment in which knowledge is shared. This fosters individual skill development and increases satisfaction (Trivellas et al., 2015). Finally, internal and external process quality also plays a role. Smooth and efficient work processes make it easier for employees to perform their tasks. This reduces the workload and makes employees more satisfied with their job (Chiang and Wu, 2014).

**Well-being and Commitment**

If an employer succeeds in creating a work environment in which its employees feel good, both parties can achieve further positive effects. For example, research suggests that high levels of well-being and job satisfaction are associated with an increased commitment to the employer (Jain et al., 2009; Aggarwal-Gupta et al., 2010; Ćulibrk et al., 2018) and employees with high levels of commitment show lower turnover intention (Agarwal and Sajid, 2017). This is positive from an employee’s perspective in that it avoids the negative consequences of changing employers for those who stay with their current organization. On the one hand, these can be monetary burdens, such as application or relocation costs. On the other hand, a change of employer can have negative psychological consequences, e.g., social pressure caused by integration efforts in the new work environment or stress that can arise with the emerging intention to quit. The employer also benefits from highly committed employees. With low turnover, there are no direct costs for replacement, training the new hire, or productivity losses. At the same time, indirect costs are avoided that can arise from spill-over effects on other employees or declining motivation among the remaining workforce (O’Connell and Jung, 2007; Kuhn and Yu, 2021).

All in all, staying with the current employer allows avoiding unpleasant consequences while maintaining a positive state of high well-being and commitment. To support long-lasting employment relationships, studies point to the need to focus on the organizational context and how it is perceived by employees, as this is significant for retention (Koslowsky et al., 2012) and organizational commitment (Herrera and Las Heras-Rosas, 2021).

**The Relevance of Employee Perception**

By defining well-being at work as an individual’s assessment of the work environment depending on the subjective perception of the conditions forming this work environment, we have emphasized that employee perception plays a crucial role in promoting well-being at work. As Fisher (2010) notes “it is important to remember that happiness and positive attitudes are not
directly created by environments or events [...] but rather by individuals’ perceptions, interpretations, and appraisals of those environments and events” (p. 396f.). This implies that employees of the same organization do not necessarily benefit equally from the prevailing working conditions, because they perceive available resources of their work in different ways (Louws et al., 2016).

The perception of environmental conditions is an important field of research in different disciplines (e.g., artificial intelligence, robotics, marketing, pedagogic, or psychology). For the question addressed in this paper, it is worthwhile to take a closer look at psychological research. For example, researchers from environmental psychology, a subdiscipline of industrial and organizational psychology, are addressing the relevance of perception. The focus is on the interaction between the environment and the individual, and the work environment is one among many fields of research (Bell and Sundstrom, 1997; DeYoung, 2013). To analyze the interactions between the environment and the individual, environmental psychology takes a holistic approach that aims to gain insights into factors that influence human behavior and well-being (DeYoung, 1999, 2013). In relation to well-being at work, such insights can help to identify drivers of well-being in the workplace. By considering these insights, work environments can be designed to best meet the needs of their employees. Other psychological approaches also support the finding that perceptual processes are of paramount importance. The interaction of individual factors and environmental factors as well as their perception is also analyzed within the framework of the theory of action regulation (Hacker, 1973, 2003, 2021; Volpert, 1983). It is assumed that the execution of an activity is conditioned by environmental and individual factors, and the perception of the employees is considered crucial for the processing of the environmental factors. Environmental factors are, for example, economic, social, work-organizational, or technical conditions that unfold within organizational structures and can give employees leeway to regulate their activities (Hacker, 2021). Individual factors refer to factors that employees bring to the work environment. These include physical prerequisites as well as education, cognitive abilities, and motivational aspects (Hacker, 2021). Finally, psychological processes (perception, thinking, remembering, motivation, emotion, and volition), representations of memory (mental models including norms and goals used to guide future actions), and psychological characteristics (especially competencies) of employees are crucial to the process of action regulation. In the context of well-being at work, action regulation theory illustrates that processing influences from the work environment start with employees’ perceptions.

Studies on employees’ perceptions of learning opportunities at the workplace underline the relevance of individual perceptions in assessing the work environment. For instance, Hoekstra et
al. (2009) use the example of teachers to show that equal working conditions lead to different learning activities. While one teacher perceives the provided degree of autonomy as an opportunity for development and uses this freedom to try out different working styles, a colleague in the same school finds it a lack of guidance. The same applies to participation in reflective dialogues and feedback. One teacher perceives the context as a chance to develop one’s performance and actively seeks feedback and exchange. The colleague experiences feedback as unpleasant criticism and avoids such situations and, thus, tends to stay in his or her comfort zone. More recent findings also show that it “is not so much the objective conditions that support or impede professional learning but the way teachers perceive those workplace conditions that influence teachers’ learning” (Louws et al., 2016, p. 770). Once participants perceive the prevailing structural and cultural conditions positively, they are more likely to engage in continuous professional development, take on responsibility, and tend to be more self-directed (Louws et al., 2016). In contrast, perceptions of a constraining work environment can lead to focusing on task-related goals without having a broader perspective (Louws et al., 2016). Thereby, experienced support is crucial here, with colleagues, supervisors and mentors being all relevant (Fox et al., 2010). Bryson et al. (2006) confirm this for employees of a winery. Their study indicates that access to and take-up of professional development opportunities depend on employees’ managers. Van der Rijt et al. (2013) come to similar conclusions in the case of employees in various commercial departments. Although they speak more generally of expertise providers, participants report that perceived quality and access to expertise as well as trust in the expertise providers are decisive in determining whether and how often they ask for help.

At this point, it should be noted that differences in the perception of the work environment can also be explained by socio-demographic factors. For example, discrimination has a greater impact on job satisfaction among younger and older employees than among middle-aged employees (Taylor et al., 2013). While younger employees tend to find satisfaction in the significance of their tasks, older employees benefit from the opportunity to exert influence (Van der Heijden et al., 2020). In addition, the risk of burnout decreases for older employees the more support they experience at work (Van der Heijden et al., 2020).

**Research Model and Research Questions**

The findings discussed regarding employees’ well-being at work and their perception of the work context are consistent with the part-whole theory and our reasoning regarding factors conducive to well-being at work, emphasizing that employees’ perception of the work environment is influenced by a variety of factors. Against this background, we have combined the
Exploring Well-being at Work

outlined theoretical considerations into a research model, taking into account the empirical findings on well-being at work (see Figure 5.1). In addition to factors that promote well-being at work, we consider employees’ perception, well-being at work, and employees’ commitment. According to action regulation theory, the influencing factors are composed of environmental and individual factors. Related to our research project, these are factors conducive to well-being at work. The social environment, work characteristics, and employer characteristics together shape the work environment and are classified as environmental factors. The socio-demographic factors are classified as individual factors. Employee perceptions trigger the process of action regulation and determine the subsequent development of well-being at work (output), which affects the level of engagement (outcome).

![Research Model](image)

**Figure 5.1: Research model (study 3)**

As illustrated in the research model, the entire context in which work is performed plays a crucial role in promoting employees’ well-being. As such, it is necessary to look at the work environment from a holistic perspective to determine factors influencing well-being in the workplace. With this study, we aim to do so and provide deeper insights into how employees perceive their work environment. We want to learn more about how employees experience various aspects of their work environment when they consider their work environment as a whole. Respectively, research question one addresses employees’ perception of the work environment and is surveyed via two questions. First, we wanted to know:

**RQ1.1:** What aspects of the individual work environment do employees perceive to be conducive to carry out their work tasks?

Furthermore, we wanted to ascertain which specific circumstances lead to a positive perception of particular work environment factors. Such insights could reveal whether there are differences in the perception of the work environment within an organization and what causes them.
Knowledge about different perceptions within an organization could help to identify best practice and problematic situations. Corresponding research activities such as ours could contribute to developing suggestions for designing a satisfactory work environment. To this end, we further investigated:

RQ1.2: To what extent perceive employees specific factors of the work environment as realized in their daily work context?

To account for the influence of socio-demographic factors in our study, we additionally analyzed the following question:

RQ2: Does employees’ perception of factors of the work environment differ for distinct socio-demographic groups?

Finally, we investigated the extent to which employees’ perceptions of the work environment are related to their commitment, asking:

RQ3: Is there a relationship between employees’ perception of the work environment and their commitment to the employer?

5.4 Method

Context of the Study

The study was conducted with a medium-sized IT service provider operating in the financial sector in Germany. The company offers its customers IT solutions that include the development of software as well as its implementation and operation. To work in a customer-oriented manner, the employees strive to develop innovative solutions that account for the customers’ needs. In doing so, the employees have to deal with frequently changing demands. New demands result from the dynamic change of the (technical) development within the industry, which causes innovations in the company’s processes and products. Furthermore, customer requirements can change (at short notice), so that flexible adjustments to ongoing project work are commonplace. These conditions make frequent changes in work tasks and processes characteristic of everyday work for the consulted IT professionals. Accordingly, it is particularly important for employees to work in an environment they perceive as positive and which encourages them in the performance of their daily tasks. In this way, a contribution can be made to their well-being at work.

To understand the prerequisites of building such a work environment, the present study aims to find out which specific aspects cause a positive perception of those factors shaping the consulted IT professionals’ work environment.
In attempting to determine how the well-being of IT professionals can be supported by the design of their daily work routine, we are interested in how employees perceive certain aspects of their work context. As noted above, research has shown that employees’ perception of these relationships is highly subjective. Qualitative research methods allow depicting such subjective phenomena (Yin, 2018) because they are particularly suitable for capturing individual experiences and placing them concerning the participants’ reality of life (Patton, 2015). In this context, open-ended questions provide the opportunity to gain in-depth and context-related insights into the phenomena of interest (Patton, 2015; Yin, 2018). For this reason, we have decided to conduct semi-structured interviews to ask the IT professionals about aspects of their work environment, which they perceived to be conducive to carry out their job duties. We encouraged participants through six questions to provide in-depth insights into how they perceive a total of 24 factors we have identified in the literature as influencing factors (the factors were introduced in the section on the relationship between one’s job and well-being at work; the interview guideline is attached to this thesis as Appendix A). The first question concerned the general conditions of work, and thus covered the category employer characteristics. Questions two to six were related to work tasks, the scope of work, emotional experience, professional requirements, collaboration, and communication, and covered the category work characteristics. Aspects of the category social environment were addressed by all questions but in particular by the questions touching on emotional experience, cooperation, and communication. Each question started with a short introduction that prompted the participant to focus on the work context. Afterwards, the interviewer asked about supporting factors within that field. Due to the rather general nature of the questions, we decided to give two examples per question to guide the participants. This seemed reasonable, considering the potential range of factors and differences in individual perceptions. For example, the question relating to general conditions of work was as follows: “Please think about your workplace: Which general conditions at your workplace do you find particularly conducive to carry out your work tasks? How important are these points to you? Consider the following aspects—for example, career and development opportunities or the compatibility of work and family life.” The examples were identical for all participants, and that meant the participants’ statements could be compared (Nohl, 2013). Before the next question was asked, the interviewer summarized the top three factors to which the participant attached particular importance while responding. Participants either confirmed or corrected this summary and finally weighted it. This resulted in an individual ranking of the three most important factors per question and an additional check whether the interviewer had correctly recorded the participant’s answers.
Additionally to the perception of the work environment, we asked the IT professionals at the end of the interview to assess how committed they feel to their employer. The question was taken from the KUT questionnaire for assessing commitment (Klein et al., 2014) and reads, “How committed are you to your employer?” Since the question is again open-ended, we formulated two hints to help participants answer the question, as we did in the previous questions. Both hints are based on items from Mowday et al. (1979) questionnaire on organizational commitment and read “Think of statements such as the future of my employer is important to me, or I am proud to work for this employer.” We tested the instrument’s comprehensibility and practicability within a pre-test (N = 3).

**Data Collection and Sample**

To obtain the sample, the entire workforce of the IT service provider was informed via the company’s intranet. For this purpose, we introduced the study briefly in an information letter. All employees were invited to participate via the information letter and it was explicitly pointed out that participation was voluntary and answers will be processed anonymously. In case the employees were interested in participating, they were asked to share their socio-demographic data via an online link presented in the information letter. Thereby, we aimed to recruit a sample that best represents the IT service provider’s workforce. Additionally, the IT professionals were asked to share their contact details via this link so that we could contact them to arrange an interview appointment.

