Professional Development at the Workplace –

Investigating the Relevance of the Work Environment for Learning

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Abstract

Professional development at the workplace is a multi-facetted 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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Table of Contents

List of Abbreviations

ASCOT	Technology-based Assessment of Skills and Competences in Vocational Education and Training
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
DGPs	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*
ICT	Information and Communication Technology

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*

List of Figures

List of Tables

List of Appendixes

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 f.; 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 quota[1], 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, 2022). 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.

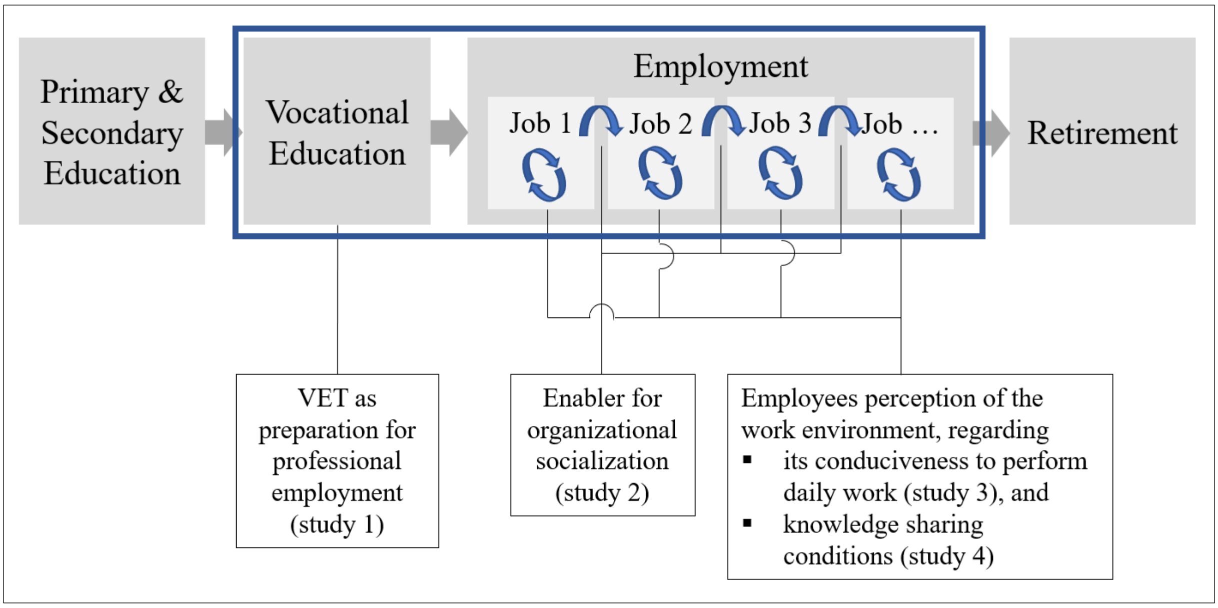

Figure 1.1: Overview of the research foci of this thesis (highlighted by the blue box)

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' conduciveness 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 sociodemographic 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.

Table 1.1: Overview of the studies constituting this thesis

Study 1	
Reference	Zutavern, S., & Seifried, J. (2022). Vocational Education and Training in Germany: Benefits and Drawbacks of the Dual Approach as Preparation for Professional Employment. In C. Harteis, D. Gijbels, E. Kyndt (Eds.) *Professional and Practice-based Learning. Research Approaches on Workplace Learning* (Vol. 31, pp. 347-365). Springer. https://doi.org/10.1007/978-3-030-89582-2_16
Research foci	1. Discussion on whether VET in Germany prepares trainees for working life. 2. Proposals on how to ensure uniform quality standards for VET.
Research approach	Conceptual work
Analysis	Literature research
Sample	Not applicable
Study 2	
Reference	Birkle, S., & 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.
Research foci	Investigation of 1. challenges newcomers perceive when starting with a new employer, and 2. how onboarding helps newcomers overcome perceived challenges during organizational entry.
Research approach	Qualitative case study with semi-structured interviews
Analysis	Qualitative content analysis
Sample	10 employees of a German medium-sized IT service provider
Study 3	
Reference	Zutavern, S., & Seifried, J. (2021). Exploring Well-being at Work–An Interview Study on How IT Professionals Perceive Their Workplace. *Frontiers in Psychology, 12*, 688219. https://doi.org/10.3389/fpsyg.2021.688219
Research foci	Exploration of employees' perception of their work environment regarding 1. its conduciveness to perform daily work, 2. socio-demographic differences, and 3. its effect on employee' commitment to the employer.
Research approach	Qualitative case study with semi-structured interviews
Analysis	Qualitative content analysis
Sample	61 employees of a German medium-sized IT service provider
Study 4	
Reference	Birkle, S. (2022). 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]. *Gruppe. Interaktion. Organisation. Zeitschrift für Angewandte Organisationspsychologie (GIO), 53* (4), 557–565. https://doi.org/10.1007/s11612-022-00657-2
Research foci	Investigation of employees' perspective on 1. knowledge sharing failure at work and 2. perceived potentials to improve organizational knowledge sharing.
Research approach	Qualitative case study with semi-structured interviews
Analysis	Qualitative content analysis
Sample	30 employees of a German medium-sized IT service provider

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

Ashforth, B. E. (2012). The role of time in socialization dynamics. In C. R. Wanberg (Ed.), *Oxford library of psychology. The Oxford handbook of organizational socialization* (pp. 161–186). Oxford Univ. Press. https://doi.org/10.1093/oxfordhb/9780199763672.013.0009

Autor:innengruppe Bildungsberichterstattung. (2022). *Bildung in Deutschland 2022. Ein indikatorengestützter Bericht mit einer Analyse zum Bildungspersonal [Education in Germany 2022. An indicator-based report with an analysis on personnel in education]*. Bildung in

Deutschland: Vol. 2022. wbv Publikation. https://www.bildungsbericht.de/de/bildungsberichte-seit-2006/bildungsbericht-2022 https://doi.org/10.3278/6001820hw

Bender, E., Schaper, N., & Schürmann, M. (2019). Factors Driving Employees' Intention to Stay. *Zeitschrift Für Arbeits- Und Organisationspsychologie A&O, 63*(4), 238–250. https://doi.org/10.1026/0932-4089/a000313

Bergmann, F. (2017). *Neue Arbeit, neue Kultur [New work, new culture]* (S. Schuhmacher, Trans.) (8. Auflage, 3. broschierte Ausgabe). Arbor Verlag.

Bitkom. (2022, January 3). *IT-Fachkräftelücke wird größer: 96.000 offene Jobs [IT professional gap grows: 96,000 open jobs]* [Press release]. Berlin. https://www.bitkom.org/Presse/Presseinformation/IT-Fachkraefteluecke-wird-groesser

BMBF (Ed.). (2020). *Ausbildung & Beruf. Rechte und Pflichten während der Berufsausbildung [Training & Occupation. Rights and obligations during vocational training].* https://www.die-duale.de/SharedDocs/Downloads/dieduale/de/Neue-Broschuere-Ausbildung-und-Beruf.pdf?__blob=publicationFile&v=2

BMBF (Ed.). (2021). *Berufsbildungsbericht 2021 [Vocational Education and Training Report 2021].* https://www.bmbf.de/SharedDocs/Publikationen/de/bmbf/3/31684_Berufsbildungsbericht_2021.html?gclid=Cj0KCQiA45qdBhD-ARIsAOHbVdFWxBRIVoVPQCP-worHihm3Jz9hvdnL-_DrqhtZDDUUK1W40Rqk97mQaApNdEALw_wcB

BMWK (Ed.). (2022). *Der Mittelstand [The medium-sized business].* https://www.bmwk.de/Redaktion/DE/Dossier/politik-fuer-den-mittelstand.html

Brodsky, A. (2022). *Lernen am Arbeitsplatz im dualen Studium [Learning on the job in dual study programs].* Springer Fachmedien Wiesbaden. https://doi.org/10.1007/978-3-658-36605-6

Cook, S. D. N., & Yanow, D. (1993). Culture and Organizational Learning. *Journal of Management Inquiry, 2*(4), 373–390. https://doi.org/10.1177/105649269324010

Deloitte. (2022). *Striving for balance, advocating for change: The Deloitte Global 2022 Gen Z and Millennial Survey*. https://www.deloitte.com/global/en/issues/work/genzmillennialsurvey.html

European Commission (Ed.). (2022). *Digital Economy and Society Index (DESI) 2022: Integration of digital technology.* https://digital-strategy.ec.europa.eu/en/policies/desi-integration-technology-enterprises

Federal Statistical Office. (2022, August 30). *Duale Berufsausbildung: Zahl neuer Ausbildungsverträge 2021 weiter auf historisch niedrigem Niveau [Dual vocational training: Number of new training contracts remains at historically low level in 2021]* [Press release]. https://www.destatis.de/DE/Presse/Pressemitteilungen/2022/08/PD22_363_212.html

Federal Statistical Office (Ed.). (2022a). *Gloabalisierungsindikatoren. Außenwirtschaft [Gloabalization indicators. Foreign trade].* https://www.destatis.de/DE/Themen/Wirtschaft/Globalisierungsindikatoren/aussenwirtschaft.html?nn=213448#246078

Federal Statistical Office (Ed.). (2022b). *Globalisierungsindikatoren. Kennzahlen zur Außenwirtschaft [Globalization indicators. Key figures on foreign trade].* https://www.destatis.de/DE/Themen/Wirtschaft/Globalisierungsindikatoren/Tabellen/01_02_03_44_VGR.html

Göhlich, M. (2018). Organisationales Lernen als zentraler Gegenstand der Organisationspädagogik [Organizational learning as a central object of organizational pedagogy]. In M. Göhlich, A. Schröer, & S. M. Weber (Eds.), *Organisation und Pädagogik. Handbuch Organisationspädagogik [Handbook of Organizational Pedagogy]* (Vol. 17, pp. 365–379). Springer Fachmedien Wiesbaden. https://doi.org/10.1007/978-3-658-07512-5_3

Harteis, C., Goller, M., & Caruso, C. (2020). Conceptual Change in the Face of Digitalization: Challenges for Workplaces and Workplace Learning. *Frontiers in Education, 5*, Article 1. https://doi.org/10.3389/feduc.2020.00001

Harvey, J., Wheeler, A., Halbesleben, J. R., & Buckley, M. R. (2010). How did you figure that out? Employee learning during socialization. In H. Liao, J. J. Martocchio, & A. Joshi (Eds.), *Research in personnel and human resources management. Research in Personnel and Human Resources Management* (Vol. 29, pp. 167–200). Emerald Group Publishing Limited. https://doi.org/10.1108/S0742-7301(2010)0000029007

Kanning, U. P. (2017). *Personalmarketing, Employer Branding und Mitarbeiterbindung. Forschungsbefunde und Praxistipps aus der Personalpsychologie [Human resource marketing, employer branding and employee retention. Research findings and practical tips from personnel psychology]*. Springer. https://doi.org/10.1007/978-3-662-50375-1

Kubis, A., & Popp, M. (2022). *IAB-Stellenerhebung 2/2022: Offene Stellen mit 1,93 Millionen auf erneutem Allzeithoch [IAB Job Survey 2/2022: Job vacancies at another all-time high of 1.93 million]*. https://doi.org/10.48720/IAB.FOO.20220811.01

Mündler, M.-A. (2018). Außenhandel, Arbeitsmärkte und die globale Verteilung der Einkommen [Foreign Trade, Labor Markets, and the Global Distribution of Income]. *Wirtschaftsdienst, 98*(S1), 50–61. https://doi.org/10.1007/s10273-018-2277-8

OECD (Ed.). (2019). *OECD Social, Employment and Migration Working Papers*. https://doi.org/10.1787/b21807e9-en

Statista (Ed.). (2017). *Statista Umfrage Arbeitnehmer 2017 [Statista Employee Survey 2017]*. https://de.statista.com/prognosen/980717/umfrage-in-deutschland-zur-haeufigkeit-des-arbeitgeberwechsels

van der Heijden, B. I. J. M., Houkes, I., van den Broeck, A., & Czabanowska, K. (2020). "I Just Can't Take It Anymore": How Specific Work Characteristics Impact Younger Versus Older Nurses' Health, Satisfaction, and Commitment. *Frontiers in Psychology, 11*, 762. https://doi.org/10.3389/fpsyg.2020.00762

Zutavern, S., & Seifried, J. (2019). Employer-Branding als Beitrag zu Employability und Beruflichkeit. In J. Seifried, K. Beck, & B.-J. Ertelt (Eds.), *Wirtschaft - Beruf - Ethik. Beruf, Beruflichkeit, Employability [Occupation, professionalism, employability]* (pp. 197–214). wbv Media.

Zutavern, S., & Seifried, J. (2021). Exploring Well-being at Work-An Interview Study on How IT Professionals Perceive Their Workplace. *Frontiers in Psychology, 12*, 688219. https://doi.org/10.3389/fpsyg.2021.688219

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.[2] 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).

[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).[3] Overall, an employer's profile summarizes the characteristics of an employer and aims to build an appealing employer image known as employer brand (Foster eta l., 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)[4]. According to the 2022 Education Report, most CET activities take place in corporate settings. The

[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

report indicates that in 2020, a remarkable 52% of CET activities were conducted in corporate contexts (Autor:innengruppe Bildungsberichterstattung, 2022, p. 229).[5] This involves formalized learning opportunities which almost always relate to participants' professional activity (92%; Autor:innengruppe Bildungsberichterstattung, 2022, p. 228) but do not lead to a state-approved qualification as it is the case in the formal education sector. Comparable learning opportunities that are organized by the state, by community providers, such as the chambers, professional associations, institutions of the church, or political parties, or by commercial providers are, in contrast, reported much less frequently (9%, 16%, and 19%, respectively; Autor:innengruppe Bildungsberichterstattung, 2022, p. 229). CET activities within the corporate context are predominantly financed by employers (70%; Autor:innengruppe Bildungsberichterstattung, 2022, p. 229), but in some cases also by the participants themselves (22%; Autor:innengruppe Bildungsberichterstattung, 2022, p. 228). This willingness to invest in job-related training illustrates the importance that employers as well as employees attach to professional development and stresses the relevance of the corporate context as learning environment.

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).[6] 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

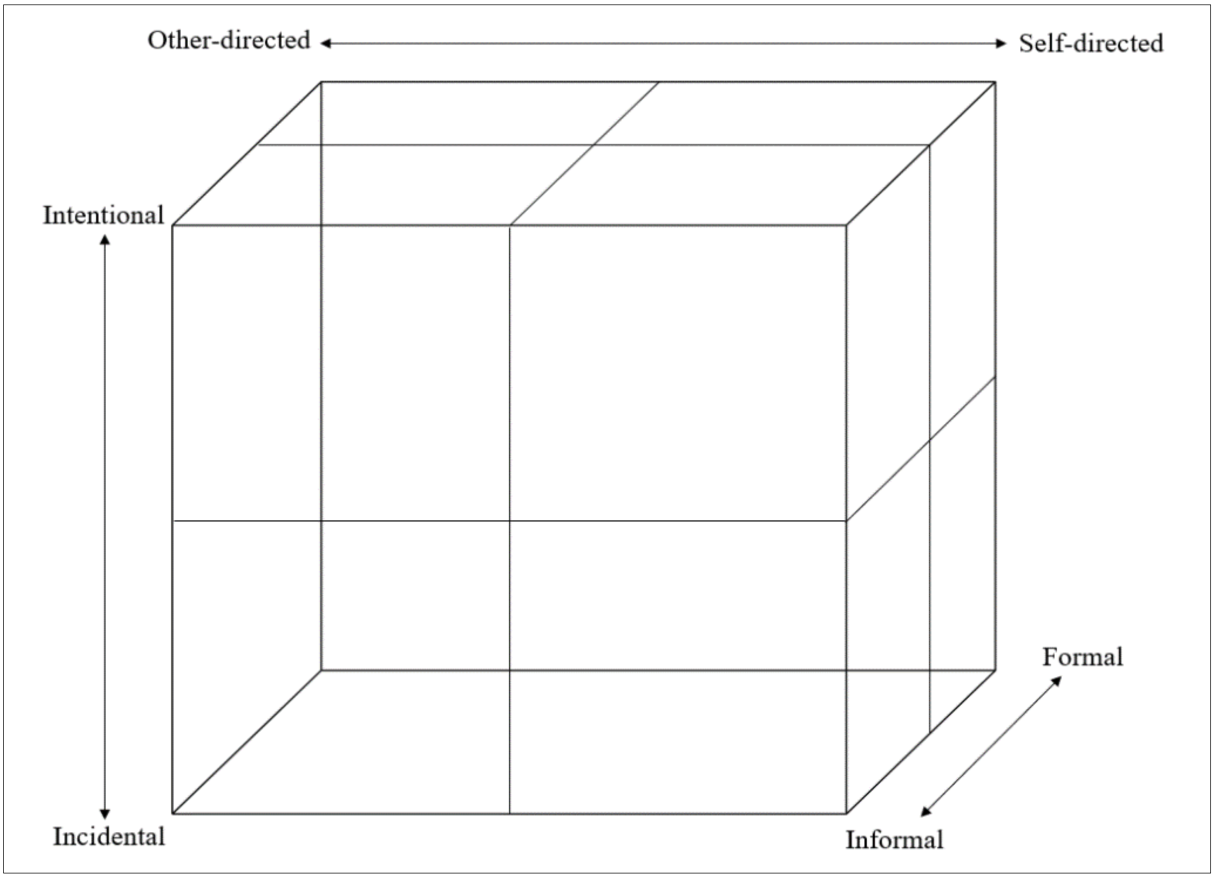

Figure 2.1: Three-dimensional matrix of workplace learning activities
Source: Tannenbaum & Wolfson, 2022, p. 394

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 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 corporation 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).

[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).

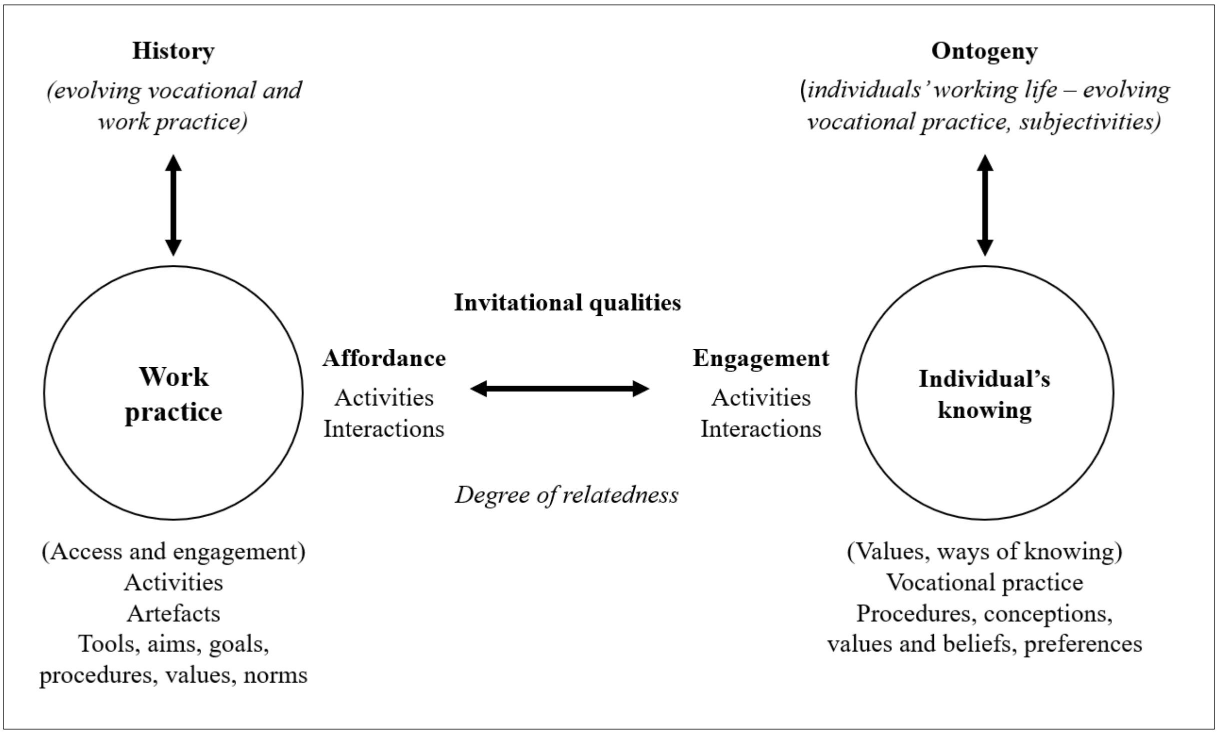

Figure 2.2: Model of Co-Participation at Work

Source: Billett, 2001, p. 211, and 2002, p. 467

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

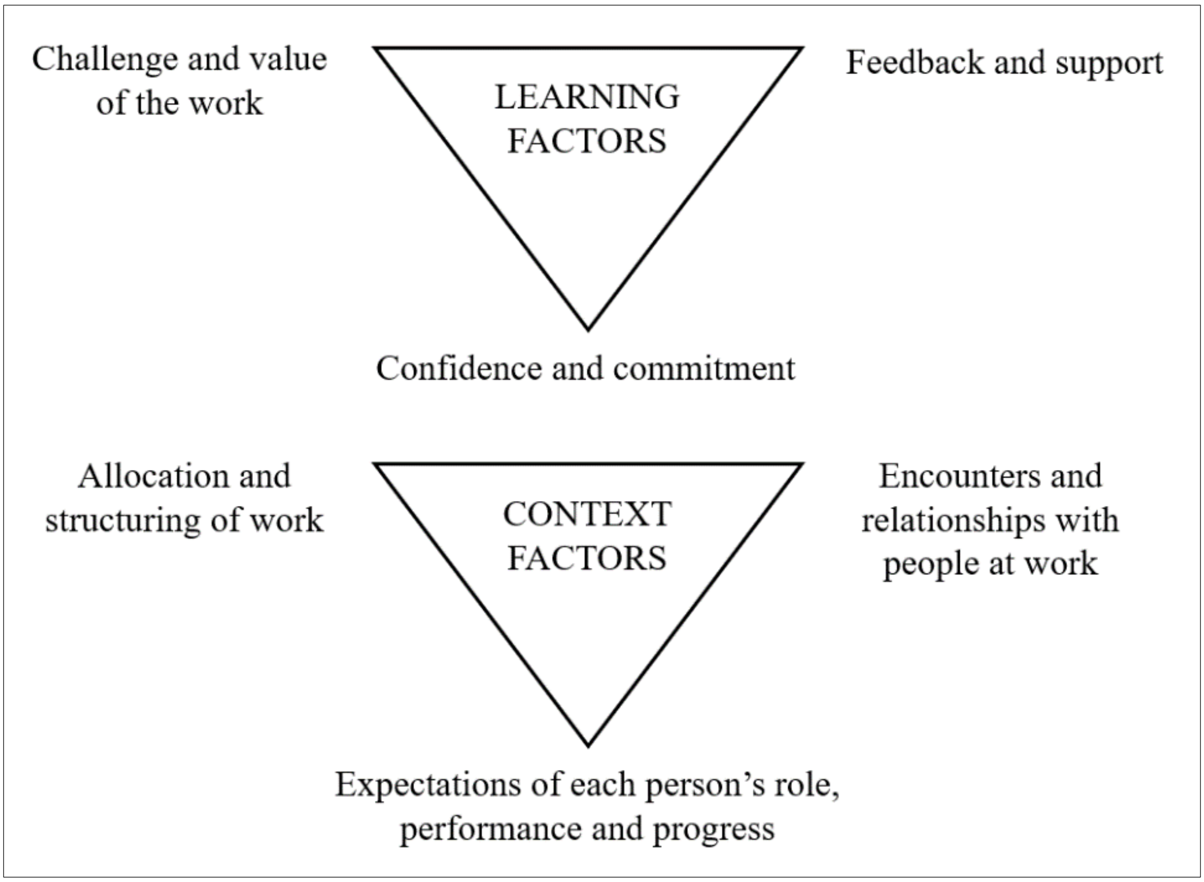

Figure 2.3: Two-Triangle Model

Source: Eraut, 2004, p. 269

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.

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

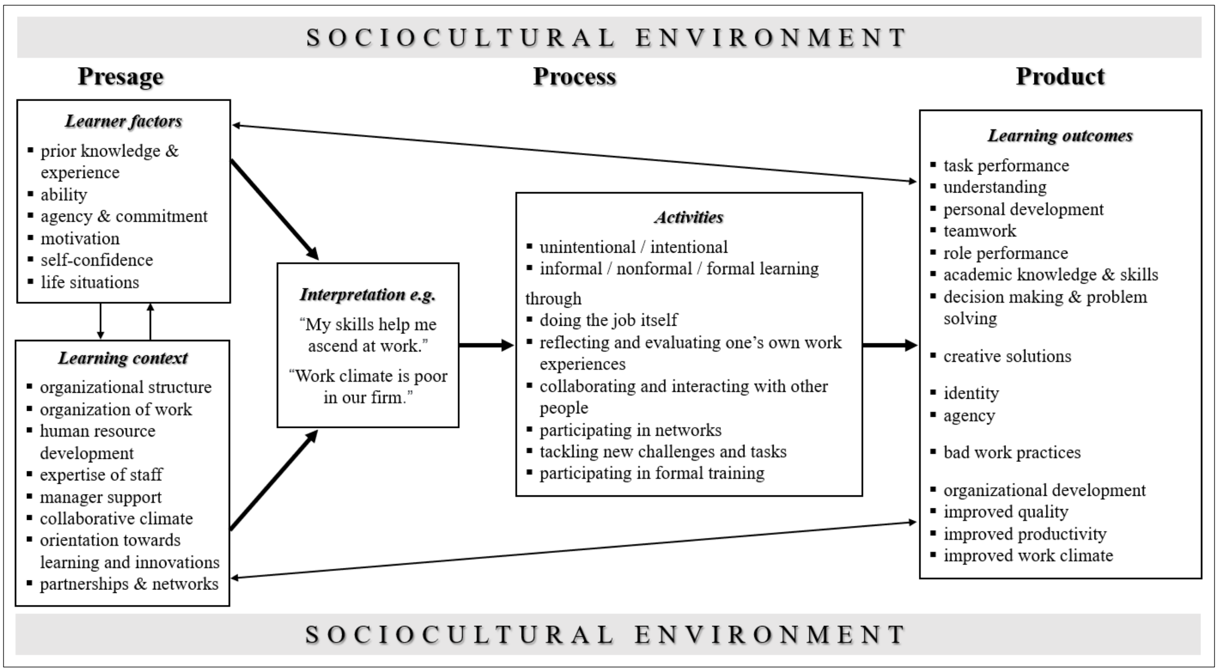

Figure 2.4: 3-P Model of Workplace Learning

Source: Tynjälä, 2013, p. 14

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).[8] 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.).[9] 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

[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).

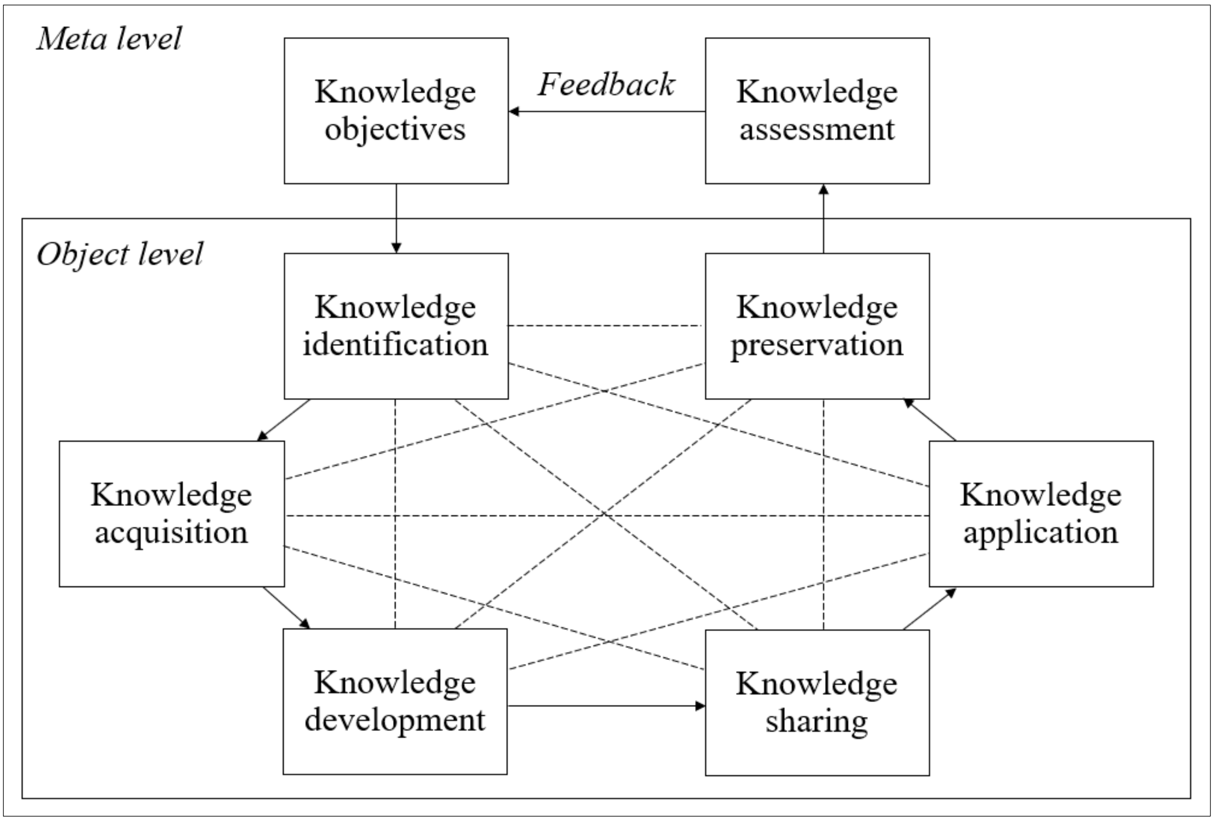

Figure 2.5: Elements of Knowledge Management

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

[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).[11] 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 & Gruman, 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.).[12] 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

[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.