The final sample (N = 61, see Table 5.1) was drawn from 89 valid responses, representing a response rate of 23%. The majority of the participants were male (74%), which reflects the actual gender distribution in the company. Employees aged 30 or younger (18%) were over-represented, while older employees (51–60 years) were under-represented (33%). Nevertheless, the total sample shows a relatively balanced distribution across the age groups. More than half of the participants had 21 or more years of professional experience (59%) and had been working for this employer for more than 10 years (55%). In total, the sample represents all organizational units and all three locations of the IT service provider. Due to the high proportion of younger participants, of whom 73% were in a qualification phase, trainees and students (training and development) were overrepresented with 14%.
Table 5.1: Sample (study 3) (all figures in percent, $N = 61$)

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<th>Company’s workforce</th>
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<tr>
<td></td>
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<td>75</td>
</tr>
<tr>
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<tr>
<td></td>
<td>31–40 years</td>
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<td>16</td>
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<td></td>
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<tr>
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<td>51–60 years</td>
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**Data Analysis**

More than 42 h of interview material were recorded, with interviews lasting between 18 min and 1 h 15 min. After data collection, the interview material was transcribed. In the course of transcription, linguistic details such as pauses in speech, dialect, or rephrasing were smoothed in favor of reading fluency (Mayring, 2014). This procedure is legitimate, as linguistic details did not play a considerable role in answering the research questions (Oliver et al., 2005). To test for objectivity and reliability of the codings, Cohen’s Kappa coefficient was calculated by double coding 20% of the data ($N = 12$). Results were above 0.80 suggesting high reliability of the codings ($\kappa$ influencing factors = 0.83; individual ranking: $\kappa$ weighted = 0.81, $\kappa$ unweighted = 0.83; $\kappa$ commitment = 0.91).
We applied qualitative content analysis (Mayring, 2015) to analyze the data material. Hereby we deductively coded the statements of the participants with a coding system derived from the literature (Figure 5.2). The coding system contains codes for the six questions on employees’ perception of the work environment and the question concerning their commitment. Interview statements addressing the participants’ work environment were first assigned to one of the six codes for the respective interview question (level 1) and one of the three categories of conducive factors to well-being at work, namely employer characteristics, work characteristics, or social environment (level 2). This was followed by coding which factor was specifically addressed (level 3). For each influencing factor on level 3, we provided further codes to distinguish whether the factor was identified by the participants themselves (i.e., unprompted statement) or whether the participant referred to an example given in the question; these examples were considered to have been prompted. We argue that unprompted statements point to a potentially higher subjective relevance than those that were prompted by the interviewers. Combined with data on the participant’s perception of each influencing factor (realized or not realized), this approach led to four coding possibilities per statement (level 4).

Figure 5.2: Coding system (study 3)
Interview statements about participants’ commitment were first assigned to the homonymous code for the associated interview question (level 1). Subsequently, the intensity of commitment was assessed using a three-point scale (level 2). For this purpose, the original five-point scale of the KUT questionnaire (Klein et al., 2014) was compressed as follows: The two lowest levels of the scale, “not at all” and “slightly,” were combined to form “1: low.” Here, negative statements such as “I would not recommend the company to my children” (interview 3.08, line 64) were assigned. The two highest scale levels, “quite a bit” and “extremely,” were combined to form “3: high.” Here, agreeing statements such as “I identify with the company. [It] is more than my employer, almost my life” (interview 1.21, line 74) were coded. The medium level remained but was renamed “2: moderate” for consistency in wording.

After encoding the transcribed data with the coding system, the resulting codes were examined in six analysis steps. Step one serves to answer the research question concerning influencing factors of the work environment (RQ1.1). Therefore, the total number of codings per influencing factor was evaluated on the assumption that participants were more likely to address factors that were important to them. Statements that were made several times were critical, as they could potentially distort the ranking. Such a bias could have resulted from influencing factors being addressed in more than one question (e.g., information flow in the question about general framework conditions, cooperation, and communication). To test the data for bias due to mentioning a factor more than once, we adjusted the number of codings per participant for repeated mentions of a factor. In step two, the individual rankings were analyzed. For this purpose, the rankings were considered both unweighted (UR) and weighted (WR). By weighting the ranking, we acknowledged that the participants expressed the perceived relevance of a factor by determining the ranking order. Weighted and unweighted rankings were analyzed for all six questions together and for each question separately. Next, an index was calculated that combined the number of codings with the weighted ranking scores (step three). With this approach, we considered that some factors may have been addressed often without having been ranked by the participant.

To find out how well the participants perceived the influencing factors as having been realized in their daily work environment (RQ1.2), the statements were subdivided into the four coding options resulting from the standardized coding frame (step four). The distinction between realized and not realized aspects provided information about how well the participant perceived

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17 All interviews were named with a code. The number before the dot indicates the location where the interview was conducted. The two numbers after the dot indicate the consecutive interview number, e.g. 3.08 for interview 8 at location 3.
them as having been realized. The distinction between prompted and unprompted statements illustrates how important the individual aspects were for the participant (subjective relevance). By combining these four coding options it was possible to derive four recommendations for action about potential innovations in the workplace\textsuperscript{18}. Aspects mentioned without a prompt should be promoted if they were coded as realized, or require optimization when coded as not realized. Aspects referring to a prompt and coded as not realized should be observed. Those coded as realized should be retained.

Socio-demographic differences (RQ2) were examined in step five of the analysis. Information on gender, age, professional experience, seniority, and type of employment were gathered through the online survey we sent out with the information letter. Analogous to research question one, the number of codes per sociodemographic group and per influencing factor was determined.

To investigate whether there is a link between employees’ perception of the work environment and their organizational commitment (RQ3), we calculated a degree of realization for each participant and related it to their statements on commitment. The degree of realization indicates the percentage of a participant’s statements in which aspects of the work environment were addressed as positively implemented either by themselves (unprompted) or in response to an example given by the interviewer (promoted) (step six). Hence, the four coding options from analysis step four serve as the basis for calculating the degree of realization.

5.5 Results

Based on the different analysis steps, the following results can be reported from the interview study:

RQ1.1: What aspects of the individual work environment do employees perceive to be conducive to carry out their work tasks?

Concerning the research question concerning factors of the work environment conducive to fulfill one’s job duties (RQ1.1), the ranking that resulted from counting the number of codings (step one) gave a first indication of the factors’ relevance (Table 5.2). The results were led by information flow with a total of 200 codings, followed by internal cooperation (195 codings), and work climate (132 codings). Evaluating the number of codings adjusted for the participants

\textsuperscript{18}The distinction in four recommendations for actions closely resembles Henderson’s BCG-matrix (1979)—a widely used instrument for strategic product management. For this purpose, products are classified into the matrix according to market share and market growth, from which recommendations for further sales can be derived.
resulted in slightly different ranking order. The adjusted number of codings reflects how many participants mentioned an aspect, regardless of how often a participant addressed the respective aspect. Now, internal cooperation and work-life balance ranked first (57 participants mentioned these aspects), followed by information flow (mentioned by 55 participants), work climate, and internal process quality (54 participants each). Nevertheless, the same factors remained in the top three places. The better ranking position of work-life balance could be explained by its functioning as an opening example for the question relating to general framework conditions. Giving examples of specific factors could have caused a so-called priming effect, leading to an overestimation of these factors (Vitale et al., 2008). However, since work-life balance was the only factor for which such a change was observed, a general priming effect can be denied.

Evaluating the perceived relevance of influencing factors using the individual rankings (step two) showed a comparable result (Table 5.2). This applied to the analysis of both the unweighted ranking (UR) and the weighted ranking (WR). For both assessments, it could be observed that internal cooperation now came first (UR = 137, WR = 325), information flow second (UR = 113, WR = 235), and work climate third (UR = 100, WR = 231). However, considering the rankings for each of the six questions separately, other factors achieved higher rankings for individual questions. Nevertheless, an aggregated view of the rankings seemed appropriate, since no systematic pattern could be identified, and our research was focused on the evaluation of the work environment as a whole. Finally, calculation and analysis of the index (step three) resulted in the same three factors on top, led by internal cooperation (520 points), followed by information flow (435 points), and work climate (363 points). Taken all together, RQ1.1 can be answered as follows: Employees perceive internal cooperation, information flow, and work climate as the three most conducive factors for fulfilling their work tasks.

RQ1.2: To what extent perceive employees specific factors of the work environment as realized in their daily work context?

To answer the research question on how the factors are experienced in the daily work context (RQ1.2), the four possible coding options were considered first (step four). Depending on the perceived realization of a presage factor as well as its subjective relevance for the participant, a statement could be coded either as unprompted-not realized, prompted-not realized, prompted-realized, or unprompted-realized. Figure 5.3 shows that the realization of most factors was considered to be positive: The majority of the statements were perceived as having been satisfactorily realized. In addition, a large proportion of them was mentioned without prompt (see e.g., internal cooperation, work climate, work-life balance, and feedback).
Table 5.2: Quantitative analysis of statements sorted by index.

<table>
<thead>
<tr>
<th>Influencing factors</th>
<th>Number of codings (N = 58) †</th>
<th>Individual ranking (N = 61) ‡</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total</td>
<td>Adjusted for participant</td>
</tr>
<tr>
<td>Internal cooperation</td>
<td>195</td>
<td>57</td>
</tr>
<tr>
<td>Information flow</td>
<td>200</td>
<td>55</td>
</tr>
<tr>
<td>Work climate</td>
<td>132</td>
<td>54</td>
</tr>
<tr>
<td>Professional development</td>
<td>93</td>
<td>52</td>
</tr>
<tr>
<td>Leadership</td>
<td>109</td>
<td>49</td>
</tr>
<tr>
<td>Internal process quality</td>
<td>123</td>
<td>54</td>
</tr>
<tr>
<td>Work-life balance</td>
<td>96</td>
<td>57</td>
</tr>
<tr>
<td>Feedback</td>
<td>91</td>
<td>48</td>
</tr>
<tr>
<td>Autonomy</td>
<td>74</td>
<td>46</td>
</tr>
<tr>
<td>Quantitative demands</td>
<td>78</td>
<td>50</td>
</tr>
<tr>
<td>Working conditions</td>
<td>94</td>
<td>49</td>
</tr>
<tr>
<td>Relationship to colleagues</td>
<td>72</td>
<td>48</td>
</tr>
<tr>
<td>Cognitive demands</td>
<td>66</td>
<td>41</td>
</tr>
<tr>
<td>Psychological demands</td>
<td>73</td>
<td>43</td>
</tr>
<tr>
<td>Variety</td>
<td>49</td>
<td>42</td>
</tr>
<tr>
<td>Significance</td>
<td>57</td>
<td>47</td>
</tr>
<tr>
<td>Corporate culture</td>
<td>52</td>
<td>39</td>
</tr>
<tr>
<td>Responsibility</td>
<td>33</td>
<td>33</td>
</tr>
<tr>
<td>Relationship to supervisor</td>
<td>44</td>
<td>33</td>
</tr>
<tr>
<td>Holistic nature</td>
<td>41</td>
<td>36</td>
</tr>
<tr>
<td>Image</td>
<td>45</td>
<td>39</td>
</tr>
<tr>
<td>Job security</td>
<td>29</td>
<td>28</td>
</tr>
<tr>
<td>External process quality</td>
<td>21</td>
<td>16</td>
</tr>
<tr>
<td>External cooperation</td>
<td>14</td>
<td>13</td>
</tr>
<tr>
<td>Total:</td>
<td>1,881</td>
<td>-</td>
</tr>
</tbody>
</table>

† 58 of 61 participants gave permission for tape recording.
‡ Inclusion of the entire sample is possible as the ranking results were also recorded in handwriting.
§ Exemplary calculations for internal cooperation: unweighted ranking: (66+56+15) = 137; weighted ranking: (3*66 + 2*56 + 1*15) = 325; index: 195+(3*66 + 2*56 + 1*15) = 520.
This shows the comparatively high importance of these factors for the participants. At the same
time, some aspects were considered to not have been realized satisfactorily. Here, too, state-
ments without prompt had greater subjective relevance. It is noticeable that about one-third of
the statements concerning the organization’s internal process quality were assigned to this code
category (43 of 123 statements). The score for quantitative demands was 42 %. In summary, it
can be stated for RQ1.2 that the participants assessed the realization as satisfactory for the ma-
jority of the presage factors. Nevertheless, participants identified strengths and deficits for the
same factors.