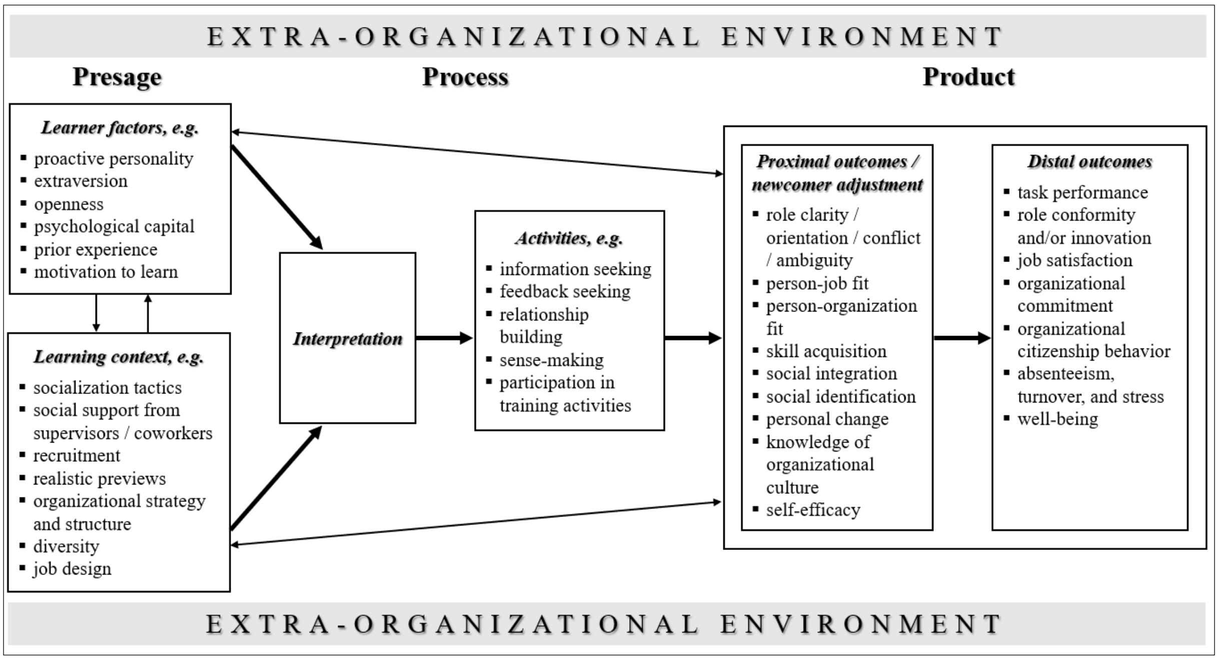

Figure 2.6: 3-P Model of Organizational Socialization

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 an 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 "Vor(weg)nahme-Veränderungs-Rückkopplungs-Einheiten" – VVR units for short (Hacker, 2005, p. 217-229). In contrast to the TOTE 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.

2.5 References

Ananiadou, K., & Claro, M. (2009). *21st Century Skills and Competences for New Millennium Learners in OECD Countries. OECD Education Working Papers: Vol. 41*. OECD Publishing. https://doi.org/10.1787/218525261154

Ashforth, B. E. (2012). The role of time in socialization dynamics. In C. R. Wanberg (Ed.), *Oxford library of psychology. The Oxford handbook of organizational socialization* (pp. 161–186). Oxford Univ. Press. https://doi.org/10.1093/oxfordhb/9780199763672.013.0009

Ashforth, B. E., Sluss, D. M., & Saks, A. M. (2007). Socialization tactics, proactive behavior, and newcomer learning: Integrating socialization models. *Journal of Vocational Behavior, 70*(3), 447–462. https://doi.org/10.1016/j.jvb.2007.02.001

Author Group Education Reporting. (2022). *Bildung in Deutschland 2022. Ein indikatorengestützter Bericht mit einer Analyse zum Bildungspersonal [Education in Germany 2022. An indicator-based report with an analysis on personnel in education]. Bildung in Deutschland: Vol. 2022*. wbv Publikation. https://www.bildungsbericht.de/de/bildungsberichte-seit-2006/bildungsbericht-2022 https://doi.org/10.3278/6001820hw

Bachmann, R., Bechara, P., & Vonnahme, C. (2020). Occupational Mobility in Europe: Extent, Determinants and Consequences. *De Economist*, *168*(1), 79–108. https://doi.org/10.1007/s10645-019-09355-9

Bauer, T. (2010). *Onboarding New Employees: Maximizing Success*. SHRM Foundation.

Bauer, T. N., Bodner, T., Erdogan, B., Truxillo, D. M., & Tucker, J. S. (2007). Newcomer adjustment during organizational socialization: A meta-analytic review of antecedents, outcomes, and methods. *The Journal of Applied Psychology*, *92*(3), 707–721. https://doi.org/10.1037/0021-9010.92.3.707

Bauer, T. N., & Erdogan, B. (2011). Organizational Socialization: The Effective Onboarding of New Employees. In S. Zedeck (Ed.), *APA handbooks in psychology. APA handbook of industrial and organizational psychology, Volume 3: Maintaining, expanding, and contracting the organization* (1st ed., pp. 51–64). American Psychological Association.

Bauer, T. N., Perrot, S., Liden, R. C., & Erdogan, B. (2019). Understanding the consequences of newcomer proactive behaviors: The moderating contextual role of servant leadership. *Journal of Vocational Behavior*, *112*, 356–368. https://doi.org/10.1016/j.jvb.2019.05.001

Beldarrain, Y. (2019). Developing an Agile Global Workforce. In V. H. Kenon & S. V. Palsole (Eds.), *The Wiley Handbook of Global Workplace Learning* (pp. 45–65). Wiley. https://doi.org/10.1002/9781119227793.ch3

Billett, S. (2001a). Learning through work: Workplace affordances and individual engagement. *Journal of Workplace Learning*, *13*(5), 209–214. https://doi.org/10.1108/EUM0000000005548

Billett, S. (2001b). Learning Throughout Working Life: Interdependencies at work. *Studies in Continuing Education*, *23*(1), 19–35. https://doi.org/10.1080/01580370120043222

Billett, S. (2002). Workplace Pedagogic Practices: Co–participation and Learning. *British Journal of Educational Studies*, *50*(4), 457–481. https://doi.org/10.1111/1467-8527.t01-2-00214

Birkle, S. (2022). 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]. *Gruppe. Interaktion. Organisation. Zeitschrift Für Angewandte Organisationspsychologie (GIO)*, *53*(4), 557–565. https://doi.org/10.1007/s11612-022-00657-2

Birkle, S., & Seifried, J. (submitted). Perceived Challenges when Changing Employer–What Newcomers Experience as Helpful during their Organizational Entry. *Journal of Workplace Learning*.

BMWK (Ed.). (2022a). *Der Mittelstand [The medium-sized business]*. https://www.bmwk.de/Redaktion/DE/Dossier/politik-fuer-den-mittelstand.html

BMWK. (2022b). *Skilled professionals for Germany*. https://www.bmwk.de/Redaktion/EN/Dossier/skilled-professionals.html

Bourn, D. (2018). From 21st Century Skills to Global Skills. In D. Bourn (Ed.), *Understanding Global Skills for 21st Century Professions* (pp. 63–85). Springer International Publishing. https://doi.org/10.1007/978-3-319-97655-6_4

Brandi, U., & Iannone, R. L. (2021). Approaches to learning in the context of work – workplace learning and human resources. *Journal of Workplace Learning*, *33*(5), 317–333. https://doi.org/10.1108/JWL-01-2020-0015

Breiter, C., & Scardamalia, M. (2016). Intentional Learning as a Goal of Instruction. In L. Resnick (Ed.), *Psychology of Education and Instruction Series. Knowing, Learning, and instruction: Essays in Honor of Robert Glaser* (pp. 361–392). Routledge.

Bridgman, T., Cummings, S., & Ballard, J. (2019). Who Built Maslow's Pyramid? A History of the Creation of Management Studies' Most Famous Symbol and Its Implications for Management Education. *Academy of Management Learning & Education, 18*(1), 81–98. https://doi.org/10.5465/amle.2017.0351

Cerasoli, C. P., Alliger, G. M., Donsbach, J. S., Mathieu, J. E., Tannenbaum, S. I., & Orvis, K. A. (2018). Antecedents and Outcomes of Informal Learning Behaviors: A Meta-Analysis. *Journal of Business and Psychology, 33*(2), 203–230. https://doi.org/10.1007/s10869-017-9492-y

Cho, H. J., & Kim, J.-M. (2016). Administrative assistants' informal learning and related factors. *Journal of Workplace Learning, 28*(7), 406–423. https://doi.org/10.1108/JWL-11-2015-0079

Choi, W., & Jacobs, R. L. (2011). Influences of formal learning, personal learning orientation, and supportive learning environment on informal learning. *Human Resource Development Quarterly, 22*(3), 239–257. https://doi.org/10.1002/hrdq.20078

Clark, H., Jassal, P. K., Kyte, S. B., & LeFebvre, M. (2019). The New Learning Economy and the Rise of the Working Learner. In V. H. Kenon & S. V. Palsole (Eds.), *The Wiley Handbook of Global Workplace Learning* (pp. 67–81). Wiley. https://doi.org/10.1002/9781119227793.ch4

Cooper-Thomas, H., Anderson, N., & Cash, M. (2012). Investigating organizational socialization: A fresh look at newcomer adjustment strategies. *Personnel Review, 41*(1), 41–55. https://doi.org/10.1108/00483481211189938

Davenport, T. H., & Prusak, L. (2010). *Working knowledge: How organizations manage what they know* [Reprint]. Harvard Business School Press.

DGPs. (2023). *Unsere Fachgruppen [Our specialist groups].* Deutsche Gesellschaft für Psychologie (German Psychological Society). https://www.dgps.de/fachgruppen

Di Fabio, A. (2017). The Psychology of Sustainability and Sustainable Development for Well-Being in Organizations. *Frontiers in Psychology, 8*, 1534. https://doi.org/10.3389/fpsyg.2017.01534

Doornbos, A. J., Simons, R.-J., & Denessen, E. (2008). Relations between characteristics of workplace practices and types of informal work-related learning: A survey study among Dutch Police. *Human Resource Development Quarterly, 19*(2), 129–151. https://doi.org/10.1002/hrdq.1231

Eckert, M., & Tramm, T. (2004). Stand und Perspektiven der Berufsbildungsforschung aus Sicht der Berufs- und Wirtschaftspädagogik [Status and perspectives of vocational education research from the perspective of vocational and business education]. In R. Czycholl & R. Zedler (Eds.), *Beiträge zur Berufsbildungsforschung der AG BFN: Nr. 5. Stand und Perspektiven der Berufsbildungsforschung.* Bundesagentur für Arbeit, Service-Haus, Geschäftsstelle für Veröff.

Ellis, A. M., Bauer, T. N., Mansfield, L. R., Erdogan, B., Truxillo, D. M., & Simon, L. S. (2015). Navigating Uncharted Waters: Newcomer Socialization Through the Lens of Stress Theory. *Journal of Management, 41*(1), 203–235. https://doi.org/10.1177/0149206314557525

Eraut, M. (2004). Informal learning in the workplace. *Studies in Continuing Education, 26*(2), 247–273. https://doi.org/10.1080/158037042000225245

ESPAS. (2019). *Global trends to 2030: Challenges and choices for Europe*. European Strategy and Policy Analysis System. https://doi.org/10.2872/074526

ESPAS. (2021). *ESPAS Global Trends Mid-Term Report: The Global Future - An Update.* European Strategy and Policy Analysis System. https://www.iss.europa.eu/content/espas-global-trends-mid-term-report

Foster, C., Punjaisri, K., & Cheng, R. (2010). Exploring the relationship between corporate, internal and employer branding. *Journal of Product & Brand Management, 19*(6), 401–409. https://doi.org/10.1108/10610421011085712

Freitosa, J., & Sim, J. (2020). I-O Psychology Around the World. In L. Koppes Bryan (Ed.), *Historical Perspectives in Industrial and Organizational Psychology* (pp. 63–82). Routledge.

Frické, M. (2019). The Knowledge Pyramid: the DIKW Hierarchy. *Knowledge Organization, 46*(1), 33–46. https://doi.org/10.5771/0943-7444-2019-1-33

Fuller, A., & Unwin, L. (2004). Expansive learning environments. Integrating organizational and personal development. In H. Rainbird, A. Fuller, & A. Munro (Eds.), *Workplace learning in context* (pp. 126–144). Routledge.

GERA. (2023). *Division Vocational Education*. The German Educational Research Association. https://www.dgfe.de/en/divisions-subdivisions/division-vocational-education

Gruber, H., & Harteis, C. (2018). *Individual and Social Influences on Professional Learning: Supporting the acquisition and maintenance of expertise* (Vol. 24). Springer International Publishing. https://doi.org/10.1007/978-3-319-97041-7

Gruman, J. A., & Saks, A. M. (2013). Organizational Socialization and Newcomers' Psychological Capital and Well-Being. In A. B. Bakker (Ed.), *Advances in positive organizational psychology* (pp. 211–236). Emerald.

Hacker, W. (2005). *Allgemeine Arbeitspsychologie. Psychische Regulation von Wissens-, Denk- und körperlicher Arbeit [General Work Psychology. Psychological regulation of knowledge, thinking and physical work.]* (2nd edition) Schriften zur Arbeitspsychologie: Vol. 58. Huber. http://bvbr.bib-bvb.de:8991/F?func=service&doc_library=BVB01&doc_number=013361477&line_number=0001&func_code=DB_RECORDS&service_type=MEDIA

Hacker, W. (2021). *Psychische Regulation von Arbeitstätigkeiten 4.0 [Psychological regulation of work activities 4.0]. Mensch - Technik - Organisation: v.51.* vdf Hochschulverlag AG.

Harris, L., Cooper-Thomas, H., Smith, P., & Smollan, R. (2020). Reclaiming the social in socialization: A practice-based understanding of newcomer adjustment. *Human Resource Development Quarterly, 31*(2), 193–211. https://doi.org/10.1002/hrdq.21384

Harteis, C., Goller, M., & Caruso, C. (2020). Conceptual Change in the Face of Digitalization: Challenges for Workplaces and Workplace Learning. *Frontiers in Education, 5*, Article 1. https://doi.org/10.3389/feduc.2020.00001

Harteis, C., Goller, M., & Fischer, C. (2019). Die Auswirkungen der Digitalisierung auf die Bedeutung beruflicher Qualifikation aus betrieblicher Sicht [The impact of digitization on the importance of vocational qualifications from a company perspective]. In J. Seifried, K. Beck, & B.-J. Ertelt (Eds.), *Wirtschaft - Beruf - Ethik. Beruf, Beruflichkeit, Employability [Occupation, professionalism, employability]* (pp. 239–253). wbv Media.

Jennex, M. E. (2017). Big Data, the Internet of Things, and the Revised Knowledge Pyramid. ACM SIGMIS Database: *The DATABASE for Advances in Information Systems, 48*(4), 69–79. https://doi.org/10.1145/3158421.3158427

Jia, H., Zhong, R., & Xie, X. (2021). Helping others makes me fit better: effects of helping behavior by newcomers and coworker-attributed motives on newcomers' adjustment. *Journal of Business and Psychology, 36*(3), 401–416. https://doi.org/10.1007/s10869-020-09680-w

Jones, G. R. (1986). Socialization Tactics, Self-Efficacy, and Newcomers' Adjustment to Organizations. *Academy of Management Journal, 29*(2), 262–279. https://doi.org/10.2307/256188

Kammeyer-Mueller, J. D., Livingston, B. A., & Liao, H. (2010). Perceived similarity, proactive adjustment, and organizational socialization. *Journal of Vocational Behavior*, *78*(2), 225–236. https://doi.org/10.1016/j.jvb.2010.09.012

Kammeyer-Mueller, J. D., & Wanberg, C. R. (2003). Unwrapping the organizational entry process: Disentangling multiple antecedents and their pathways to adjustment. *Journal of Applied Psychology*, *88*(5), 779–794. https://doi.org/10.1037/0021-9010.88.5.779

Kanning, U. P. (2017). *Personalmarketing, Employer Branding und Mitarbeiterbindung. Forschungsbefunde und Praxistipps aus der Personalpsychologie [Human resource marketing, employer branding and employee retention. Research findings and practical tips from personnel psychology]*. Springer. https://doi.org/10.1007/978-3-662-50375-1

Kirpal, S. (2007). The individualisation of identification with work in a European perspective. In A. Brown, S. Kirpal, & F. Rauner (Eds.), *Technical and Vocational Education and Training: Vol. 5.* Identities at Work (pp. 285–314). Springer.

Klein, H. J., & Polin, B. (2012). Are Organizations On Board with Best Practices Onboarding? In C. R. Wanberg (Ed.), *Oxford library of psychology*. *The Oxford handbook of organizational socialization* (pp. 267–287). Oxford Univ. Press.

Klimoski, R. J. (2020). Reflections on the Importance of Context (with the Benefit of 2020 Hindsight). In L. Koppes Bryan (Ed.), *Historical Perspectives in Industrial and Organizational Psychology* (pp. 292–306). Routledge.

KOFA. (2019). *Fachkräftesicherung in Deutschland – diese Potenziale gibt es noch [Securing skilled workers in Germany - this potential still exists]. Kompetenzzentrum Fachkräftesicherung*. https://www.kofa.de/daten-und-fakten/studien/fachkraefteengpaesse-in-unternehmen/?mtm_campaign=search&gclid=CjwKCAiAmuKbBhA2EiwAxQnt78YtGnsbqg-koIwC8admHfcn0vzb2evB3fXQM20frTu32JkCl8vEqsBoCarMQAvD_BwE

Kopp, B., & Mandl, H. (2014). Lerntheoretische Grundlagen von Rückmeldungen [Theoretical foundations of feedback]. In H. Ditton & A. Müller (Eds.), *Feedback und Rückmeldungen: Theoretische Grundlagen, empirische Befunde, praktische Anwendungsfelder* (pp. 29–41). Waxmann.

Krcmar, H. (2015). *Informationsmanagement*. Springer Berlin Heidelberg. https://doi.org/10.1007/978-3-662-45863-1

Kubis, A., & Popp, M. (2022*). IAB-Stellenerhebung 2/2022: Offene Stellen mit 1,93 Millionen auf erneutem Allzeithoch [IAB Job Survey 2/2022: Job vacancies at another all-time high of 1.93 million]*. https://doi.org/10.48720/IAB.FOO.20220811.01

Kyndt, E., & Baert, H. (2013). Antecedents of Employees' Involvement in Work-Related Learning. *Review of Educational Research*, *83*(2), 273–313. https://doi.org/10.3102/0034654313478021

Maccoby, E. E. (2015). Historical Overview of Socialization Research and Theory. In J. E. Grusec & P. D. Hastings (Eds.), *Handbook of socialization: Theory and research* (pp. 3–32). The Guilford Press.

Mack, O., & Khare, A. (2016). Perspectives on a VUCA World. In O. Mack, A. Khare, A. Krämer, & T. Burgartz (Eds.), *Managing in a VUCA World* (pp. 3–19). Springer International Publishing. https://doi.org/10.1007/978-3-319-16889-0_1

Maggiori, C., Urbanaviciute, L., & Masdonati, J. (2019). Employability Across the Lifespan. In J. Seifried, K. Beck, & B.-J. Ertelt (Eds.), *Wirtschaft - Beruf - Ethik. Beruf, Beruflichkeit, Employability [Occupation, professionalism, employability]* (pp. 257–271). wbv Media.

Manuti, A., Pastore, S., Scardigno, A. F., Giancaspro, M. L., & Morciano, D. (2015). Formal and informal learning in the workplace: A research review. *International Journal of Training and Development*, *19*(1), 1–17. https://doi.org/10.1111/ijtd.12044

Maslow, A. H. (1943). A theory of human motivation. *Psychological Review*, *50*(4), 370–396. https://doi.org/10.1037/h0054346

Meissner, E., & Chang-Gusko, Y.-S. (2019). Arbeitsplatz der Zukunft – vom Eckbüro zum Digital Village [Workplace of the future - from corner office to digital village]. In B. Hermeier, T. Heupel, & S. Fichtner-Rosada (Eds.), *FOM-Edition. Arbeitswelten der Zukunft [Working environments of the future]* (pp. 163–180). Springer Fachmedien Wiesbaden. https://doi.org/10.1007/978-3-658-23397-6_10

Nerdinger, F. W., Blickle, G., & Schaper, N. (2019). *Arbeits- und Organisationspsychologie [Industrial and organizational psychology]*. Springer Berlin Heidelberg. https://doi.org/10.1007/978-3-662-56666-4

Nifadkar, S. S., & Bauer, T. N. (2016). Breach of belongingness: Newcomer relationship conflict, information, and task-related outcomes during organizational socialization. *The Journal of Applied Psychology*, *101*(1), 1–13. https://doi.org/10.1037/apl0000035

OECD. (2019). *Returns to different forms of job related training: Factoring in informal learning. OECD Social, Employment and Migration Working Papers: Vol. 231*. OECD Publishing. https://doi.org/10.1787/b21807e9-en

OECD. (2020). *OECD Employment Outlook 2020*. OECD Publishing. https://doi.org/10.1787/1686c758-en

OECD. (2021). *Continuing Education and Training in Germany. Getting Skills Right.* OECD Publishing. https://doi.org/10.1787/1f552468-en

OECD. (2022). *Trends Shaping Education 2022*. OECD Publishing. https://doi.org/10.1787/6ae8771a-en

Pawlowsky, P. (2019). *Wissensmanagement [Knowledge Management]*. De Gruyter Oldenbourg. https://doi.org/10.1515/9783110474930

Pot, F. D. (2017). Workplace Innovation and Wellbeing at Work. In P. R. Oeij, D. Rus, & F. D. Pot (Eds.), *Aligning Perspectives on Health, Safety and Well-Being. Workplace Innovation: Theory, Research and Practice* (pp. 95–110). Springer International Publishing.

Probst, G., Raub, S., & Romhardt, K. (2012). *Wissen managen [Managing Knowledge]*. Gabler Verlag. https://doi.org/10.1007/978-3-8349-4563-1

Raemdonck, I., Gijbels, D., & van Groen, W. (2014). The influence of job characteristics and self-directed learning orientation on workplace learning. *International Journal of Training and Development*, *18*(3), 188–203. https://doi.org/10.1111/ijtd.12028

Rosenstiel, L. von, & Nerdinger, F. W. (2011). *Grundlagen der Organisationspsychologie: Basiswissen und Anwendungshinweise [Fundamentals of organizational psychology: basic knowledge and application notes]* (7th edition). Schäffer-Poeschel Verlag. http://site.ebrary.com/lib/alltitles/docDetail.action?docID=10773126

Saks, A. M., & Ashforth, B. E. (1997). Organizational Socialization: Making Sense of the Past and Present as a Prologue for the Future. *Journal of Vocational Behavior, 51*(2), 234–279. https://doi.org/10.1006/jvbe.1997.1614

Saks, A. M., & Gruman, J. A. (2018). Socialization resources theory and newcomers' work engagement. *Career Development International*, *23*(1), 12–32. https://doi.org/10.1108/CDI-12-2016-0214

Saks, A. M., Uggerslev, K. L., & Fassina, N. E. (2007). Socialization tactics and newcomer adjustment: A meta-analytic review and test of a model. *Journal of Vocational Behavior*, *70*(3), 413–446. https://doi.org/10.1016/j.jvb.2006.12.004

Schürmann, E., & Beausaert, S. (2016). What are drivers for informal learning? *European Journal of Training and Development*, *40*(3), 130–154. https://doi.org/10.1108/EJTD-06-2015-0044

Schwartz, G. J. (2019). An Examination of Key Factors That Influence Employee Learning in the Workplace. In V. H. Kenon & S. V. Palsole (Eds.), *The Wiley Handbook of Global Workplace Learning* (pp. 477–500). Wiley. https://doi.org/10.1002/9781119227793.ch25

Segers, M., Endedijk, M., & Gijbels, D. (2021). From Classic Perspectives on Learning to Current Views on Learning. In F. Dochy, F. D. D. Gijbels, M. Segers, & P. van den Bossche (Eds.), *Theories of Workplace Learning in Changing Times* (pp. 3–14). Routledge.

Smet, K., Grosemans, I., Cuyper, N. de, & Kyndt, E. (2022). Outcomes of Informal Work-Related Learning Behaviours: A Systematic Literature Review. *Scandinavian Journal of Work and Organizational Psychology*, *7*(1), 2. https://doi.org/10.16993/sjwop.151

Takeuchi, T., Takeuchi, N., & Jung, Y. (2021). Toward a process model of newcomer socialization: Integrating pre- and post-entry factors for newcomer adjustment. *Human Resource Development Quarterly, 32*(3), 391–418. https://doi.org/10.1002/hrdq.21420

Tannenbaum, S. I., Beard, R. L., McNall, L. A., & Salas, E. (2010). Informal Learning and Development in Organizations. In S. W. J. Kozlowski & E. Salas (Eds.), *The organizational frontiers series. Learning, training, and development in organizations* (pp. 303–331). Routledge.

Tannenbaum, S. I., & Wolfson, M. A. (2022). Informal (Field-Based) Learning. *Annual Review of Organizational Psychology and Organizational Behavior, 9*(1), 391–414. https://doi.org/10.1146/annurev-orgpsych-012420-083050

Tynjälä, P. (2013). Toward a 3-P Model of Workplace Learning: A Literature Review. *Vocations and Learning, 6*(1), 11–36. https://doi.org/10.1007/s12186-012-9091-z

UNESCO Institute for Statistics. (2012). *International Standard Classification of Education (ISCED) 2011*. http://uis.unesco.org/sites/default/files/documents/international-standard-classification-of-education-isced-2011-en.pdf

van Laar, E., van Deursen, A. J., van Dijk, J. A., & Haan, J. de (2017). The relation between 21st-century skills and digital skills: A systematic literature review. *Computers in Human Behavior, 72*, 577–588. https://doi.org/10.1016/j.chb.2017.03.010

van Maanen, J., & Schein, E. H. (1979). Toward a Theory of Organizational Socialization. *Research in Organizational Behavior*, *1*, 209–264.

Vollmar, G. (2016). Knowledge Scorecard: Wirksamkeitsmessung von Wissensmanagement gemäß ISO 9001:2015 [Knowledge Scorecard: Effectiveness measurement of knowledge management according to ISO 9001:2015]. *Wissensmanagement (7)*, 23–25.

Vollmar, G. (2017*). Wirkung messen und Nachweis führen – wie geht das für Wissensmanagement? (Expertenwissen für DGQ-Mitglieder) [Measuring impact and providing evidence - how does this work for knowledge management? (Expert knowledge for DGQ members)]*. Deutsche Gesellschaft für Qualität. https://www.wissen-kommunizieren.de/wp-content/uploads/2016/04/Wirkung-messen-und-Nachweis-f%C3%BChren-wie-geht-das-f%C3%BCr-Wissensmanagement.pdf

Watkins, K. E., & Marsick, V. J. (1992). Towards a theory of informal and incidental learning in organizations. *International Journal of Lifelong Education, 11*(4), 287–300. https://doi.org/10.1080/0260137920110403

Zutavern, S., & Seifried, J. (2019). Employer-Branding als Beitrag zu Employability und Beruflichkeit [Employer branding as a contribution to employability and professionalism]. In J. Seifried, K. Beck, & B.-J. Ertelt (Eds.), *Wirtschaft - Beruf - Ethik. Beruf, Beruflichkeit, Employability [Occupation, professionalism, employability]* (pp. 197–214). wbv Media.