To shed more light on the specification of presage factors discussed by the IT pr-
ofessionals, we
classified the statements on the three most relevant factors—internal cooperation, information
flow, and work climate—into overarching categories (e.g., exchange, work atmosphere, team-
work, see Figure 5.4). Subsequently, each category was assigned to one of four recommenda-
tions for action—namely retain, promote, observe, or optimize—according to its subjective rel-
evance and perceived implementation level. Based on these recommendations for action, sug-
gestions for innovations in the workplace can be derived that take into account the needs of the
interviewed IT professionals as well as the perceived workplace conditions per topic category.
It should be noted that a category could potentially be assigned to several recommendations for
action. This is because several aspects were summarized under one category (e.g., information
transfer and contact persons are both aspects of the category exchange). In addition, different
participants might have considered the same aspect differently well
-implmented or differently
relevant, resulting in different recommendations for action for the respective aspect.

For example, the category exchange was assigned to each of the four recommendations for
action. Some employees valued, and frequently mentioned, intra- and inter-divisional
knowledge sharing, which should be promoted accordingly. Regarding intra-divisional
knowledge sharing, one IT professional reported that knowledge within the team is actively
shared by its members so that the team’s functionality is guaranteed at all times: “In our unit,
everyone knows everything and can replace everyone. We don’t have anyone who is completely
isolated with a specialized area of expertise” (interview 1.03, line 68). Also lauded were the
exchange of experience, prioritization of tasks, availability of information, and documentation
of knowledge in an always-accessible repository. In this context, another professional empha-
sized that the team members exchange information, especially regarding problematic issues:
“We talk to each other within the department—where problems arise, where developments do
not run properly” (interview 1.26, line 61). In contrast, others criticized intra- and inter-divi-
sional knowledge sharing due to heterogeneous knowledge levels, outdated or delayed information, poor transparency, and prioritization, as well as an insufficient information flow (optimize). According to one employee, job duties are often assigned at short notice, leaving little time for adequate preparation and processing: “Most of the time, things are put in front of you that you have nothing to do with and that usually come very spontaneously and are best completed by the day after tomorrow. So of course I don’t have time to get exactly into it [and prepare] thoroughly” (interview 3.02, lines 145–147). For some, exchange was less important. They only addressed the above-mentioned aspects in response to questions from the interviewer. For instance, the availability of information was deemed satisfactory (retain): “Well, I think you always have the information you need for your job. Some things would be nice to know, but it doesn’t affect my work” (interview 1.23, line 32). The quantity of information, however, was criticized, but at the same time, the concerned employee explained that they had come to terms with the abundance of information material: “The information flow is there, but sometimes too much. I don’t always need to be on the mailing list if it’s none of my business. […] 80 percent of my colleagues don’t read it either. I know what I have to do and if I don’t, I get the information elsewhere” (interview 1.03, lines 53–57) (observe).

Work atmosphere and teamwork were also mainly discussed in response to questions from the interviewer. One professional, for example, described a positive work atmosphere characterized by a harmonious and collegial climate between the team members: “The work atmosphere with us and in our environment […] is very good. And it’s a pleasure to work when you know that your colleagues are able or willing to help you if you have any problems. And you don’t have to beg, but one shout is enough and there are three people ready to do something for you” (interview 2.06, line 7; retain). Worth observing are instead tensions in the team and a lack of a sense of community, which other professionals criticized. Similarly, with teamwork, some participants reported departmental differences and needs for improvement on the operational level (observe), while others had a positive perception of teamwork, praising the reliability of their colleagues, and their constructive ways of working (retain).

However, two facets of work atmosphere and teamwork also appeared in the recommendation option optimize. On the one hand, this concerned a missing sense of community. Participants reported on competitive and hierarchical thinking, a lack of mutual understanding, and lines of demarcation between the company’s three locations.
Figure 5.3: Quantitative analysis of subjective relevance and perceived implementation per influencing factor
For one employee, this becomes particularly clear when working across divisions: “[then] our sense of community is limited and I’m not always sure whether we’re all pulling in the same direction. Individual interests come to the fore and, if something doesn’t work, people try to find someone outside their ranks to blame” (interview 1.23, line 58). On the other hand, some mentioned a lack of support in solving work-related problems. Either because “people don’t help you as much to get ahead themselves” (interview 2.12, line 6). Or, because there is simply no other employee who is familiar with the respective topics: “I am alone with my area and I have to find a solution alone. I also don’t have a representative” (interview 3.08, line 43).

Despite these improvement needs, half of the statements were assigned to the recommended action promotion. This proved a satisfactory implementation of the presage factors with high subjective relevance for the sample. One topic most participants rated as positive was *mutual support*. They appreciated good coordination of tasks, professional support from colleagues and supervisors, and constructive discussions, and cooperation to increase productivity. An employee described the collaboration as follows: “What I find very beneficial is the collegial behavior. […] You discuss things very openly and directly, but it’s never personal. I find that very conducive to the work atmosphere and of course that also has an impact on our output when the

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**Figure 5.4: Recommended actions for aspects of internal cooperation, information flow, and work climate, sorted by number of codings**

- **Retain (131)**
  1. Exchange (62)
  2. Work atmosphere (44)
  3. Teamwork (25)

- **Promote (261)**
  1. Exchange (79)
  2. Mutual support (73)
  3. Pleasant togetherness (46)
  4. Addressability (27)
  5. Sense of community (20)
  6. Single nominations (16)

- **Observe (64)**
  1. Exchange (42)
  2. Work atmosphere (12)
  3. Teamwork (5)
  4. Single nominations (2)

- **Optimize (71)**
  1. Exchange (46)
  2. Missing sense of community (13)
  3. Lack of support (5)
  4. Single nominations (7)
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team harmonizes well” (interview 1.04, line 6). This statement also illustrates the *pleasant togetherness* that results, among other things, from respectful and familial interaction. Moreover, the *addressability of colleagues and supervisors* seemed to be important for some participants. They emphasized that “in terms of addressability, there is always someone there” (interview 1.20, line 53) and “conversations [are] also possible across hierarchies” (interview 1.26, line 8). Overall, the prevailing *sense of community* scored highly, allowing participants to perceive their work environment as a place of common goals and interests.

RQ2: Does employees’ perception of factors of the work environment differ for distinct sociodemographic groups?

The research question on sociodemographic differences (RQ2) was examined by evaluating the number of codings per polled sociodemographic factor (step five). Results showed that the factors internal cooperation and information flow occupy the first two places in almost all sociodemographic groups (see Table 5.3). Here, it is noticeable that internal cooperation was ranked higher by female IT professionals and older employees. The picture is reversed for information flow, which was considered more important by male IT professionals and younger employees. Another point worth mentioning is that employees with long seniority value internal process quality more highly than all other groups. The third most important factor was work climate; ranked on position three by nine out of 20 groups. In the other groups the factors internal process quality (9x), leadership (3x), working conditions (1x), feedback (1x), internal cooperation (1x), and professional development (1x) ranked third, revealing a more mixed picture compared to the first two ranking positions. Overall, the influence of sociodemographic factors can be classified as rather low for our sample, despite the fluctuations described.

RQ3: Is there a relationship between employees’ perception of the work environment and their commitment to the employer?

Regarding perceptions of the work environment, the results for RQ1.2 are mirrored, as shown by the average degree of realization of 75.2% (*SD* = 12.7). Specifically, more than two-thirds of the interviewed IT professionals perceived their work environment as satisfactory. Another nine IT professionals even experienced their workplace as particularly positive. Concerning commitment, it is noticeable that a predominantly positive assessment was also made here (*M* = 2.72; *SD* = 0.073).
Table 5.3: Influencing factor's ranking positions (upper two quartiles, sorted by sociodemographic factor)

<table>
<thead>
<tr>
<th>Sociodemographic factor</th>
<th>Gender</th>
<th>Age (in years)</th>
<th>Professional experience (in years)</th>
<th>Seniority (in years)</th>
<th>In training and development</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Female (16)</td>
<td>Male (45)</td>
<td>31-40 (9)</td>
<td>41-50 (15)</td>
<td>51-60 (20)</td>
</tr>
<tr>
<td>Internal cooperation</td>
<td>1</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Information flow</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Work climate</td>
<td>3</td>
<td>3</td>
<td>2</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Professional</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>development</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Leadership</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Internal process</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Quality</td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Work-life balance</td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Feedback</td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Autonomy</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Quantitative</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>demands</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Working conditions</td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Relationship to</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>colleagues</td>
<td></td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

Ranks were places twice if more than one factor scored equal index values. Rank position 1 are indicated in bold.
This seems understandable, as organizational commitment and turnover intention correlates negatively (Koslowsky et al., 2012; Agarwal and Sajid, 2017). Thus, employees who feel little commitment to their employer are more likely to switch. Accordingly, employees with high commitment remain.

Findings on the link between employees’ perceptions of the work environment and their commitment (RQ3) are shown in Figure 5.5. The horizontal axis depicts employees’ perception of the work environment. The vertical axis displays their commitment. Regarding employees’ perception of the work environment, we distinguished three groups—negative, satisfactory, and positive. This allowed clustering of the participants and subsequent comparison of the groups. To build the three groups, a standard deviation (12.7) was subtracted from the average degree of realization (75.2%) and added, respectively. Employees with a degree of realization below 65.52% were thus assigned to the group with a negative perception, employees with a degree of realization between 65.52 and 87.92% to the group with satisfactory perception, and employees with a degree of realization above 87.92% to the group with a positive perception. In combination with the statements on commitment (low, medium, high), this resulted in a matrix of nine fields showing the extent to which the perception of the work environment and perceived organizational commitment are linked. Based on their statements concerning the work environment and their commitment, the interviewees were located within this nine-field matrix.

There are indications of a positive relationship between the perception of the work environment and individual commitment. Although only a weak and non-significant relationship could be found between the IT professionals’ commitment and their degree of realization (Spearman’s Rho = 0.089), a Kruskal-Wallis test showed that the degree of realization differed significantly across the three commitment levels (Kruskal-Wallis-H = 7.317, p = 0.026). Subsequent post-hoc tests (Dunn-Bonferroni tests) revealed significant differences in the degree of realization between participants with low and medium commitment (z = −2.676, p = 0.007, r = 0.74) and participants with low and high commitment (z = −2.480, p = 0.013, r = 0.36). Participants who rated their work environment positively also rated their commitment to their employer positively. This applies to eight IT professionals. Based on the two participants who rated their work environment most positively (degree of realization each about 96%), it can be exemplified where this particularly good assessment stems from. On the one hand, they were satisfied with the factors of their work environment to which they attached particular importance in the performance of their work. On the other hand, they also had a positive perception of the other factors that play a role in their day-to-day work. For a comparably large group of 30 IT professionals, a satisfactory perception of the work environment was observed with the same high
level of commitment. The two participants whose assessment of the work environment was closest to the mean (degree of realization 74 and 77%, respectively) were noticeably more deficient than the participants in the first group (positive perception and high commitment). And this applied both to the factors that are most important to them and the rest of the factors shaping their work environment. In particular, the two participants expressed potential for optimization for the factors to which they attached the greatest importance in their day-to-day work. Conversely, it was found that participants who criticized some aspects of their work environment (negative perception) also indicated low commitment. The more the degree of realization decreased, the more likely factors were rated as unsatisfactory. The two participants with the lowest degree of realization (each about 49%) reported, for example, that aspects of their work environment that were particularly important to them were inadequately realized. Moreover, they were also not satisfied with other factors that make up their work environment. A surprising result was shown by the seven participants who indicated a high level of commitment despite a rather negative perception of their work environment. Comparable to the participants with negative perception and low commitment (lower left box), they criticized the factors of their work environment that are particularly important to them in everyday working life. At the same time, they identified optimization potential for other factors, whereby a mixed assessment was observed here, i.e., both negative and positive statements were made.

Concerning RQ3, it can be stated that there seems to be a positive relationship between employees’ perception of the work environment and their commitment. The perception of the overall work environment appears to be decisive, especially if, from the employees’ point of view, those factors that are particularly important to them in their everyday work are not implemented satisfactorily. Consequently, if an employer succeeds in designing the work environment in such a way that employees perceive it as conducive to the performance of their work, this favors the relationship between employees and employer and promotes long-term employment relationships. Nevertheless, results also indicate that there may be other factors besides the perception of the work environment that lead to high commitment.
5.6 Discussion

Taken together, the findings of the interview study show that—from an employee perspective—three of the well-being-promoting factors have proven to be especially relevant. Employees experience particularly interpersonal relationships as conducive to fulfilling their work tasks. Furthermore, interpersonal relationships are crucially important in respect of how one assesses the individual work environment: First, they contribute to an environment in which employees feel safe and affiliated. This may lead to a comfortable state in which each of the parties concerned feels valued and indispensable. Second, these interpersonal relationships are the basis of an organization-wide network. This is of particular importance concerning knowledge acquisition and skill development. Results also show that there can be differences in the perception and implementation of certain influencing factors, making one-fits-all solutions not very promising. Moreover, employees seem to benefit most from informal learning opportunities, such as sharing experiences or receiving ad hoc support from colleagues, for performing everyday work tasks. Finally, employees’ perceptions of the work environment appear to have a positive relationship with their commitment, whereby the perceived realization of the individually most relevant influencing factors seems to play a crucial role.

When interpreting our findings, however, the limitations of the study must also be taken into account. First, the subjective relevance of specific factors for the assessment of the work context may vary over time. Changes in the relevance of single factors would possibly be reflected in changes in well-being at work. This may be caused by changes in the work environment, such as new tasks and colleagues, or changes in other areas of life, such as a new family constellation or a new place of residence. Future research projects should therefore be designed as panel studies to investigate whether the identified influencing factors are constant in the long run. This could help to differentiate between stable and variable factors conducive to well-being at work.

Second, qualitative research projects have limitations that are inherent in the method and provide starting points for complementary quantitative research efforts. For instance, a questionnaire study could be developed from the present results, containing scales on the influencing factors (independent variables), their perception (possibly moderator or mediator variables) and the outcome variables well-being at work and commitment. In this way, the relationship between the perception of the work environment and commitment could be investigated in more detail. It would also be interesting to see whether the factors considered being conducive to well-being at work compensate for deficits in other factors. For example, high quantitative re-
requirements or unfavorable internal processes could be compensated by the support of colleagues. Moreover, the influence of personality traits could be investigated. These were not considered in our study. However, some evidence suggests that a positive evaluation and satisfaction with the tasks can only develop if the requirements match the personality characteristics of the employee (Christiansen et al., 2014). For example, playful characters and employees who are open to experience can benefit from the independent design of their work tasks. Integrating fun and competition into daily tasks can increase their creativity and commitment (Scharp et al., 2019). In addition, agentic employees tend to adapt their work environment to their individual needs and expectations (Goller, 2017).

Third, the study design’s focus was on the individual employee. This does not take into account that the organizational work context requires a great deal of interaction, and thus employees hardly act in isolation. The results support this assumption in that they prove the importance of interpersonal interactions. Thus, group discussions could serve to offer deeper insights concerning the dynamics of social interactions within the work context (Krueger, 1999). Therefore, it would be interesting to further analyze organizational units to investigate how their daily work is organized. Studies of this type could also help to elucidate the relationship between well-being and performance at the group level for which evidence has been scarce. More research efforts are therefore needed that can shed light on the causality and reciprocity between the two variables (García-Buades et al., 2020). It would also be interesting to compare the extent to which employees’ perception corresponds with the perception of the employer. Differences in the perception of the work environment could hinder effective interventions to improve working conditions. Hence, future studies should survey the perception of the employer in addition to the individual perception of the employees.

Fourth, the generalizability of our results is limited, as organizational and industry characteristics may have influenced employees’ perception of the work environment. Therefore, the results require validation through studies in other organizations and industries. Furthermore, it is possible that selection effects arising from sample recruitment, e.g., through overrepresentation of particularly satisfied and committed employees, could have affected the findings. The same would apply to the possibility of socially desirable response patterns and the avoidance of specific sensitive issues, such as relationships with supervisors. However, as the results show a quite differentiated evaluation of the work environment, concerns about selection effects and social desirability can be discounted. And finally, it has to take into account that we only report data from one company with specific characteristics concerning the profession, age structure, and gender. This is due to the rather difficult conditions of field access. This further reduces the
generalizability of the results. It is therefore essential to follow up with further studies in other companies to corroborate the results reported here.

Overall, the findings of our research are in line with other research showing that employees perceive positive relationships with colleagues and support from the team and supervisors as particularly useful and helpful to cope better with challenging phases (Alegre et al., 2016; Van der Heijden et al., 2020). In such contexts, employees are more committed, and at the same time their willingness to learn and exchange increases (Zboralski, 2009; Huang et al., 2016; Frazier et al., 2017). To strengthen interpersonal relationships, organizations could implement team-building activities. This would address mutual trust and reliability. In addition, information on the responsibilities and competencies of colleagues would help to find appropriate contact persons and to build up a professional network. For implementing knowledge sharing as part of the daily work routine, employers should create appropriate conditions on the organizational level, such as providing the necessary tools and resources (Lancaster and Di Milia, 2014), and anchor knowledge sharing and teamwork in the organization’s corporate culture (Jeong et al., 2018).

Particular emphasis should be placed on encouraging informal learning opportunities, such as sharing experiences or ad hoc peer support, as employees benefit most from these practices, according to our study. Discussing best practices and lessons learned in meetings at the team or department level could also be a viable path in this context. Employers should also offer retreats for undisturbed exchange between employees. To communicate experiences across departments and locations, they could be published in a tweet-like format on the organization’s intranet. Overall, increased communication of individual experiences would boost employees’ visibility and convey a feeling of appreciation. This should be taken into account when designing the work environment, e.g., by using flexible communication tools and providing time capacities for mutual exchange. At the group level, feedback, internal and external networking, and the quality of interpersonal relationships are all crucial (Schürmann and Beausaert, 2016; Jeong et al., 2018). These aspects at the group level have been identified as largely implemented, which indicates a supportive work environment at least in some parts of the company (best practice). Such concrete indications for designing a work environment in which employees feel socially embedded can help to boost sustainable well-being at work.

At the same time, our findings highlight the need for employers to examine how employees experience and perceive implemented measures to ensure that beneficial factors, such as communication tools or training opportunities, have positive effects on employees’ well-being at work. To this end, employees’ perception should be evaluated regularly. In teams in which the
exchange is already functioning well, evaluations can be carried out as needed and bilaterally. In teams in which the exchange has not worked well so far, evaluation should be introduced based on predefined evaluation questions and with predefined appointments (e.g., in annual reviews or team meetings). A regular evaluation of the perception of the work environment could—as the results show—help to identify unfavorable developments and initiate appropriate countermeasures to design a well-being-friendly work environment. In case the work environment is not yet optimally designed from the employees’ perspective, job crafting interventions can be helpful. Through systematic training, employers can show their employees how to make self-directed and targeted changes to the resources and requirements of their work environment (Van Wingerden et al., 2017). If employees succeed in adapting work demands according to their individual needs (job crafting), they benefit from more professional development opportunities as well as increased self-efficacy, better performance, and enhanced well-being (Van Wingerden et al., 2017).

Overall, this organizational context shows the characteristics of an expansive work environment. Such environments enable employees to exchange knowledge and experience, acquire new knowledge, and further their skill development. Moreover, an appreciative and innovative atmosphere is typical of an expansive work environment (Fuller and Unwin, 2004). In summary, our approach has provided a detailed overview of workplace conditions that can influence employees’ professional development and potentially impact their well-being at work. Furthermore, we identified which specific aspects of the work environment can induce positive perceptions of the work environment. Results show that IT professionals especially perceive interpersonal relationships in a positive way. If they experience these as positive, employees benefit from a good flow of information, good internal cooperation, and a pleasant work atmosphere in performing their everyday work tasks. The in-depth analysis of employees’ statements helped to determine which aspects of the work environment should be implemented, developed or promoted. In the long run, this can support individual learning and development paths and generate a work environment that sustainably promotes employees’ well-being at work. Thus, employers can respond to employees’ needs by analyzing the subjective significance of certain influencing factors and uncovering the potential for their implementation.

Data Availability Statement

The datasets presented in this article are not readily available because making the generated datasets available requires the agreement of the cooperating institution from which the data were collected. Requests to access the datasets should be directed to wipaed2@mail.uni-mannheim.de.
**Ethics Statement**

Ethical review and approval was not required for the study on human participants in accordance with the local legislation and institutional requirements. The patients/participants provided their written informed consent to participate in this study.

**Author Contributions**

SZ and JS contributed equally to the conception and theoretical development of this work and to the elaboration of the models used. SZ has collected the data on which this work is based. She was supported by student assistants. All authors have seen and approved the final version of the manuscript.

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**Conflict of Interest**

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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### 5.7 References


6  Hürden beim organisationalen Knowledge Sharing: Eine Analyse aus Sicht von Mitarbeitenden eines IT-Dienstleisters [Barriers in Organizational Knowledge Sharing: An Analysis from the Perspective of IT-Professionals]

Study 4 was published as open-access article in November 2022 in the special issue *Organisation und Bildung* of the journal *Gruppe. Interaktion. Organisation. Zeitschrift für Angewandte Organisationspsychologie (GIO).*\(^\text{19}\) The publication is available at [https://doi.org/10.1007/s11612-022-00657-2](https://doi.org/10.1007/s11612-022-00657-2)

6.1  Einführung zur Bedeutung organisationalen Knowledge Sharings


\(^{19}\) Note: The chapter headings, figures, and tables of the published version have been numbered according to the numbering of this thesis. Any misspellings and typographical errors detected in the course of a further thorough proofreading have been corrected.
(Kim und Park 2020). Die daraus resultierende Kreativität (Giustiniano et al. 2016) und Innovationskraft (Muhammed und Zaim 2020) sichern die Wettbewerbsfähigkeit der Organisation und letztendlich ihren Fortbestand.


6.2 Theoretische Überlegungen zu Knowledge Sharing


Solch eine Interaktion zwischen Organisationsmitgliedern beschreibt das organisationale Knowledge Sharing. Beim organisationalen Knowledge Sharing stellt ein Organisationsmitglied (Sender) individuelles Wissen für andere Organisationsmitglieder (Rezipienten) zur Verfügung (Ipe 2003), um diese bei der Bewältigung konkreter Probleme zu unterstützen (Wang und Noe 2010). Zwischen Sender und Rezipient kann dabei eine „dynamische Reziprozität“ entstehen (Han, 2018), die die Bereitstellung eigener Wissensbestände und zugleich die Suche nach neuen Wissensbeständen umfasst. Aufgrund dieser Reziprozität ist es im Arbeitsprozess oftmals schwierig, zwischen der Bereitstellung und Aufnahme von Wissen zu differenzieren. Für die vorliegende Untersuchung schließen wir uns Han’s Auffassung an und betrachten organisationales Knowledge Sharing als wechselseitigen Austauschprozess, bei dem die Wissensbestände aller beteiligten Organisationsmitglieder erweitert werden können. Ob die Rezipienten das geteilte Wissen auch tatsächlich in den eigenen Wissensbestand aufnehmen und im Rahmen

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20 Eine Abgrenzung zu weiteren, mit Knowledge Sharing verwandten Begrifflichkeiten liefern Gentner und Kollegen (im Druck).