Zutavern, S., & Seifried, J. (2021). Exploring Well-being at Work-An Interview Study on How IT Professionals Perceive Their Workplace. *Frontiers in Psychology, 12*, 688219. https://doi.org/10.3389/fpsyg.2021.688219

Zutavern, S., & Seifried, J. (2022). Vocational Education and Training in Germany: Benefits and Drawbacks of the Dual Approach as Preparation for Professional Employment. In C. Harteis, D. Gijbels, & E. Kyndt (Eds.*), Professional and practice-based learning. Research Approaches on Workplace Learning* (Vol. 31, pp. 347–365). Springer. https://doi.org/10.1007/978-3-030-89582-2_16

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.

Keywords Vocational education and training • Dual system • Employability • Workplace learning • 21st century skills • Professional competence

3.2 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; Vähäsantanen & 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 personality 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 (Manuti 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).[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.

[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 contents 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 competence and the associated 21st century skills, underlying learning processes, and possibilities for establishing and evaluating a uniform quality standard.

3.6 References

Ananiadou, K., & Claro, M. (2009). *21st Century Skills and Competences for New Millennium Learners in OECD Countries*. OECD Education Working Papers: Vol. 41: OECD Publishing.

Baethge, M., Buss, K.-P. & Lanfer, C. (2003). *Konzeptionelle Grundlagen für einen Nationalen Bildungsbericht: Berufliche Bildung und Weiterbildung/Lebenslanges Lernen. [Conceptual Basis for a National Education Report: Vocational Education and Training and Further Education / Lifelong Learning.]* Reihe: Bildungsreform, Band 7, Bonn und Berlin: Bundesministerium für Bildung und Forschung.

BIBB. (2017). Ausbildungsordnungen und wie sie entstehen [Training regulations and how they are developed] https://www.bibb.de/dienst/veroeffentlichungen/de/publication/show/8269

BIBB (2021a). *Evaluierung der Erprobungsverordnung des Ausbildungsberufes Kaufmann und Kauffrau für Büromanagement. [Evaluation of the trial regulations for the training occupation of office management assistant.]* Retrieved from https://www.bibb.de/dienst/veroeffentlichungen/de/publication/show/17117

BIBB (2021b). *Informationen zu Aus- und Fortbildungsberufen: Kaufmann für Büromanagement/ Kauffrau für Büromanagement (Ausbildung) [Information on initial and continuing training occupations: Office management assistant (apprenticeship)]*. Retrieved from https://www.bibb.de/de/berufeinfo.php/profile/apprenticeship/239212

Billett, S. (2001). Learning through work: Workplace affordances and individual engagement. *Journal of Workplace Learning*, 13(5), 209–214. https://doi.org/10.1108/EUM0000000005548

Billett, S. (2002). Workplace Pedagogic Practices: Co–participation and Learning. *British Journal of Educational Studies*, 50(4), 457–481. https://doi.org/10.1111/1467-8527.t01-2-00214

Billett, S. (2011). *Vocational Education*. Dordrecht: Springer Netherlands.

Binkley, M., Erstad, O., Herman, J., Raizen, S., Ripley, M., Miller-Ricci, M., & Rumble, M. (2012). Defining Twenty-First Century Skills. In P. Griffin, B. McGaw, & E. Care (Eds.), *Assessment and teaching of 21st century skills* (pp. 17–66). Dordrecht: Springer.

BMBF. (2020). Ausbildung & Beruf. Rechte und Pflichten während der Berufsausbildung. [Training & Occupation. Rights and obligations during vocational training.] Retrieved from https://www.die-duale.de/SharedDocs/Downloads/dieduale/de/Neue-Broschuere-Ausbildung-und-Beruf.pdf?__blob=publicationFile&v=2

BMBF. (2021). Berufsbildungsbericht 2021 [Report on vocational education and training 2021]. Retrieved from https://www.bmbf.de/SharedDocs/Downloads/de/2021/berufsbildungsbericht-2021.pdf?__blob=publicationFile&v=4

BMFSFJ. (2021). FAQ zur Reform der Pflegeberufe [FAQ on the reform of the nursing professions]. Retrieved from https://www.pflegeausbildung.net/ausbildungsinteressierte/faq-zur-reform-der-pflegeberufe.html

Böhn, S., & Deutscher, V. (2019). Betriebliche Ausbildungsbedingungen im dualen System – Eine qualitative Meta-Analyse zur Operationalisierung in Auszubildendenbefragungen Auszubildendenbefragungen. [Training Conditions in VET – A Qualitative Meta-Synthesis for the Operationalization in Apprentice Questionnaires.] *Zeitschrift für Pädagogische Psychologie*, 33(1), 49–70. https://doi.org/10.1024/1010-0652/a000234

Brockmann, M., Clarke, L., & Winch, C. (2008). Knowledge, skills, competence: European divergences in vocational education and training (VET)—the English, German and Dutch cases. *Oxford Review of Education*, 34(5), 547–567. https://doi.org/10.1080/03054980701782098

Brynjolfsson, E., & McAfee, A. (2014). *The second machine age: Work, progress, and prosperity in a time of brilliant technologies.* New York, NY: Norton.

Cedefop (2011). *Vocational education and training is good for you: The social benefits of VET for individuals. Research paper (European Centre for the Development of Vocational Training): Vol. 17.* Luxembourg: Publications Office.

Cedefop (2012). *From education to working life: The labour market outcomes of vocational education and training*. Luxembourg: Publications Office. Retrieved from http://dx.doi.org/10. 2801/92129

Cedefop (2013). *On the way to 2020. Research paper / CEDEFOP, European Centre for the Development of Vocational Training: Vol. 31*. Luxembourg: Publications Office. Retrieved from http://dx.doi.org/10.2801/47144

Cedefop (2016). *Future skill needs in Europe: Critical labour force trends. Cedefop research paper: No 59.* Luxembourg: Publications Office.

Cedefop (2017a). *Looking back to look ahead: Preparing the future of vocational education and training in Europe 2020-30. Briefing note: September 2017*. Luxembourg: Publications Office.

Cedefop (2017b). *Opinion survey on vocational education and training in Europe*. Luxembourg: Publications Office.

Cedefop (2017c). *Spotlight on VET: Germany*. Retrieved from https://www.cedefop.europa.eu/en/publications/8116

Cedefop (2019). VET in Germany. In Cedefop (Ed.), *Spotlight on VET – 2018 compilation: vocational education and training systems in Europe* (pp. 28–29). Luxembourg: Publications Office. Retrieved from http://data.europa.eu/doi/10.2801/009

Chambers, E., Foulon, M., Handfield-Jones, H., Hankin, S., & Michaels III, E. (1998). The war for talent. *The McKinsey Quarterly*, 3, 44–57.

Cho, H. J., & Kim, J.-M. (2016). Administrative assistants' informal learning and related factors. *Journal of Workplace Learning*, 28(7), 406–423. https://doi.org/10.1108/JWL-11-2015-0079

Choi, W., & Jacobs, R. L. (2011). Influences of formal learning, personal learning orientation, and supportive learning environment on informal learning. *Human Resource Development Quarterly*, 22(3), 239–257. https://doi.org/10.1002/hrdq.20078

Crouse, P., Doyle, W., & Young, J. D. (2011). Workplace learning strategies, barriers, facilitators and outcomes: A qualitative study among human resource management practitioners. *Human Resource Development International*, 14(1), 39–55. https://doi.org/10.1080/13678868.2011.542897

Dede, C. (2010). Comparing Frameworks for 21st Century Skills. In J. Bellanca & R. Brandt (Eds.), *21st century skills: Rethinking how students learn* (pp. 51–76). Bloomington, IN: Solution Tree Press.

Deißinger, T., & Frommberger, D. (2010). Berufsbildung im internationalen Vergleich – Typen nationaler Berufsbildungssysteme [Vocational training in international comparison - Types of national vocational training systems]. In R. Nickolaus, G. Pätzold, H. Reinisch, & P. T. Tramm (Eds.), *UTB Pädagogik: Vol. 8442. Handbuch Berufs- und Wirtschaftspädagogik* (1st ed., pp. 343–348). Bad Heilbrunn: Klinkhardt.

ELGPN (2012). *Lifelong Guidance Policy Development: A European Resource Kit* (ELGPN Tools No. 1). Retrieved from http://www.elgpn.eu/publications/elgpn-tools-no1-resource-kit

ELGPN (2015). *Guidelines for Policies and Systems Development for Lifelong Guidance: A Reference Framework for the EU and for the Commission* (ELGPN Tools No. 6). Retrieved from http://www.elgpn.eu/publications/browse-by-language/english/elgpn-tools-no-6-guidelines-for-policies-and-systems-development-for-lifelong-guidance/

Endedijk, M. D., & Bronkhorst, L. H. (2014). Students' Learning Activities Within and Between the Contexts of Education and Work. *Vocations and Learning*, 7(3), 289–311. https://doi.org/10.1007/s12186-014-9116-x

Eraut, M. (2004). Informal learning in the workplace. *Studies in Continuing Education*, 26(2), 247–273. https://doi.org/10.1080/158037042000225245

Euler, D. (2004). Lernortkooperation – eine unendliche Geschichte? [Learning site cooperation–an endless story?] In D. Euler (Hrsg.), *Handbuch der Lernortkooperation. Theoretische Fundierung* (S. 12-24). Bd. 1. Bielefeld: W. Bertelsmann Verlag.

Euler, D. (2015). Lernorte in der Berufsausbildung zwischen Potential und Realität [Learning sites in vocational training between potential and reality]. *BWP – Berufsbildung in Wissenschaft und Praxis*, 44(1), 6-9.

Eurostat (2021a). *Adult learning statistics.* Retrieved from https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Adult_learning_statistics

Eurostat (2021b). *Fertility statistics.* Retrieved from https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Fertility_statistics

Eurostat (2021c). *Labour market flow statistics in the EU.* Retrieved from https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Labour_market_flow_statistics_in_the_EU#Labour_market_flows:_transitions

Eurostat (2021d). *Mortality and life expectancy statistics.* Retrieved from https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Mortality_and_life_expectancy_statistics#Slight_increase_in_number_of_deaths_in_2017

Eurostat (2021e). *Youth unemployment rate in EU member states as of August 2019 (seasonally adjusted).* Retrieved from https://www.statista.com/statistics/266228/youth-unemployment-rate-in-eu-countries/

Frey, C. B., & Osborne, M. A. (2017). The future of employment: How susceptible are jobs to computerisation? *Technological Forecasting and Social Change*, 114, 254–280. https://doi.org/10.1016/j.techfore.2016.08.019

Gerholz, K.-H., & Brahm, T. (2014). Apprenticeship and Vocational Education: An Institutional Analysis of Workplace Learning in the German Vocational System. In C. Harteis, A. Rausch, & J. Seifried (Eds.), *Discourses on Professional Learning* (Vol. 9, pp. 143–158). Dordrecht: Springer Netherlands.

Goller, M. (2017). *Human Agency at Work: An Active Approach towards Expertise Development.* Wiesbaden: Springer.

Greinert, W.-D. (2004). Die europäischen Berufsausbildungs“systeme“ – Überlegungen zum theoretischen Rahmen der Darstellung ihrer historischen Entwicklung [European vocational training "systems" - reflections on the theoretical framework for presenting their historical development], *Berufsbildung. Europäische Zeitschrift.* Sonderheft Nr. 32, 18–26.

Greinert, W.-D. (2005). *Mass vocational education and training in Europe: Classical models of the 19th century and training in England, France and Germany during the first half of the 20th*. *Cedefop panorama series: Vol. 118*. Luxembourg: Office for Official Publ. of the European Communities.

Gruber, H., & Harteis, C. (2018). *Individual and Social Influences on Professional Learning* (Vol. 24). Cham: Springer International Publishing.

Harteis, C. (2019). Supporting learning at work in an era of digitalization of work. In A. Bahl & A. Dietzen (Eds.), *Work-based learning as a pathway to competence-based education*. Opladen: Barbara Budrich.

Jääskelä, P., Poikkeus, A.-M., Vasalampi, K., Valleala, U. M., & Rasku-Puttonen, H. (2016). Assessing agency of university students: Validation of the AUS Scale. *Studies in Higher Education*, 42(11), 2061–2079. https://doi.org/10.1080/03075079.2015.1130693

Ju, S., Zhang, D., & Pacha, J. (2012). Employability Skills Valued by Employers as Important for Entry-Level Employees With and Without Disabilities. *Career Development and Transition for Exceptional Individuals*, 35(1), 29–38. https://doi.org/10.1177/0885728811419167

Kalleberg, A. L. & Mouw, T. (2018). Occupations, Organizations, and Intragenerational Career Mobility. *Annual Review of Sociology*, 44(1), 283–303. https://doi.org./10.1146/annurev-soc-073117-041249

Kirpal, S. (2007). The individualisation of identification with work in a European perspective. In A. Brown, S. Kirpal, & F. Rauner (Eds.), *Technical and Vocational Education and Training: Vol. 5. Identities at Work* (pp. 285–314). Dordrecht, Berlin, Heidelberg: Springer.

KMK. (2007). *Handreichung für die Erarbeitung von Rahmenlehrplänen der Kultusministerkonferenz für den berufsbezogenen Unterricht in der Berufsschule und ihre Abstimmung mit Ausbildungsordnungen des Bundes für anerkannte Ausbildungsberufe [Guidance on the development of framework curricula of the Standing Conference of the Ministers of Education and Cultural Affairs in the field of vocational education and training for occupation-related instruction at vocational schools and their coordination with federal training regulations for recognised training occupations]*. Bonn. Retrieved from https://www.kmk.org/fileadmin/veroeffentlichungen_beschluesse/2007/2007_09_01-Handreich-Rlpl-Berufsschule.pdf

Kutscha, G. (2015). Erweiterte moderne Beruflichkeit: Eine Alternative zum Mythos „Akademisierungswahn" und zur „Employability-Maxime" des Bologna-Regimes [Expanded modern professionalism: An alternative to the myth of "mania for academia" and the "employability maxim" of the Bologna regime]. *Berufs- und Wirtschaftspädagogik - online*. (29).

Kyndt, E., Dochy, F., & Nijs, H. (2009). Learning conditions for non-formal and informal workplace learning. *Journal of Workplace Learning*, 21(5), 369–383. https://doi.org/10.1108/13665620910966785

Lave, J., & Wenger, E. (1991). *Situated learning: Legitimate peripheral participation. Learning in doing*. Cambridge: Cambridge University Press.