6.3 Untersuchungsdesign

Die Daten zur Analyse der Hürden organisationalen Knowledge Sharings stammen aus einer mehrjährigen Forschungskooperation mit einem mittelständischen IT-Dienstleister. Das Unternehmen operiert in der Versicherungsbranche und bietet komplexe IT-Lösungen an, die neben der Entwicklung neuer Software auch die Implementierung und den Betrieb von Produkten umfassen. Dabei haben Kundenorientierung, Innovation und Effektivität oberste Priorität. Aus diesen Qualitätskriterien leiten sich für die Mitarbeitenden des Full-Service-Anbieters hohe Leistungsansprüche ab. Neben agillem, konstruktiv-disruptivem Arbeiten sind häufig interdisziplinäre Lösungsansätze gefragt, die ein komplexes Zusammenarbeiten innerhalb der Organi-


Die Interviews fanden innerhalb eines Zeitraumes von fünf Monaten (März bis August 2020) telefonisch statt. Während der Telefonate wurden die Antworten der Teilnehmenden protokolliert und ihnen zur Prüfung vorgelegt (zu dieser Vorgehensweise siehe Birt et al. 2016 und Candela 2019). Die validierten Protokolle wurden induktiv, nach der qualitativen Inhaltsanalyse über die Analysesoftware MAXQDA ausgewertet (Mayring 2015) und fortlaufend in einem Codebook dokumentiert. Insgesamt wurden über 1.300 Codes generiert, wovon sich 248 Codes auf die hier verfolgten Fragestellungen beziehen. Nachdem ca. zwei Drittel der relevanten Codes ausgewertet waren, wurden nur noch vereinzelt neue Aspekte kodiert, sodass sich eine Sättigung der Stichprobe abzeichnete (Bott und Tourish 2016). In mehreren Überarbeitungsschleifen ließen sich die Codes in drei Phasen und sechs Kategorien gruppieren. Die Phasen – vor, während und nach dem Knowledge Sharing – indizieren, zu welchem Zeitpunkt des Teilungsprozesses die benannten Hürden, Herausforderungen und Potenziale wirksam werden. Die Kategorien – Motivation, Kommunikation, Dokumentation, Ressourcen, organisatorisch-strukturelle Aspekte und Kultur – bilden hingegen Themenbereiche, die die Ursache für einen gescheiterten Austausch bzw. Potenziale zur Optimierung organisationaler Knowledge Sharing Prozesse benennen (siehe exemplarisch Figure 6.1). Um die Reliabilität der Codierungen zu prüfen, wurde der gesamte Datensatz doppelt kodiert und Cohen’s Kappa Koeffizient berechnet. Die Ergebnisse belegen eine sehr hohe Inter-Coder-Reliabilität (κ Critical Incidents = 0.96; κ Herausforderungen = 0.86; κ Potenziale = 0.97; κ Phasen-Zuordnung insgesamt = 0.94) (Landis und Koch 1977).
Figure 6.1: Aggregierte Übersicht kodierter Hürden vor, während und nach organisationalem Knowledge Sharing [Aggregated overview of coded barriers before, during, and after organizational knowledge sharing]
6.4 Empirische Befunde

RQ1: In welchen Situationen scheitert das Teilen von Wissen im Arbeitsalltag der IT-Fachkräfte?

Insgesamt beschrieben die Mitarbeitenden 60 Situationen ihres Arbeitsalltages, in denen sie ihr Wissen nicht erfolgreich teilen konnten (siehe Figure 6.2). In mehr als der Hälfte der Situationen (35 Critical Incidents) bezogen sich die IT-Fachkräfte auf Hürden, die das Teilen von Wissen gänzlich vereiteln. In einem weiteren Drittel wurden Störfaktoren thematisiert, die den Erfolg während des organisationalen Knowledge Sharings einschränken (23 Critical Incidents) und in zwei Situationen konnten im Nachgang an den Austauschprozess keine positiven Effekte im Arbeitsalltag realisiert werden.

![Figure 6.2: Hürden vor, während und nach organisationalem Knowledge Sharing aus Sicht der befragten IT-Fachkräfte (insgesamt 60 Critical Incidents) [Barriers before, during and after organizational knowledge sharing from the perspective of the IT professionals]](image)

In Bezug auf Hürden VOR organisationalem Knowledge Sharing monierten die Mitarbeitenden am häufigsten motivationale Defizite der Rezipienten und Sender (9 bzw. 5 Critical Incidents). Den Rezipienten attestierten die Mitarbeitenden vor allem mangelnde Aufnahmebereitschaft für neue Wissensbestände. Beispielsweise erachtete ein potenzieller Wissensnehmer die Aufnahme neuer Wissens als überflüssig, wie eine Mitarbeiterin erläuterte: „[Eine] Stelle [wurde] neu besetzt. Der Neuzugang verkündete unverblümt, dass er/sie die jetzige Stelle lediglich als Sprungbrett nutzen wolle. Entsprechend gering war das Interesse für den Tätigkeitsbereich und..."


WÄHREND des organisationalen Knowledge Sharings nahmen die IT-Fachkräfte überwiegend Hürden wahr, die die Kommunikation zwischen dem Rezipienten und Sender betreffen. Vor allem der Inhalt des Austausches wurde thematisiert. Beispielsweise führt eine unvollständige Übermittlung dazu, dass „dem Empfänger im Endeffekt nicht alle notwendigen Wissensbestände vorliegen“. Die Lücken müssen geschlossen werden, indem der Wissensgeber erneut

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23 Die Kombination aus dem Buchstaben „I“ und einer zweiseitigen Zahlenfolge kennzeichnet die interviewte Person.
Barriers in Organizational Knowledge Sharing


Über die Hürden vor und während des Knowledge Sharings hinaus beschrieben zwei IT-Fachkräfte eine mangelnde Transferbereitschaft der Rezipienten, die als Hürde NACH dem Knowledge Sharing wirksam wird. Ihrer Meinung nach waren die Rezipienten „einfach nicht willens, etwas Neues umzusetzen“ (I28) bzw. „die angebotenen Wissensbestandteile auf den eigenen Tätigkeitsbereich zu transferieren“ (I01). Dadurch blieb die intendierte Anwendung des geteilten Wissens aus, sodass durch Knowledge Sharing keine positiven Effekte im Arbeitsalltag der Rezipienten erzielt werden konnten.

hinaus reichen, bspw. indem sich Frustration, Ärger und Misstrauen unter den Mitarbeitenden entwickeln.

**RQ2: Welche Herausforderungen erleben die IT-Fachkräfte im Zusammenhang mit dem Teilen von Wissen?**

Die Einblicke in Hürden organisationalen Knowledge Sharings spiegeln sich in den Aussagen der Mitarbeitenden zu wahrgenommenen Herausforderungen beim Teilen von Wissen weitestgehend wider (siehe Figure 6.3). Auch hier bezieht sich der Großteil der Aussagen auf Blockaden, durch die der Austauschprozess gar nicht erst zustande kommt (64 Aussagen). In knapp einem Viertel der Statements wurden Störfaktoren während des Knowledge Sharings thematisiert (27 Aussagen) und in nur sieben Aussagen sprachen die Mitarbeitenden Herausforderungen an, die erst im Anschluss an den Austauschprozess wirksam werden.

![Figure 6.3: Wahrgenommene Herausforderungen vor, während und nach dem Knowledge Sharing aus Sicht der befragten IT-Fachkräfte (insgesamt 98 Aussagen) [Perceived challenges before, during and after knowledge sharing from the perspective of the IT professionals]](image)


RQ3: Welche Potenziale bestehen nach Meinung der IT-Fachkräfte bezüglich der Förderung von Knowledge Sharing?

Bei der Frage nach Möglichkeiten zur Förderung des organisationalen Knowledge Sharings (siehe Figure 6.4) griffen die Befragten häufig die zuvor beschriebenen Herausforderungen auf. Zum Abbau von Hürden vor dem Knowledge Sharing (63 Aussagen) plädierten die Mitarbeitenden insbesondere dafür, Ansprechpartner zu identifizieren und diese bekannt zu machen (8 Aussagen), eine Wissensdatenbank aufzubauen (6 Aussagen) sowie die Bedeutsamkeit von Knowledge Sharing deutlicher zu kommunizieren (7 Aussagen). Während des Austauschprozesses sollten die Sender durch standardisierte und attraktivere Dokumentationslösungen unterstützt werden (6 bzw. 5 Aussagen). Im Nachgang müsse für die stetige Aktualisierung der vorhandenen Dokumentationen gesorgt werden.

6.5 Diskussion

Die Ergebnisse der leitfadengestützten Interviewstudie zeigen, dass die befragten IT-Fachkräfte überwiegend Hürden wahrnehmen, die organisationales Knowledge Sharing von vornherein vereiteln. Im Arbeitsalltag erleben die Mitarbeitenden vor allem motivationalen Defizite der Sender und Empfänger sowie ineffiziente Austauschprozesse als problematisch (RQ1). Darüber hinaus erachten sie knappe zeitliche Kapazitäten sowie Kommunikationshürden als herausfordernd (RQ2). Potenziale zum Abbau der Blockaden sehen die IT-Fachkräfte in der Kommunikation von Ansprechpartnern und der Priorisierung des Knowledge Sharings über die Unternehmenskultur (RQ3). Einzelne Situationsbeschreibungen der Mitarbeitenden lassen außerdem erkennen, dass negative Erfahrungen beim Teilen von Wissen langfristig zu Verhaltensänderungen seitens der Sender führen können. Einige Mitarbeitende berichten diesbezüglich, dass sie aufgrund dieser frustrierenden Erfahrung in künftigen Austauschgelegenheiten zurückhalten.
on und Kommunikation, ineffektive Nachfolgeplanung) und die Verankerung von Knowledge Sharing in der Unternehmenskultur (Unverbindlichkeit, fehlendes Bewusstsein für Relevanz der Thematik) wurden als ausbaufähig geschildert.


**6.6 Implikationen für die Praxis**

Durch die vorliegende Untersuchung konnten konkrete Schwierigkeiten bei der Weitergabe arbeitsbezogenen Wissens identifiziert werden. Hieraus lassen sich am Prozess der Wissensteilung orientierte Implikationen ableiten, sodass organisationale Hürden für Knowledge Sharing effektiv abgebaut werden können. Leicht auffindbare Wissensquellen (z.B. durch Yellow Pages) und Unterstützung der Wissensgeber bei der Dokumentation von Wissen (z.B. über Vorlagen und Coachings) könnten den Zugang zu Wissen vereinfachen, zeitliche Ressourcen scho-

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6.7 Literatur


7 Discussion and Research Outlook

In this concluding chapter, the research questions of this thesis are answered by summarizing the key findings of the four studies underpinning this work (section 7.1). Afterwards, limitations of the research contributions are identified and discussed (section 7.2). The thesis closes with implications for transferring the findings to the world of work (section 7.3).

7.1 Summary of Findings

Considering the societal and economic dynamics outlined in chapter 1, professional learning and development are of tremendous importance for today’s employees and employers. With a focus on supporting employees in their professional development, this thesis sought to explore how work environments should be designed to meet the learning and development needs of employees and, furthermore, assist employees and employers in coping with the changing demands of the economy and work. Findings from the four studies conducted for this dissertation contribute to answer this overarching question by reflecting on VET as preparation for professional employment (study 1) and by analyzing different learning and development occasions during the subsequent phase of professional employment (study 2, 3, and 4).

Findings regarding VET as preparation for professional employment

Research efforts conducted for study 1 focused on the dual VET system in Germany, which represents a common path for gaining professional qualification after school (BMBF, 2021, p. 37f.) and thus makes an important contribution to Germany’s economic performance (Seeber & Seifried, 2019, p. 487). Due to this relevance of the dual VET system for the German society and economy, the authors discussed whether the dual VET system is applicable to prepare prospective employees for working life (RQ 1) and how the implementation of uniform quality standards could help to ensure trainees’ appropriate preparation for professional employment (RQ 2).

Regarding prospective employees’ preparation for working life (RQ 1), the authors concluded that the German dual VET system has the potential to fulfill this very purpose. Due to the combination of vocational schools and training companies (BMBF, 2020, p. 4 f.), the dual VET system incorporates the potentials of both learning sites and, thus, follows the idea of vocational orientation (in German: “berufsorientierter Qualifizierungsstil”, Deißinger & Fromberger, 210, p. 347). However, high-quality preparation of prospective employees may only be ensured if the actors of both learning sites cooperate very closely (Euler, 2004, p. 14 f.). Thereby, both
learning sites need to share the overarching objective of enabling trainees to become occupationally competent (KMK, 2007, p. 10 f.). Quite high takeover rates of trainees indicate that this goal is reached (BMBF, 2021, p. 81). However, this positive picture is contrasted by quite many training dropouts (BMBF, 2021, p. 78), trainees with insufficient competence levels at the end of training (Seeber & Seifried, 2019, p. 494 f.), and an increasing number of unoccupied training positions (BIBB, 2022, December 14). All these facts speak in favor of modernizing the dual vocational training system and the occupations that are trained this way to reach a better fit between qualification demand and qualification supply.