Malcolm, J., Hodkinson, P., & Colley, H. (2003). The interrelationships between informal and formal learning. *Journal of Workplace Learning*, 15(7/8), 313–318. https://doi.org/10.1108/13665620310504783

Manuti, A., Pastore, S., Scardigno, A. F., Giancaspro, M. L., & Morciano, D. (2015). Formal and informal learning in the workplace: A research review. *International Journal of Training and Development*, 19(1), 1–17. https://doi.org/10.1111/ijtd.12044

Metso, S. (2014). Vocational students' perspective on organizational factors enhancing workplace learning. *Education + Training*, 56(5), 381–396. https://doi.org/10.1108/ET-05-2013-0069

OECD. (2018). *Education at a Glance 2018: OECD indicators*. Paris: OECD Publishing.

OECD (2019). *OECD skills outlook 2019: Thriving in a digital world*. Paris: OECD Publishing. Retrieved from https://doi.org/10.1787/df80bc12-en

Raemdonck, I., Gijbels, D., & van Groen, W. (2014). The influence of job characteristics and self-directed learning orientation on workplace learning. *International Journal of Training and Development*, 18(3), 188–203. https://doi.org/10.1111/ijtd.12028

Rausch, A. (2014). Using Diaries in Research on Work and Learning. In C. Harteis, A. Rausch, & J. Seifried (Eds.), *Discourses on Professional Learning* (Vol. 9, pp. 341–366). Dordrecht: Springer Netherlands.

Seeber, S., & Seifried, J. (2019). Herausforderungen und Entwicklungsperspektiven der beruflichen Bildung unter veränderten Rahmenbedingungen [Challenges and development prospects of vocational education and training under changing conditions]. *Zeitschrift für Erziehungswissenschaft*, 22(3), 485–508. https://doi.org/10.1007/s11618-019-00876-2

Seifried, J., Beck, K., Ertelt, B.-J., & Frey, A. (2019). *Beruf, Beruflichkeit, Employability [Occupation, professionalism, employability]*. Wirtschaft - Beruf - Ethik. Bielfeld: wbv.

Shavit, Y., & Muller, W. (2000). Vocational Secondary Education. *European Societies*, 2(1), 29–50. https://doi.org/10.1080/146166900360710

Suarta, I. M., Suwintana, I. K., Sudhana, I. G. P. F. P., & Hariyanti, N. K. D. (2019). Students and Vocational Educators Perceived on the Importance Level of Employability Skills. *Advances in Social Science, Education and Humanities Research*, 383, 201–210. https://doi.org/10.2991/icss-19.2019.16

Tynjälä, P. (2013). Toward a 3-P Model of Workplace Learning: A Literature Review. *Vocations and Learning*, 6(1), 11–36. https://doi.org/10.1007/s12186-012-9091-z

Vähäsantanen, K., & Eteläpelto, A. (2018). Agency and Learning in the Work of Software Profes-sionals. In C. Harteis (Ed.), *Professional and practice-based learning: Volume 21. The impact of digitalization in the workplace: An educational view* (pp. 161–179). Cham, Switzerland: Springer.

Van Laar, E., van Deursen, A. J.A.M., van Dijk, J. A.G.M., & Haan, J. de (2017). The relation between 21st-century skills and digital skills: A systematic literature review. *Computers in Human Behavior*, 72, 577–588. https://doi.org/10.1016/j.chb.2017.03.010

Virtanen, A., Tynjälä, P., & Eteläpelto, A. (2012). Factors promoting vocational students' learning at work: Study on student experiences. *Journal of Education and Work*, 27(1), 43–70. https://doi.org/10.1080/13639080.2012.718748

Watkins, K. E., & Marsick, V. J. (1992). Towards a theory of informal and incidental learning in organizations. *International Journal of Lifelong Education*, 11(4), 287–300. https://doi.org/10.1080/0260137920110403

Wesseling, R., Biemans, H., Gulikers, J., & Mulder, M. (2018). Models and Principles for Designing Competence-based Curricula, Teaching, Learning and Assessment. In M. Mulder (Ed.), *Technical and Vocational Education and Training: Vol. 23. Competence-based Vocational and Professional Education: Bridging the Worlds of Work and Education* (1st ed., pp. 533–553). Cham: Springer International Publishing.

Wirth, K. (2015). Anforderungen dualer Ausbildung an den Lernort Schule – Erfahrungen im Betrieb systematisch einbeziehen! [Requirements of dual training for school as a learning site - integrate company experience systematically!] *BWP – Berufsbildung in Wissenschaft und Praxis*, 44(1), 14-17

Zitter, I., Hoeve, A., & Bruijn, E. de (2016). A Design Perspective on the School-Work Boundary: A Hybrid Curriculum Model. *Vocations and Learning*, 9(1), 111–131. https://doi.org/10.1007/s12186-016-9150-y

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.[15] 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

[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

Main level	Sub level	Definition	Coding rule	Examples from the literature	Examples from the data
Professional		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.	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.	▪ deficits in technical knowledge, deficits in professional experience, and difficulties in transferring existing knowledge to the new work context (Lim et al., 2016; Unson & 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)	▪ „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*)
Social	Inter-personal	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.	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.	▪ conflicts with co-workers or supervisors (Nifadkar & 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 & Richardson, 2013)	▪ „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*)

	Intra-personal	Intra-personal challenges are rooted in personality traits, behaviors, beliefs, attitudes, values, and norms of the newcomer.	Code text passages in which newcomers describe challenges related to their personality traits, behaviors, beliefs, attitudes, values, or norms.	▪ lack of self-confidence or difficulties in learning new things (Unson & Richardson, 2013) ▪ impatience, underestimating the new job duties, or lacking communication skills (Steinmacher et al., 2019) ▪ too ambitious to settle for easy tasks, shyness, disinterest, or unable to deal with criticism and conflict (Balali et al., 2018)	▪ „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*)
Contextual	Organizational culture	The newcomer has difficulty understanding, appropriately implementing, and/or identifying with the cultural norms in the new work environment.	Code text passages in which the newcomer describes having difficulty understanding, appropriately implementing, and/or identifying with cultural norms in the new work environment.	▪ understand and implement the values and norms of a new work environment (Unson & Richardson, 2013)	▪ „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*)
	Work setting	The newcomer has difficulty settling into the new work organizational environment.	Code text passages in which the newcomer describes having problems settling into the new organizational work environment.	▪ changes in work conditions, such as the weekly workload (Unson & Richardson, 2013)	▪ „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*)

				▪ "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 – *find your way around in new premises*)
Private sphere	Starting with a new employer has changed the newcomer's private context, resulting in additional effort for the newcomer.	Code text passages in which the newcomer describes having problems in his or her private context that are due to the new job.	▪ adjustment of private living conditions (Polach, 2004)	▪ „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 – *settle in at new place of residence*)

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)

Main category	**Sub-category 1**	**Sub-category 2**	**Definition** (Adopted from Klein & Heuser, 2008, p. 319, for all 'Onboarding'–categories.)	**Coding rule**	**Examples from the literature** (Adopted from Klein & Heuser, 2008, p. 319, and Klein & Polin, 2012, p. 270, for all 'Onboarding'–categories.)	**Examples from the data**
Onboarding	Inform	Communication	Planned efforts to facilitate communication with newcomers. Includes both the provision of one-way messages and opportunities for two-way dialogues.	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.	▪ 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.	▪ "So, the two activities we had were both very helpful in coping with the challenges. The training for the professional issue. The co-ordination with the supervisor for both, the professional issue and the interfaces and making contacts." (Quinn, *meetings with the supervisor*)
		Resources	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.	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.	▪ 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).	▪ "There is a relatively large amount of documentation in the company, which helps; you can work your way through it." (Sam, *documentation*)
		Training	Planned efforts to facilitate the systematic acquisition of skills, behaviors, knowledge.	Code text passages in which the newcomer describes activities to systematically acquire skills, behaviors, and/or knowledge.	▪ 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.	▪ "The introductory seminar helped a bit because you got an overview of the architecture and the application landscape. That was useful" (Sam, *introductory seminar*) ▪ "So, with the processes, when I did something wrong, I was

		▪ Training on job skills (on-the-job or off-the-job). ▪ Watching a new employee video. ▪ Observing fellow associates for a period of time. ▪ Having a tour of company facilities.	nudged in the right direction by my colleagues in the office and the other offices. (Oliver, *on-the-job training*) ▪ "In the beginning my colleagues walked around with me and showed me everything." (Rachel, *tour of company facilities*)
Welcome	Activities that provide opportunities for new hires to meet and socialize with other organizational members and/or celebrate the arrival of the newcomer.	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.	▪ Planned activities to ensure new hires meet their coworkers and other key individuals. ▪ Receiving a welcome phone call/ email/ letter from a senior leader/ an executive/ the supervisor. ▪ Receiving a welcome kit, company t-shirt, or other items with the company logo or name on it. ▪ Participating in an exercise/ a gathering/welcome lunch to meet and get to know fellow associates. ▪ Having a welcome celebration for newcomers. ▪ Inviting newcomers to participate in a social event/ a social activity outside of work. ▪ Announcing the newcomers' arrival in an email, on the company website, or in a company newsletter.	▪ "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, *day-t-look-in*) ▪ "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, *introduction round*) ▪ "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 link up privately." (Quinn, *group event*)
Guide	Activities that provide a personal guide for each new hire.	Code text passages in which the newcomer describes activities that serve as a personal guide.	▪ A formal 'buddy' system that assigns an experienced coworker to each new hire. ▪	▪ "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

			▪ A welcome coordinator oversees all aspects of the orientation process. ▪ Being assigned to a mentor of higher rank.	about professional or technical topics.” (Lara, *buddy*) ▪ “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, *introduction plan*)
Individual efforts	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.	Code text passages in which the newcomer describes how he or she has helped overcome perceived challenges through his or her efforts.	-	▪ “I ask questions, that is, to probe deeper when they were presenting their individual topics. So, taking the initiative is important.” (Quinn, *information seeking*) ▪ „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*)
Other activities	All activities that helped the newcomer overcome perceived challenges and do not represent onboarding activities or individual efforts can be assigned to this category.	Code text passages in which the newcomer describes activities that helped overcome perceived challenges and do not represent onboarding activities or individual efforts.	-	▪ „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*)

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

Interview Number	**Topic**	**Interview Questions**
No 1: During the 1st month after organizational entry	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: During the 3rd month after organizational entry	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 4.4: Sample (study 2)

Partic-ipant	Field of activity	Sex		Age (in years)					Professional experience … … in years						… related to new job duties	
		male	**female**	**≤ 25**	**26-30**	**31-40**	**41-50**	**> 50**	**none**	**< 5**	**5-10**	**11-20**	**21-30**	**> 30**	**Description**	**Fit**
Katie	Support services		x		x					x					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.	Moderate
Lara	IT-related		x		x					x					Has worked with the same technology for 6 months but has no industry experience.	Low
Marc	IT-related	x						x						x	Job duties are partly familiar and partly new. Has extensive experience with two products (30 and 6 years).	High
Nora	Support services		x			x						x			Has 20 years of industry experience and has managed the same product from a different perspective for 5 years.	Moderate
Oliver	IT-related	x				x						x			Was for 14 years an all-rounder in the current subject area for and now holds a specialist role.	High
Patricia	IT-related		x				x						x		Has 10 years of experience in the actual field of activity.	High
Quinn	IT-related	x			x						x				Knows the software that is being supported for 8 years and has as much experience coordinating tasks.	High
Rachel	IT-related		x		x							x			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.	Moderate
Sam	IT-related	x			x						x				Has previously performed identical job duties for approx. 6 years. However, the organization’s infrastructure and the technologies used are new.	High
Tom	IT-related	x				x					x				Has little industry experience but has performed the same job duties for 2,5 years.	High
	Total	**5**	**5**	**-**	**5**	**3**	**1**	**1**	**-**	**2**	**3**	**3**	**1**	**1**		

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.

Table4.5: Perceived challenges during organizational entry and conducive activities to overcome them.

Perceived challenges		Mainlevel / Sublevel	Professional: Subject-related	Professional: Procedural	Social: Inter-personal	Social: Intra-personal	Contextual: Organ. culture	Contextual: Work setting	Private sphere	Total number of statements	
Sex		male	2	3	-	1	-	2	1	9 (1.8)*	
		female	5	3	3	2	1	4	-	18 (3.6)	
Age (in years)		26-30	4	3	1	1	-	4	1	14 (2.8)	
		31-40	2	2	1	2	1	-	-	8 (2.7)	
		41-50	1	1	1	-	-	-	-	3 (3.0)	
		> 50	-	-	-	-	-	2	-	2 (2.0)	
Professional experience	in years	< 0 < 5	2	1	1	-	-	2	-	6 (3.0)	
		5-10	2	2	-	-	-	-	1	5 (1.7)	
		11-20	2	2	1	3	1	2	-	11 (3.7)	
		21-30	1	1	1	-	-	-	-	3 (3.0)	
		> 30	-	-	-	-	-	2	-	2 (2.0)	
	fit to new job	Low	-	1	-	-	-	1	-	2 (2.0)	
		Moderate	4	1	2	2	1	3	-	13 (4.3)	
		High	3	4	1	1	-	2	1	12 (2.0)	
Activities	Inform	Communication	2	1	-	-	-	1	1	5	
		Resources	24	19	1	5	2	6	1	58	80
		Training	9	3	-	2	-	3	-	17	
	Welcome		-	-	1	-	-	1	-	2	
	Guide		3	1	-	-	-	-	-	4	
	Individual efforts		11	7	1	3	-	4	1	27	
	Other	Integration in work	3	2	2	3	2	2	-	14	
		Learning by doing	10	3	1	2	1	-	-	17	
		Team event	-	-	-	-	-	1	1	2	39
		Professional experience	1	-	-	1	-	-	-	2	
		Single mentions	-	-	2	-	-	2	-	4	
Total number of statements			63	36	8	16	5	20	4	152	
			99		24			29			

* 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 support 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 documentations 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

Anderson, V. (2017). Criteria for Evaluating Qualitative Research. *Human Resource Development Quarterly, 28*(2), 125–133. https://doi.org/10.1002/hrdq.21282

Ashforth, B. E. (2012). The role of time in socialization dynamics. In C. R. Wanberg (Ed.), *Oxford library of psychology. The Oxford handbook of organizational socialization (pp. 161–186).* Oxford Univ. Press. https://doi.org/10.1093/oxfordhb/9780199763672.013.0009

Ashforth, B. E., & Saks, A. M. (1996). Socialization Tactics: Longitudinal Effects On Newcomer Adjustment. *Academy of Management Journal, 39*(1), 149–178. https://doi.org/10.2307/256634