Regarding the implementation of quality standards for the dual VET system in Germany (RQ 2), the authors recommended the assessment of occupational competence to be more practice-oriented. To this end, achievement of the competence goals at the end of the training phase should be tested in authentic, practice-relevant settings and, thus, address a trainee’s occupational competence at the performative level. Moreover, the assessment should also account for competences necessary to maintain trainees’ employability – such as the discussed 21st century skills.

**Findings regarding learning and development occasions during professional employment**

The research efforts conducted for study 2, 3, and 4 focused on the phase of professional employment in which different learning and development occasions typically occur. Research conducted for study 2 focused at joining a new employer, which represents one such occasion. Entering a new organizational environment often presents very diverse challenges for new employees (Bauer & Erdogan, 2014, p. 440). To support employees in successfully transition from a newcomer to an organizational member, research efforts conducted for study 2 started with exploring the challenges newcomers perceive when starting with a new employer (RQ 1). Subsequently, the focus was on how onboarding helps new employees to overcome the challenges they perceive during organizational entry (RQ 2).

Regarding potential challenges during organizational entry (RQ 1), interviews revealed that participants most often perceived a combination of professional, social, and contextual challenges. Of these, professional challenges were most frequently experienced. Newcomers attributed initial hurdles in organizational socialization to difficulties in learning the new job duties (subject-related challenges) as well as getting familiar with the new organizational processes and technical infrastructure (procedural challenges). Difficulties at the social level were named less frequently. However, it seemed interesting that newcomers identified integration efforts both on the inter-personal level (getting to know each other, learn how to communicate
and collaborate) as well as on the intra-personal level (finding patience, deal with responsibility). With respect to the contextual level, participants mainly described the new work setting as challenging (employer’s premises, organizational structure, employment conditions). In addition, the new organizational culture and living environment also required some acclimation efforts from the respective newcomers. At all levels, female participants named more challenges than males. Furthermore, it was striking, that participants with a moderate fit between their prior professional experience and their new job duties experienced organizational entry more challenging than their counterparts with low or high fit.

Regarding onboarding to overcome initial challenges during organizational entry (RQ 2), support from the new colleagues was perceived as particularly helpful. Furthermore, newcomers attributed their individual efforts – such as documenting what they have learned or doing research – as well as integration into everyday work and learning by doing as appropriate to deal with the challenges they were confronted with. Thereby, most conducive activities to organizational entry addressed challenges on the professional level. Finally, it was noticed that participants considered one activity as conducive to more than one of the perceived challenges and one challenge has been overcome due to several supportive activities. This suggests that supportive activities during organizational entry have a broad effect across the different types of potential challenges when starting with a new employer and are likely to become conducive to newcomers’ organizational socialization as a combination.

Study 3 focused on the completion of everyday job duties and how it is influenced by the work environment. Designing a work environment conducive to performing one’s job is very important, as it can affect employees’ job satisfaction, well-being, and health (Diener et al., 2018, p. 254; Van der Heijden et al., 2020, p. 14 f.). Based on this relevance of the work environment, research efforts conducted for study three aimed at exploring employees’ perception of their work environment’s conduciveness to performing their daily work (RQ 1), whether there are socio-demographic differences in this regard (RQ 2), and whether employees’ assessment influences their organizational commitment (RQ 3).

Regarding conducive factors of the work environment to perform everyday job duties (RQ 1), participants considered internal collaboration, information flow, and work climate to be the most important. Thereby, it is noticeable that employees’ perception of these factors’ realization in their daily work context differed and was in some cases even contrary (e.g., well-functioning intra- and inter-divisional knowledge sharing opposed by delayed information or poor transparency). Looking for socio-demographic differences regarding participants’ perception of the work environment (RQ 2), revealed that these different perceptions are only partially due to
socio-demographic factors. Namely, internal cooperation and information flow almost always ranked highest, only female employees and older age groups perceived internal cooperation a bit more often important. Their male counterparts and younger IT specialist, in contrast, ranked information flow higher. However, analysis showed that the interviewed employees were quite satisfied with the factors constituting their work environment. Finally, findings regarding the relationship between employee’s perception of the work environment and their organizational commitment (RQ 3) indicated a positive relationship between these two variables. This stems from employees’ satisfaction with the factors most important to them as well as their overall assessment of the work environment. However, there may be other influencing factors on employees’ organizational commitment – especially, when they perceive some factors of their work environment as not satisfactorily realized.

Study 4 examined employees’ perception more specifically regarding knowledge sharing at work. Thereby, the focus was on barriers to organizational knowledge sharing, as they are likely to thwart employees’ learning processes and thus hinder their professional performance and development. To prevent employees from such negative effects, research efforts conducted for study 4 aimed at investigating employees’ perception of knowledge sharing failure at work by capturing critical incidents in which knowledge sharing fails (RQ 1) and hindrances employees perceive to a successful knowledge sharing process (RQ 2). Furthermore, employees were asked about potentials for improving the current state of knowledge sharing in their work environment (RQ 3).

Regarding knowledge sharing failure (RQ 1 and RQ 2), employees reported deficits in motivation, communication, and documentation as barriers to successful sharing processes. Moreover, they perceived lacking resources, insufficient organizational-structural aspects of their work environment as well as an organizational culture not promoting knowledge sharing as hindrances. While deficits in motivation of the knowledge sender and knowledge receiver (e.g., a lack of willingness to exchange or absorb knowledge) and missing time capacities during day-to-day business were experienced to thwart sharing processes from the outset, difficulties in communication between knowledge sender and knowledge receiver resulted in an initiated sharing process not proceeding optimally (e.g., due to incomplete sharing or unsuitable design of the sharing process). After a knowledge sharing process, some employees experienced a lack of knowledge transfer limiting the success of the respective knowledge sharing process. Furthermore, participants outlined that failed knowledge sharing processes may reduce the motivation of the knowledge senders to initiate a sharing process in the future. Such a long-term
effect is particularly worrying. Regarding potentials to foster knowledge sharing (RQ 3), participants took up the beforementioned critical incidents and perceived hindrances. In this context, the design of an organizational culture that explicitly supports the exchange of knowledge gained in prominence.

In conclusion, the results of all four studies illustrated the relevance of the work environment as learning site. Whereas the discussion in study 1 emphasized the importance of the work environment as a learning site for vocational qualification, studies 2, 3 and 4 examined work environmental factors conducive to learning and professional development following initial vocational training and education. Especially interactions with colleagues were identified as conducive for learning and professional development at the workplace. Colleagues’ support helped newcomers to overcome challenges during organizational entry and good interpersonal relationships were perceived as particularly conducive to perform everyday job duties. They also ease cooperating and collaborating with other organizational members and thus promote successful knowledge sharing processes. These findings are in line with other research contributions, which also revealed the colleagues’ relevance for organizational socialization (Harris et al., 2020, p. 201; Korte, 2009, p. 300; Korte & Lin, 2013, p. 423; Korte et al., 2015, p. 197; Mornata & Cassar, 2018, p. 567) and (informal) learning at work (recently shown by, for instance, Amenduni and colleagues, 2022, p. 11, or Decius and colleagues, 2021, p. 309; please consider also the models introduced in chapter 2.2).

### 7.2 Limitations and Future Research

Before drawing implications from the findings just outlined, limitations of the research efforts on which these findings are based will be addressed and suggestions for future research will be proposed. Due to the different research designs of the four studies, limitations and research outlooks for study 1 are addressed separately from the limitations and research outlooks of studies 2, 3, and 4. The chapter concludes with final limitations and research outlooks across the four studies.

With respect to study 1 on VET as preparation for professional employment, it needs to be emphasized that this research is a conceptual work. As such, study 1 only provides an overview as well as thought-provoking reflections on the quality of the dual VET system in Germany. To generate data-based evidence on the suitability of dual VET for preparing trainees for professional employment, future research could utilize a qualitative study design. For a comprehensive assessment of the fit between the professional demands placed on trainees and the training content, perspectives and individual perceptions of all actors involved in the training process...
should be collected. Trainees could report on how well they are able to cope with the professional demands placed on them during and following their vocational qualification. In this context, it would be interesting to explore how trainees apply the skills and competencies they acquired during the qualification phase and whether learning events outside VET also help them to cope with professional demands. Trainees’ supervisors and colleagues could also assess how well they perceive the respective trainees to meet the professional demands placed on them during and after dual VET. Finally, researchers should record the perception of the respective vocational school to account for the trainee’s academic performance. This could enable optimal coordination and cooperation between the two learning sites.

Such a holistic approach could help uncover perceived deficits and mismatches in terms of subject-related or even soft skill-related training content. If necessary, findings could serve as a basis to revise the training occupations concerned. Moreover, they could provide indications of critical factors which may provoke training dropouts or trainee’s negative perceptions of a profession or – even worse – professional employment in general. Appropriate qualitative methods for such a study design are, for instance, diary studies or interviews. Both methods are suitable to capture subjective perceptions and to make implicit processes explicit (Rausch, 2014, p. 344; Yin, 2018, p. 161; e.g., through reflective description of critical incidents, Flanagan, 1954, p. 329). Beyond this, diary studies and experience sampling are suitable to capture the events of interest immediately after or even during their occurrence and, thus, may reduce issues regarding recall bias (Rausch et al., 2022, p. 43 ff.; Seifried & Rausch, 2022, p. 27).

These qualitative methods could be complemented by a questionnaire study, for instance, applying the VET-Learning Quality Inventory – VET-LQI for short – developed by Böhn and Deutscher (2019, 2021). The VET-LQI encompasses 116 items to assess a trainee’s learning environment, work tasks, social interactions, dropout tendencies, and professional development. Based on the VET-LQI, Krötz and Deutscher (2021), have already demonstrated that it is relevant for understanding premature training dropouts to consider both trainees’ and trainers’ perception regarding the quality of VET (p. 385 f.). This supports the suggestion made in the previous paragraph according to which it is purposeful to capture the perceptions of all actors involved in dual VET to uncover deficits of the respective qualification program. Applying a mixed methods research approach as combination of the VET-LQI and complementary qualitative measures (e.g., dairy study, interviews) could help to increase the quality of dual VET as preparation for professional employment.
For studies 2, 3, and 4 on learning and development during professional employment, other limitations come into play, as these studies were designed as qualitative research. More precisely, semi-structured interviews were conducted for each of these three studies, providing self-reported data as the basis for analysis.\(^{24}\)

A major criticism of collecting self-reported data is the potential for data bias. For instance, data may be biased due to socially desirable response patterns, which result from a participant’s “tendency to present reality to align with what is perceived to be socially acceptable” (Bergen & Labonté, 2020, p. 783). To prevent such bias, participants were informed in advance about the content of the interview and data procession. In addition, a pleasant and protected conversation atmosphere was arranged during the interviews by arranging a separate interview room or a confidential telephone conversation. These initiatives appeared to have been successful as participants provided detailed insights into challenges in their everyday working live. At the same time, participants reported satisfactory circumstances, so it can be assumed that they answered the interview questions conscientiously and reflectively. However, an approach to completely exclude bias due to interaction with the researcher would be to collect data via digital diaries (see, e.g., Bartlett and Milligan, 2021, for an overview of survey tools for digital diary studies).