Balali, S., Steinmacher, I., Annamalai, U., Sarma, A., & Gerosa, M. A. (2018). Newcomers' Barriers… Is That All? An Analysis of Mentors' and Newcomers' Barriers in OSS Projects. *Computer Supported Cooperative Work (CSCW), 27,* 679–714. https://doi.org/10.1007/s10606-018-9310-8

Bauer, T. N., Bodner, T., Erdogan, B., Truxillo, D. M., & Tucker, J. S. (2007). Newcomer adjustment during organizational socialization: A meta-analytic review of antecedents, outcomes, and methods. *The Journal of Applied Psychology, 92*(3), 707–721. https://doi.org/10.1037/0021-9010.92.3.707

Bauer, T. N., & Erdogan, B. (2014). Delineating and Reviewing the Role of Newcomer Capital in Organizational Socialization. *Annual Review of Organizational Psychology and Organizational Behavior, 1*(1), 439–457. https://doi.org/10.1146/annurev-orgpsych-031413-091251

Bauer, T. N., Perrot, S., Liden, R. C., & Erdogan, B. (2019). Understanding the consequences of newcomer proactive behaviors: The moderating contextual role of servant leadership. *Journal of Vocational Behavior*, *112*, 356–368. https://doi.org/10.1016/j.jvb.2019.05.001

Berger, C. R., & Calabrese, R. J. (1975). Some Explanations in Initial Interaction and Beyond: Toward a Developmental Theory of Interpersonal Communication. *Human Communication Research*, *1*(2), 99–112. https://doi.org/10.1111/j.1468-2958.1975.tb00258.x

Billett, S. (2022). Learning in and Through Work: Positioning the Individual. In C. Harteis, D. Gijbels, & E. Kyndt (Eds.), *Professional and practice-based learning. Research Approaches on Workplace Learning* (Vol. 31, pp. 157–175). Springer. https://doi.org/10.1007/978-3-030-89582-2_7

Bitkom. (2022, January 3). *IT-Fachkräftelücke wird größer: 96.000 offene Jobs [IT professional gap grows: 96,000 open jobs]* [Press release]. Berlin. https://www.bitkom.org/Presse/Presseinformation/IT-Fachkraefteluecke-wird-groesser

Caldwell, C., & Peters, R. (2018). New employee onboarding – psychological contracts and ethical perspectives. *Journal of Management Development*, *37*(1), 27–39. https://doi.org/10.1108/JMD-10-2016-0202

Cooper-Thomas, H., Anderson, N., & Cash, M. (2012). Investigating organizational socialization: A fresh look at newcomer adjustment strategies. *Personnel Review*, *41*(1), 41–55. https://doi.org/10.1108/00483481211189938

Feldman, D. C. (1981). The multiple socialization of organization members. *Academy of Management Review*, *6*(2), 309–318. https://doi.org/10.5465/amr.1981.4287859

Filstad, C. (2011). Organizational commitment through organizational socialization tactics. *Journal of Workplace Learning*, *23*(6), 376–390. https://doi.org/10.1108/13665621111154395

Fleming, S. S., Goldman, A. W., Correll, S. J., & Taylor, C. J. (2016). Settling In: The Role of Individual and Departmental Tactics in the Development of New Faculty Networks. *The Journal of Higher Education*, *87*(4), 544–572. https://doi.org/10.1353/jhe.2016.0018

Gupta, P. D., Bhattacharya, S., Sheorey, P., & Coelho, P. (2018). Relationship between onboarding experience and turnover intention: intervening role of locus of control and self-efficacy. *Industrial and Commercial Training*, *50*(2), 61–80. https://doi.org/10.1108/ICT-03-2017-0023

Harris, L., Cooper-Thomas, H., Smith, P., & Smollan, R. (2020). Reclaiming the social in socialization: A practice-based understanding of newcomer adjustment. *Human Resource Development Quarterly*, *31*(2), 193–211. https://doi.org/10.1002/hrdq.21384

Hsu, L. M., & Field, R. (2003). Interrater Agreement Measures: Comments on Kappa n, Cohen's Kappa, Scott's π, and Aickin's α. *Understanding Statistics*, *2*(3), 205–219. https://doi.org/10.1207/S15328031US0203_03

Kammeyer-Mueller, J. D., & Wanberg, C. R. (2003). Unwrapping the organizational entry process: Disentangling multiple antecedents and their pathways to adjustment. Journal of Applied Psychology, 88(5), 779–794. https://doi.org/10.1037/0021-9010.88.5.779

Klein, H. J., & Heuser, A. E. (2008). The learning of socialization content: A framework for researching orientating practices. *Research in Personnel and Human Resources Management* (27), 279–336. https://doi.org/10.1016/S0742-7301(08)27007-6

Klein, H. J., & Polin, B. (2012). Are Organizations On Board with Best Practices Onboarding? In C. R. Wanberg (Ed.), *Oxford library of psychology. The Oxford handbook of organizational socialization* (pp. 267–287). Oxford Univ. Press.

Klein, H. J., Polin, B., & Sutton, K. L. (2015). Specific Onboarding Practices for the Socialization of New Employees. *International Journal of Selection and Assessment*, *23(*3), 263–283. https://doi.org/10.1111/ijsa.12113

Korte, R., Brunhaver, S., & Sheppard, S. (2015). (Mis)Interpretations of Organizational Socialization: The Expectations and Experiences of Newcomers and Managers. *Human Resource Development Quarterly*, *26*(2), 185–208. https://doi.org/10.1002/hrdq.21206

Korte, R., & Lin, S. (2013). Getting on board: Organizational socialization and the contribution of social capital. *Human Relations*, *66*(3), 407–428. https://doi.org/10.1177/0018726712461927

Korte, R. F. (2009). How newcomers learn the social norms of an organization: A case study of the socialization of newly hired engineers. *Human Resource Development Quarterly*, *20*(3), 285–306. https://doi.org/10.1002/hrdq.20016

Kowtha, N. R. (2018). Organizational socialization of newcomers: The role of professional socialization. *International Journal of Training and Development*, *22*(2), 87–106. https://doi.org/10.1111/ijtd.12120

Landis, J. R., & Koch, G. G. (1977). The Measurement of Observer Agreement for Categorical Data. *Biometrics*, *33*(1), 159–174. https://doi.org/10.2307/2529310

Lapointe, É., Vandenberghe, C., & Boudrias, J.-S. (2014). Organizational socialization tactics and newcomer adjustment: The mediating role of role clarity and affect-based trust relationships. *Journal of Occupational and Organizational Psychology*, *87*(3), 599–624. https://doi.org/10.1111/joop.12065

Lim, Y.-M., Lee, T. H., Yap, C. S., & Ling, C. C. (2016). Employability skills, personal qualities, and early employment problems of entry-level auditors: Perspectives from employers, lecturers, auditors, and students. *Journal of Education for Business*, *91*(4), 185–192. https://doi.org/10.1080/08832323.2016.1153998

Louis, M. R. (1980). Surprise and Sense Making: What Newcomers Experience in Entering Unfamiliar Organizational Settings. *Administrative Science Quarterly*, *25*(2), 226. https://doi.org/10.2307/2392453

Mayring, P. (2014). Qualitative content analysis: theoretical foundation, basic procedures and software solutions. Beltz. https://nbn-resolving.org/urn:nbn:de:0168-ssoar-395173

Mayring, P. (2015). Qualitative Content Analysis: Theoretical Background and Procedures. In A. Bikner-Ahsbahs, C. Knipping, & N. Presmeg (Eds.), *Approaches to Qualitative Research in Mathematics Education* (pp. 365–380). Springer Netherlands. https://doi.org/10.1007/978-94-017-9181-6_13

Meyer, A. M., & Bartels, L. K. (2017). The Impact of Onboarding Levels on Perceived Utility, Organizational Commitment, Organizational Support, and Job Satisfaction. *Journal of Organizational Psychology*, *17*(5), 10–27. https://search.proquest.com/docview/1967314059?accountid=14570

Moon, H. (2018). Unleashing apprenticeship: From onboarding to professional development. *European Journal of Training and Development*, *42*(1-2), 110–124. https://doi.org/10.1108/EJTD-06-2017-0056

Mornata, C., & Cassar, I. (2018). The role of insiders and organizational support in the learning process of newcomers during organizational socialization. *Journal of Workplace Learning*, *30*(7), 562–575. https://doi.org/10.1108/JWL-06-2017-0045

Nifadkar, S. S., & Bauer, T. N. (2016). Breach of belongingness: Newcomer relationship conflict, information, and task-related outcomes during organizational socialization. *The Journal of Applied Psychology*, *101*(1), 1–13. https://doi.org/10.1037/apl0000035

Palinkas, L. A., Horwitz, S. M., Green, C. A., Wisdom, J. P., Duan, N., & Hoagwood, K. (2015). Purposeful Sampling for Qualitative Data Collection and Analysis in Mixed Method Implementation Research. *Administration and Policy in Mental Health*, *42*(5), 533–544. https://doi.org/10.1007/s10488-013-0528-y

Patton, M. Q. (2015). *Qualitative research & evaluation methods: Integrating theory and practice* (Fourth edition). SAGE.

Polach, J. L. (2004). Understanding the experience of college graduates during their first year of employment. *Human Resource Development Quarterly*, *15*(1), 5–23. https://doi.org/10.1002/hrdq.1084

Rausch, A. (2014). Using Diaries in Research on Work and Learning. In C. Harteis, A. Rausch, & J. Seifried (Eds.), *Discourses on Professional Learning* (pp. 341–366). Springer Netherlands. https://doi.org/10.1007/978-94-007-7012-6_17

Sachau, D. A. (2007). Resurrecting the Motivation-Hygiene Theory: Herzberg and the Positive Psychology Movement. *Human Resource Development Review*, *6*(4), 377–393. https://doi.org/10.1177/1534484307307546

Saks, A. M., & Gruman, J. A. (2018). Socialization resources theory and newcomers' work engagement. *Career Development International*, *23*(1), 12–32. https://doi.org/10.1108/CDI-12-2016-0214

Saks, A. M., Uggerslev, K. L., & Fassina, N. E. (2007). Socialization tactics and newcomer adjustment: A meta-analytic review and test of a model. *Journal of Vocational Behavior*, *70*(3), 413–446. https://doi.org/10.1016/j.jvb.2006.12.004

Sharma, G. G., & Stol, K.-J. (2019). Exploring onboarding success, organizational fit, and turnover intention of software professionals. *Journal of Systems and Software*, *159*, 110442. https://doi.org/10.1016/j.jss.2019.110442

Small, M. L., & Cook, J. M. (2021). Using Interviews to Understand Why: Challenges and Strategies in the Study of Motivated Action. *Sociological Methods & Research*, 004912412199555. https://doi.org/10.1177/0049124121995552

Søreide, G. E. (2016). High-skilled newcomers' identity: learners or experts? *Journal of Workplace Learning*, *28*(1), 2–16. https://doi.org/10.1108/JWL-12-2014-0088

Steinmacher, I., Gerosa, M., Conte, T. U., & Redmiles, D. F. (2019). Overcoming Social Barriers When Contributing to Open Source Software Projects. *Computer Supported Cooperative Work (CSCW)*, *28*, 247–290. https://doi.org/10.1007/s10606-018-9335-z

Unson, C., & Richardson, M. (2013). Insights into the experiences of older workers and change: Through the lens of selection, optimization, and compensation. *The Gerontologist*, *53*(3), 484–494. https://doi.org/10.1093/geront/gns095

van Maanen, J., & Schein, E. H. (1979). Toward a Theory of Organizational Socialization. *Research in Organizational Behavior*, *1*, 209–264.

Yin, R. K. (2018). *Case study research and applications: Design and methods* (Sixth edition). SAGE.

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

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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

[16] 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.

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 reduced. 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, 2007; Karasek, 1979; Siegrist, 1996) since decades. In this regard, characteristics of the work tasks, as well as requirements associated with the occupational activity and technical-organizational framework conditions to fulfil 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 (Uribetxebarria 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 (Uribetxebaaria 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 organizational 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 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).

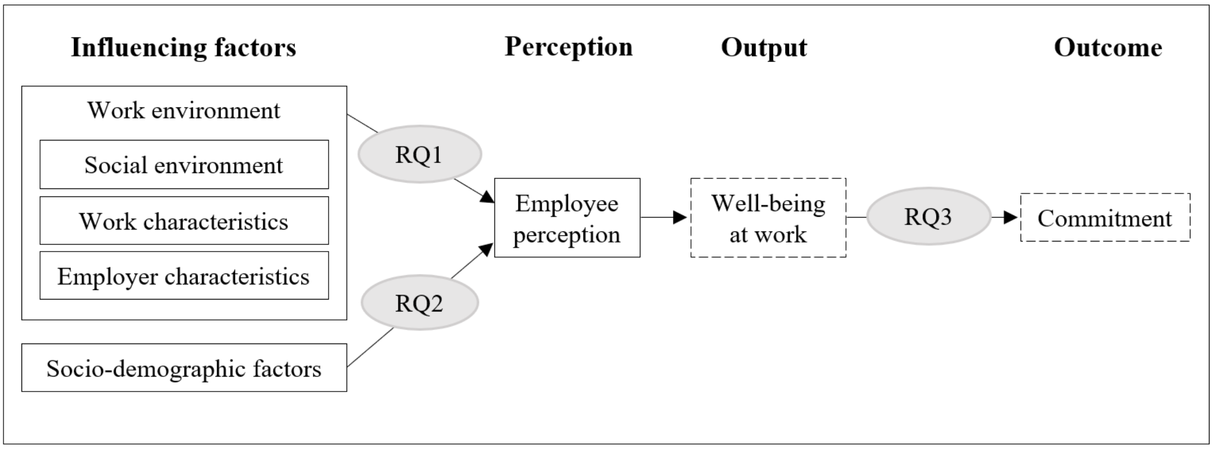

Figure 5.1: Research model (study 3)

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.

Instrument

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)

Criterion	Expression	Sample	Company's workforce
Gender	female	26	25
	male	74	75
Age	≤30 years	18	8
	31–40 years	15	16
	41–50 years	25	28
	51–60 years	33	42
	>60 years	10	6
Professional experience	none	11	Not available
	<5 years	7	
	5–10 years	8	
	11–20 years	15	
	21–30 years	34	
	31–40 years	25	
Seniority	≤5 years	30	25
	6–10 years	16	13
	11–20 years	20	25
	21–30 years	20	29
	>30 years	15	8
Location	Location 1	43	36
	Location 2	26	28
	Location 3	31	36
Organizational unit	Training and development	14	3
	Insurance systems	15	18
	Central systems	19	20
	Corporate management	8	8
	Order management	19	15
	Customer/Partner service	15	14
	Operations	10	22

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 (κ influencing factors = 0.83; individual ranking: κ weighted = 0.81, κ unweighted = 0.83; κ 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).