Bias in the data may also be caused by memory effects, which are referred to as recall bias (Rausch, 2014, p. 347). In such a case, the remembered experiences do not match the actual situation. This type of bias may be most prevalent in study 3 as the questions in the interview guideline aimed to capture a fairly holistic picture of the participants’ work environment. Consequently, the questions did not refer to a specific event, but to an ordinary workday. Small and Cook (2021, p. 19 ff.) propose several methodological approaches to reduce recall bias: First, participants self-reports should be mirrored with the memories of others that have been involved in the situation of interest. Future research could account for this by conducting focus group interviews involving all actors concerned in the event of interest (see, e.g., Stewart et al., 2007, or Willemsen et al., 2022, for practical advice on how to conduct focus group research). Second, recall can be aided if the situation of interest is simulated as realistically as possible, for instance, by presenting vignettes of a typical situation (see, e.g., Anselmann & Mulder, 2022, for an introduction to and exemplary studies using vignettes). Third, researchers can stimulate participants by encouraging them to report the situation in question as detailed as possible. This

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\(^{24}\) Hereafter, limitations common to study 2, 3, and 4 will be discussed and suggestions for future research will be provided. Additional, study-specific limitations have already been addressed in the discussion section of the respective study, i.e., chapter 4.7 for study 2, chapter 5.6 for study 3, and chapter 6.6. for study 4.
suggestion was realized using the critical incident technique after Flanagan (1954) in study 4. This technique appeared to be quite applicable. Further research could build on this by discussing the most representative critical incidents in even greater detail or by relating them to each other. Finally, the period between occurrence of the situation of interest and data collection should be as short as possible. This strategy has been applied in study 2, which organizational entry experiences were collected at multiple points in time and in chronological order. Participants were also offered summaries from the previous interviews to refresh their memory and allow them to link events. Future research could opt for shorter survey intervals and thus collect data in an even more timely manner.

Beyond potential bias in self-reported data, it needs to be considered, that participants in study 2, 3, and 4 all worked for the same organization. Hence, collected data refer to employees and their respective work environment in only one organization operating in only one industry. Consequently, data can only partially be generalized to other organizations and work environments. Since the research efforts for study 2, 3, and 4 were aimed at capturing employees’ (individual) perception of joining their new employer, their specific work environment, and the conditions for knowledge sharing in that same specific work environment, the ambition was not to enable generalizable statements. Rather, findings complement the existing body of empirical findings and unfold their potential in comparison with other research results. Nevertheless, it should be noted in conclusion that the cooperating organization, as a medium-sized IT service provider, represents at least an exemplary organization for precisely this type of employer.

Finally, the samples of studies 2, 3, and 4 were composed of different participants. Consequently, conclusions about or implications for long-term employee development are not possible. However, it would be interesting to capture employees’ perception from the time they join the organization, through their work as an established organizational member, to the time they leave the organization, because employees’ perception and employees themselves may change or develop over time. Cross-organizational monitoring of employees would also be conceivable to address the increase in dynamic employment relationships and forms of employment (Nerland, 2022, p. 615). Moreover, accompanying an employee throughout his or her entire employment biography – including vocational training – could provide insights into influential events for his or her professional development. Depending on the stage of development, different aspects could then be decisive for the employee’s well-being and professional development. With a longitudinal study design, it would be possible “to describe how the parts of [a] theory work together in order for us to better understand why we could expect certain outcomes given certain inputs” (Ployhart & Vandenberg, 2010, p. 96).
7.3 Practical Implications and Conclusion

Following the discussion upon limitations and potential future research regarding the four studies presented in this thesis, the dissertation will conclude with some suggestions for the practical implementation of the findings obtained in this dissertation as well as a conclusion on the relevance of this work.

As the discussion in study 1 showed, dual VET in Germany serves trainees as a preparation for professional employment. Prospective employees are intended to gain occupational competence as well as social and metacognitive competences (KMK, 2007). At the same time, they are given the opportunity to settle into working life and form a professional identity (KMK, 2007). This approach towards the acquisition of professional action competence can help trainees to gain and maintain employability during and after dual VET, respectively. Given the dynamic nature of the economy and society as outlined in the introduction of this thesis, maintaining one’s employability is essential to ensure long-term professional and personal success. Consequently, training companies should confront their trainees with authentic professional situations (Wesselink et al., 2018, p. 543) in order to provide them with sufficient opportunities to train and develop their professional action competence and professional identity. Simultaneously, recognizing dual VET as a protected framework for professional learning and development can increase the quality and effectiveness of the training as well as trainees’ retention in the training company.

Beyond vocational training, professional learning and development continue to be influenced by the characteristics of the work environment and the opportunities it provides. Results of studies 2, 3, and 4 show that both the overall design of a work environment and the social relationships at the workplace, in particular, play a considerable role when it comes to learning and development. Interpersonal relationships have been consistently shown to positively condition employees’ professional development as well as their personal well-being in the workplace. Exchange with colleagues provides employees with valuable information and knowledge for performing day-to-day work and helps them to integrate into the social network prevailing at their workplace.

A work environment designed to promote professional learning and development should therefore include appropriate structures, processes, and tools to build and use (stable) social structures. Starting at the organizational level, employers should create a culture in which knowledge sharing and mutual support are highly valued. This attitude should eventually filter down to the operational level by offering appropriate tools and sufficient time capacity for mutual exchange.
Discussion and Research Outlook

During the performance of one’s job duties and relationship building. In this way, employers acknowledge the relevance of social structures for employee’s professional development, since learning from others at work is one of the most important ways to gain new professional knowledge, skills, and competences (OECD, 2019, p. 4, 29). Furthermore, such informal learning activities pave an ongoing development process, which is necessary to keep pace with ever changing job requirements (Harteis et al., 2020, p. 2) and thus helps employees to maintain their employability (Zutavern & Seifried, 2019, p. 198). In addition, informal learning opportunities also provide a way to engage in the work environment and participate in professional practice. This can strengthen employees’ sense of autonomy, self-efficacy, and belonging. At the individual level, employers should account for their employees’ diverse strengths and weaknesses as well as their individual needs when it comes to learning and professional development. Consequently, a work environment conducive to learning and development offers a broad range of supportive features and provides employees freedom to choose the ones that best support their individual purposes. Employers should also support their employees in acquiring and professionalizing learning strategies and techniques. For instance, by offering didactic courses. Individual career counseling on an employee’s professional development opportunities could also help employees to plan their learning efforts in a targeted manner and in line with professional requirements.

Considered in summary, the empirical findings presented in this dissertation have demonstrated the necessary complexity and flexibility of a work environment and the importance of social relationships in the workplace. Furthermore, the findings indicate that there seems to be no one factor or activity that drives the professional development of employees. Rather, it is important to provide a diverse and appropriate catalog of activities and organizational structures from which employees can select or derive suitable courses of action as needed for their purposes. Keeping this final conclusions in mind, employers may succeed in designing a work environment that meets the learning and development needs of their employees, and thereby assists their employees and themselves in coping with the various and dynamic demands arising from and shaping the world of work.

7.4 References


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https://doi.org/10.1177/0149206306297582


Appendix

Please note that the interview guidelines in the appendix to this thesis only cover selected interview questions. Attached were all interview questions relevant to answering the research questions raised in the related studies.

Appendix A: Interview guideline - Exploring well-being at work

Übersicht - Allgemeines

Bitte vorab ausfüllen!

<table>
<thead>
<tr>
<th>Datum</th>
<th>Ort</th>
<th>Uhrzeit</th>
<th>Interviewer</th>
<th>Teilnehmer - Code</th>
</tr>
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</table>

Übersicht – Soziodemografische Daten aus Online-Umfrage.

Bitte vorab Zutreffendes ankreuzen!

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<tr>
<td>Betriebszugehörigkeit</td>
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<td>6-10</td>
</tr>
<tr>
<td>Standort</td>
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<td>Wiesbaden</td>
</tr>
</tbody>
</table>

Begrüßung

Vielen Dank, dass Sie sich Zeit genommen haben an unserer Interviewstudie teilzunehmen. Mein Name ist [Name]. Ich bin [Position] am Lehrstuhl für Wirtschaftspädagogik – Berufliches Lehren und Lernen der Universität Mannheim und interessiere mich u. a. für [Forschungsinteressen].

Einführung

In den kommenden 30-45 Minuten möchte ich Ihnen einige Fragen zu den Bedingungen an Ihrem Arbeitsplatz stellen. Das Interview gliedert sich in drei Teile:

(1) Zunächst möchten wir Sie zu den Rahmenbedingungen am Arbeitsplatz befragen. Dazu gehören Faktoren wie Arbeitszeiten, Entwicklungsmöglichkeiten oder auch die Unternehmenskultur. Anschließend gehen wir (2) näher auf die Arbeitsaufgaben ein, z.B. wie abwechslungsreich diese Aufgaben sind. (3) Schließlich befragen wir Sie dazu, ob Ihre Arbeitstätigkeit Ihren Interessen entspricht.

Um die Qualität und Objektivität der Erhebung sicherzustellen, werde ich ein paar der Fragen dem Wortlaut nach ablesen. Lassen Sie sich davon bitte nicht irritieren und antworten Sie möglichst offen.
Damit wir Ihre Antworten möglichst exakt erfassen können, möchten wir das Interview über eine Tonbandaufnahme aufzeichnen. Selbstverständlich werden Ihre Antworten streng vertraulich behandelt und ausschließlich in anonymisierter Form weiterverarbeitet und ausgewertet. Dadurch können sie in keiner Weise mit Ihnen als Person in Verbindung gebracht werden.

Sind Sie mit der Aufzeichnung des Interviews einverstanden?

JA  Zustimmung nochmal aufnehmen: „Interview vom tt.mm.jj um 00:00 Uhr. Sind Sie mit der Tonbandaufzeichnung dieses Interviews einverstanden?“

NEIN  Ohne Aufzeichnung weiter und protokollieren.

Sind Sie bereit das Interview zu beginnen?

JA  Interview starten.

NEIN  Haben Sie noch offene Fragen?  → Rückfragen beantworten.

Rahmenbedingungen [general conditions of work]

Versetzen Sie sich bitte gedanklich an Ihren Arbeitsplatz.

Welche Rahmenbedingungen an Ihrem Arbeitsplatz empfinden Sie als besonders förderlich? Und wie wichtig sind Ihnen diese Punkte? Denken Sie z.B. an:
- Karriere und Entwicklungsmöglichkeiten
- die Vereinbarkeit von Familie und Beruf

[…]

Um Ihre Punkte noch einmal zusammenzufassen, bitte ich Sie diese in eine Rangfolge von sehr wichtig bis weniger wichtig zu sortieren. Genannt haben Sie [vorgangengene Antworten wiederholen].

[…]

Arbeitsaufgaben [work tasks]

Konzentrieren Sie sich bitte nun auf Ihre persönlichen Arbeitsaufgaben.

Was bereitet Ihnen besondere Freude? Woran haben Sie Spaß? Und wie wichtig sind Ihnen diese Punkte? Denken Sie hierbei an Faktoren, wie z.B.:
- Ihnen wird Verantwortung übertragen.
- Sie erhalten Feedback zu Ihrer Arbeit.

[…]

Um Ihre Punkte noch einmal zusammenzufassen, bitte ich Sie diese in eine Rangfolge von sehr wichtig bis weniger wichtig zu sortieren. Genannt haben Sie [vorgangengene Antworten wiederholen].

[…]

Arbeitsumfang [scope of work]

Versetzen Sie sich jetzt bitte gedanklich in Ihren gewöhnlichen Arbeitsalltag.

- Mein Arbeitspensum ist angemessen.
Überstunden sind die Ausnahme (nur, wenn notwendig).

Um Ihre Punkte noch einmal zusammenzufassen, bitte ich Sie diese in eine Rangfolge von sehr wichtig bis weniger wichtig zu sortieren. Genannt haben Sie [vorangegangene Antworten wiederholen].

Emotionales Empfinden [emotional experience]

Versetzen Sie sich jetzt bitte gedanklich wieder zurück in eine alltägliche Arbeitssituation. Welche Faktoren beeinflussen Ihren Gefühlszustand positiv? Und wie wichtig sind Ihnen diese Punkte? Denken Sie dabei an Aspekte wie:
- Nach der Arbeit kann ich gut abschalten.
- Ich bin erfolgreich (Kompetenzerleben).

Um Ihre Punkte noch einmal zusammenzufassen, bitte ich Sie diese in eine Rangfolge von sehr wichtig bis weniger wichtig zu sortieren. Genannt haben Sie [vorangegangene Antworten wiederholen].

Fachliche Anforderungen [professional requirements]

- Mein Vorgesetzter erkennt meine Potenziale und fördert sie entsprechend.
- Meine Kollegen und Vorgesetzten sind für fachliche Belange ansprechbar.

Um Ihre Punkte noch einmal zusammenzufassen, bitte ich Sie diese in eine Rangfolge von sehr wichtig bis weniger wichtig zu sortieren. Genannt haben Sie [vorangegangene Antworten wiederholen].

Zusammenarbeit und Kommunikation [collaboration and communication]

Versetzen Sie sich gedanklich bitte erneut in einen gewöhnlichen Arbeitstag. Welche Aspekte der täglichen Zusammenarbeit würden Sie als förderlich beschreiben? Und wie wichtig sind Ihnen diese Punkte? Denken Sie hierbei an Aussagen, wie z.B.:
- Wir fühlen uns hier als eine Gemeinschaft.
- Wir ziehen alle an einem Strang.

Welche Prozesse und Arbeitsabläufe würden Sie als förderlich für Ihren beruflichen Alltag beschreiben? Und wie wichtig sind Ihnen diese Punkte? Berücksichtigen Sie interne und externe Prozesse, wie z.B.:
- Es gibt gut definierte Richtlinien und Standards.
Die Dringlichkeit einzelner Aufgaben wird deutlich kommuniziert.

[…]

Denken Sie im Folgenden bitte nur an Prozesse und Arbeitsabläufe, die die Kommunikation betreffen.

Welche Faktoren würden Sie als förderlich beschreiben? Und wie wichtig sind Ihnen diese Punkte? Berücksichtigen hierbei wieder Prozesse innerhalb der SVI und mit externen Kontakten, z.B.:
- Jeder weiß was der andere gerade macht.
- Notwendige Informationen sind verfügbar oder werden weitergeleitet.

[…]

Um Ihre Punkte noch einmal zusammenzufassen, bitte ich Sie diese in eine Rangfolge von sehr wichtig bis weniger wichtig zu sortieren. Genannt haben Sie [vorige Antworten wiederholen].

[…]

Commitment

Bitte versetzen Sie sich abschließend noch einmal in Ihre Rolle als Arbeitnehmer der SV Informatik GmbH. Nehmen Sie sich einen Moment Zeit und lassen Sie Ihre gemeinsame Geschichte Revue passieren.

Wie verbunden fühlen Sie sich gegenüber der SV Informatik als Arbeitgeber? Denken Sie dabei an Aussagen wie:
- Die Zukunft der SVI ist mir wichtig.
- Ich bin stolz bei der SVI arbeiten zu können.

[…]

Hinweise & Verabschiedung

Wir sind nun am Ende des Interviews angelangt. Vielen Dank, dass Sie unsere Fragen beantwortet haben. Haben Sie Fragen zum Interview? […]

Wo sehen Sie Optimierungsbedarf bzgl. des Interviews? Was lief gut/schlecht? […]

Vielen Dank für Ihre Hinweise und nochmals vielen Dank für Ihre Teilnahme.
Appendix B: Interview guideline - Barriers in organizational knowledge sharing

**Kontakt im Vorfeld (2 Tage vor Telefonat)**
- “Themen unseres Gesprächstermins – Mitarbeitende“ mailen
- Einwilligungserklärung (als unterschriebenenScan) einfordern
- Teilnehmercode erstellen lassen
- Fragebogen zu soziodemographischen Daten (als Scan) einfordern

**Teilnehmercode:**

**Teambeschreibung**

<table>
<thead>
<tr>
<th>Austritt</th>
<th>Ja → Wann:</th>
<th>Nein → Funktion:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bereich</td>
<td>[Team-/Abteilungsbezeichnung]</td>
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</tr>
<tr>
<td>Größe</td>
<td>[Anzahl Mitarbeitender]</td>
<td></td>
</tr>
<tr>
<td>Fachliche Zusammensetzung</td>
<td>[beschreiben]</td>
<td></td>
</tr>
<tr>
<td>Lokation</td>
<td>[an einem oder mehreren Standorten]</td>
<td></td>
</tr>
</tbody>
</table>

**Einführung**

Im Rahmen der Studie interessiert uns vor allem, wie (ausscheidende) Mitarbeitende ihr Wissen teilen. Beim Teilen von Wissen geht es um

1. den zielgerichteten und situationsbezogenen Austausch von Informationen,
2. die durch individuelle Ideen, Einstellungen und Perspektiven aber auch persönliche Erfahrungen, Fähigkeiten und Expertise angereichert wurden und
3. dadurch handlungsrelevant sind.

**Fragen**

1. Denken Sie jetzt bitte an eine Situation, in der Sie Ihr Wissen **nicht erfolgreich teilen** konnten (Negative Critical Incident). [*Pause, bis TN bestätigt solch eine Situation vor Augen zu haben.*]
   1.1. Bitte beschreiben Sie diese Situation.
   1.2. Wer war an dieser Situation beteiligt?
   1.3. Welche Aufgaben/rollen hatten die Beteiligten in dieser Situation?
   1.4. Wodurch wurde die Situation ausgelöst?
   1.5. Wann hat diese Situation stattgefunden?
   1.6. Was ist im Anschluss an diese Situation geschehen?
   1.7. Welche weiteren Situationen (Negative Critical Incidents) fallen Ihnen ein, in denen Sie ihr Wissen erfolgreich teilen konnten. [*Bei Bedarf analog zu vorherigem Frageblock 9 nachfassen.*]

2. Welche **Herausforderungen** erleben Sie im Zusammenhang mit dem Teilen von Wissen?

3. Welche **Potenziale** sehen Sie, um das Teilen von Wissen weiter zu fördern?
Abschluss

☐ Alle Fragen besprochen
☐ Haben Sie (TN) Fragen?
☐ Haben Sie (TN) Anregungen für uns?
☐ Ergebnisrückmeldung: von uns an Projektleitung der Organisation
☐ Gerne stehe ich Ihnen auch weiterhin als Ansprechpartner für Fragen rund um das Projekt zur Verfügung. Kommen Sie bei Bedarf gerne auf mich zu.
Appendix C: Submission Confirmation Study 2

Dear Dr. Birkle,

Thank you for submitting your paper entitled “Perceived Challenges when Changing Employer – What Newcomers Experience as Helpful during their Organizational Entry” to Journal of Personnel Psychology. It has been assigned No. JPSPY-D-23-00013.

You will be able to check on the progress of your paper by logging on to Editorial Manager as an author. The URL is https://www.editorialmanager.com/jppsy/.

Your manuscript will be given a reference number once an Editor has been assigned.

Kind regards,

Journal of Personnel Psychology

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Declaration in Lieu of Oath

Declaration in lieu of oath according to section 8 subsection 2 No. 1(b) of the Regulations and Procedures Governing the Doctoral Dissertation to Earn a Doctoral Degree in Business at the University of Mannheim

Eidesstattliche Versicherung

Eidesstattliche Versicherung gemäß § 8 Absatz 2 Satz 1 Buchstabe b) der Promotionsordnung der Universität Mannheim zur Erlangung des Doktorgrades der Betriebswirtschaftslehre (Dr. rer. pol.)

1. The submitted doctoral dissertation on the subject ‘Professional Development at the Workplace – Investigating the Relevance of the Work Environment for Learning’ is my own work and to the rules of proper scientific conduct.


2. I did not seek unauthorized assistance of a third party and I have employed no other sources or means except the ones listed. I clearly marked any direct and indirect quotations derived from the works of others.

   Ich habe nur die angegebenen Quellen und Hilfsmittel benutzt und mich keiner unzulässigen Hilfe Dritter bedient. Insbesondere habe ich wörtliche und nicht wörtliche Zitate aus anderen Werken als solche kenntlich gemacht.

3. I did not yet present this doctoral dissertation or parts of it at any other higher education institution in Germany or abroad.

   Die Arbeit oder Teile davon habe ich bislang nicht an einer Hochschule des In- oder Auslands als Bestandteil einer Prüfungs- oder Qualifikationsleistung vorgelegt.

4. I hereby confirm the accuracy of the affirmation above.

   Die Richtigkeit der vorstehenden Erklärung bestätige ich.
5. I am aware of the significance of this affirmation and the legal ramifications in case of untrue or incomplete statements. I affirm in lieu of oath that the statements above are to the best of my knowledge true and complete.

*Die Bedeutung der eidesstattlichen Versicherung und die strafrechtlichen Folgen einer unrichtigen oder unvollständigen eidesstattlichen Versicherung sind mir bekannt. Ich versichere an Eides statt, dass ich nach bestem Wissen die reine Wahrheit erklärt und nichts verschwiegen habe.*

I agree that for the purpose of assessing plagiarism the dissertation may be electronically forwarded, stored, and processed.

*Ich bin damit einverstanden, dass die Arbeit zum Zwecke des Plagiatsabgleichs in elektronischer Form versendet, gespeichert und verarbeitet wird.*


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**Speyer, Stefanie Birkle**

**Place, Date**  
**Signature**

**Ort, Datum**  
**Unterschrift**
Doctoral Study Program

This thesis resulted from individual doctoral studies at the

University of Mannheim

Business School

Area Economic and Business Education

Chair of Professional Teaching and Learning

which were complemented by the successful completion of a doctoral program at the

Graduate School of Economic and Social Sciences (GESS)

which included the following courses:

<table>
<thead>
<tr>
<th>Course</th>
<th>Lecturer</th>
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</thead>
<tbody>
<tr>
<td>Interdisciplinary Work in Economics and Social Sciences</td>
<td>Professor Dr. Stefan Ruenzi</td>
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<tr>
<td>MAN 808 Organization Theories</td>
<td>Professor (em.) Dr. Dr. h.c. mult. Alfred Kieser</td>
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<td>Professor Dr. Achim Oberg</td>
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<tr>
<td></td>
<td>Professor Dr. Michael Woywode</td>
</tr>
<tr>
<td>IS 807 Designing Qualitative Research Projects</td>
<td>Dr. Ekaterina Jussupow</td>
</tr>
</tbody>
</table>
Curriculum Vitae

Stefanie Birkle (née Zutavern)

Professional Experience

since 11/2022  HR Specialist – Organizational Development at BAUHAUS AG
2017 – 2022  Research Assistant at the University of Mannheim, Business School
Area Economic and Business Education
Chair of Professional Teaching and Learning
2017  Human Resource Internship at Robert Bosch GmbH Feuerbach
Employee development and training programs
2011 – 2012  Procurement and Marketing Assistant at BAHAG AG
2011  Management Assistant in Retail Services at BAUHAUS GmbH & Co. KG
2008 – 2011  Apprenticeship as Management Assistant in Retail Services at BAUHAUS
GmbH & Co. KG

Education

since 11/2018  Doctoral Study Program, University of Mannheim
2015 – 2017  Master of Science Business Education, University of Mannheim
2012 – 2015  Bachelor of Science Business Education, University of Mannheim

Scholarships

2015 – 2017  Deutschlandstipendium funded by the Federal Ministry of Education (BMBF)
and the University of Mannheim

Teaching activities

2017 – 2022  Design of economic and vocational learning environments II – Graduate level,
German, spring and fall semester
Supervising bachelor theses and master theses
10/2019  Evaluation of Work Conditions – Graduate level, English
lectured at the University of Turku, Finland
funded by the ERASMUS Staff Mobility Teaching – Program

Publications

What Newcomers Experience as Helpful during their Organizational Entry [Manuscript submitted
for publication]. Chair of Economic and Business Education, University of Mannheim.

Sicht von Mitarbeitenden eines IT-Dienstleisters [Barriers in organizational knowledge sharing:
An analysis from the perspective of IT-Professionals]. Gruppe. Interaktion. Organisation. Zeitschrift


2020

2019

Presentations

2022
Birkle, S., Seifried, J., & Gentner, S. (2022). Diverse perspectives on knowledge sharing failure – Insights from a German IT service provider. 11th EARLI SIG 14 Conference Learning and Professional Development 2022, Paderborn, Germany.


2021
Zutavern, S. & Seifried, J. (2021). Finding your feet in the new job: How onboarding can support the integration of newcomers. AERA Annual Meeting 2021, Online, Orlando (Florida), USA.

2020


Zutavern, S. & Seifried, J. (2020). A spell dwells in every beginning: Onboarding as enabler for professional development. AERA Annual Meeting 2020 (conference canceled), San Francisco (California), USA.


**Summer School**

2018 Qualitative Methoden: Einführung & Beratung [Qualitative Methods: Introduction & Consulting], conducted by Dr. Regina Soremski and Prof. Dr. Christine Wiezorek; DGfE-Summer School 2018 – Forschungswerkstatt: Qualitative und quantitative Forschungsmethoden [Research Workshops: Qualitative and Quantitative Methods], Erkner (Berlin), Germany