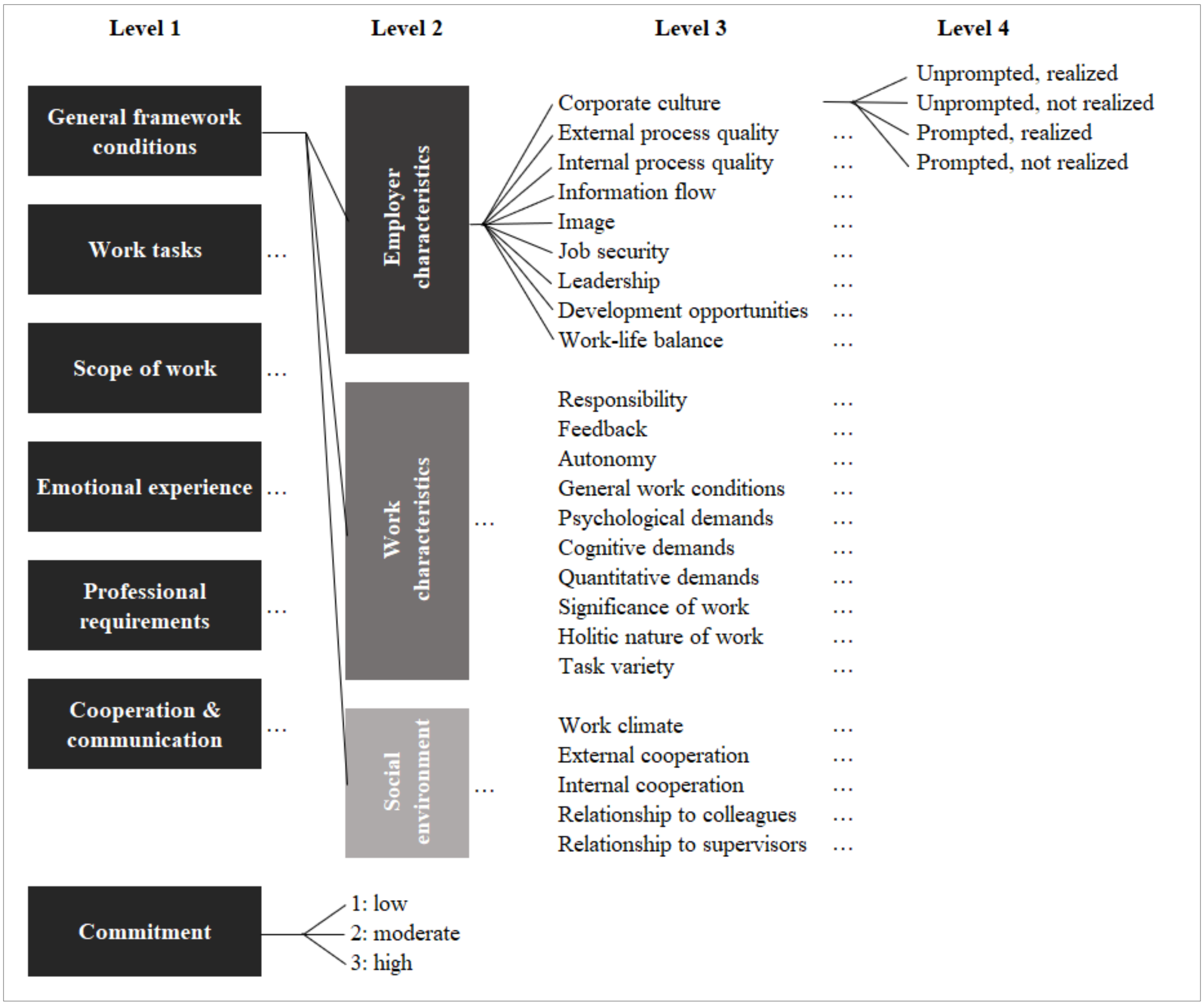

Figure 5.2: Coding system (study 3)

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[17], 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

[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[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

[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.

Influencing factors	Number of codings (N = 58) †		Individual ranking (N = 61) ‡					
	Total	**Adjusted for participant**	**Rank 1**	**Rank 2**	**Rank 3**	**Un-weighted $**	**Weighted $**	**Index $**
Internal cooperation	195	57	66	56	15	137	325	520
Information flow	200	55	28	66	19	113	235	435
Work climate	132	54	46	39	15	100	231	363
Professional development	93	52	17	34	17	68	136	229
Leadership	109	49	13	28	20	61	115	224
Internal process quality	123	54	8	27	16	51	94	217
Work-life balance	96	57	25	14	11	50	114	210
Feedback	91	48	16	29	9	54	115	206
Autonomy	74	46	19	17	12	48	103	177
Quantitative demands	78	50	14	19	10	43	90	168
Working conditions	94	49	6	20	14	40	72	166
Relationship to colleagues	72	48	15	21	7	43	94	166
Cognitive demands	66	41	18	16	5	39	91	157
Psychological demands	73	43	7	13	7	27	54	127
Variety	49	42	13	15	3	31	72	121
Significance	57	47	8	5	14	27	48	105
Corporate culture	52	39	6	4	8	18	34	86
Responsibility	33	33	7	13	5	25	52	85
Relationship to supervisor	44	33	1	5	1	7	14	58
Holistic nature	41	36	3	3	2	8	17	58
Image	45	39	1	1	3	5	8	53
Job security	29	28	4	3	1	8	19	48
External process quality	21	16	2	4	2	8	16	37
External cooperation	14	13	0	2	1	3	5	19
Total:	1,881	-	-	-	-	-	-	-

† 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, statements 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 majority 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 professionals, 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, teamwork, see Figure 5.4). Subsequently, each category was assigned to one of four recommendations for action—namely retain, promote, observe, or optimize—according to its subjective relevance and perceived implementation level. Based on these recommendations for action, suggestions 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-implemented 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 emphasized 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-divisional 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.

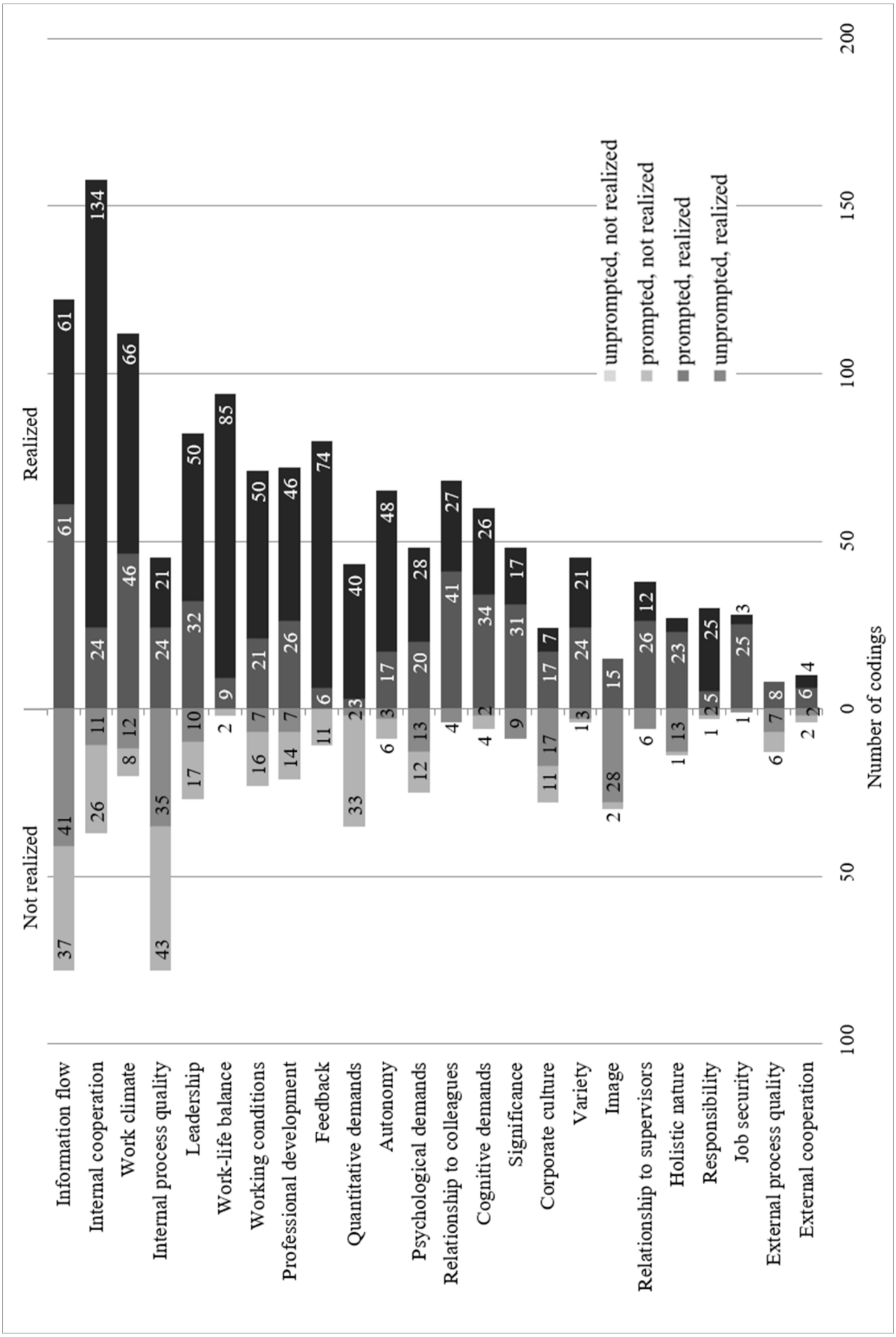

Figure 5.3: Quantitative analysis of subjective relevance and perceived implementation per influencing factor

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 em-

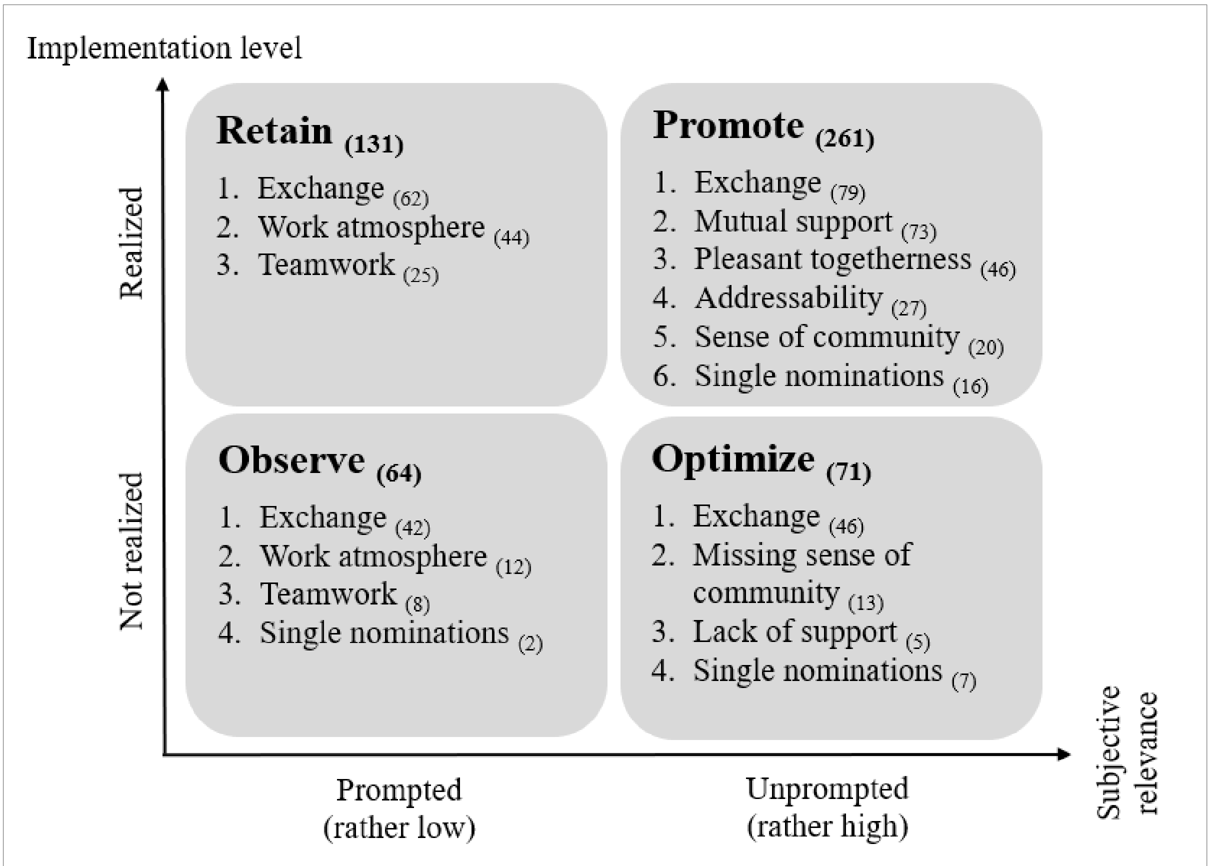

Figure 5.4: Recommended actions for aspects of internal cooperation, information flow, and work climate, sorted by number of codings

ployee 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 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)

Sociodemographic factor	**Gender**		**Age (in years)**					**Professional experience (in years)**						**Seniority (in years)**					**In training and development**	
Specification (No. of participants)	**Female (16)**	**Male (45)**	**≤30 (11)**	**31-40 (9)**	**41-50 (15)**	**51-60 (20)**	**>60 (6)**	**None (7)**	**<5 (4)**	**5-10 (5)**	**11-20 (9)**	**21-30 (21)**	**31-40 (15)**	**≤5 (17)**	**6-10 (11)**	**11-20 (12)**	**21-30 (12)**	**>30 (9)**	**Yes (8)**	**No (53)**
Influencing factors (sorted by index)																				
Internal cooperation	**1**	2	2	2	2	**1**	**1**	2	2	**1**	**1**	2	**1**	2	**1**	**1**	**1**	3	2	**1**
Information flow	2	**1**	**1**	**1**	**1**	2	2	**1**	**1**	2	**1**	**1**	2	**1**	**1**	2	2	**1**	**1**	2
Work climate		3	3					2	3			3		3	3	3			3	
Professional development								3												
Leadership				3					3	3	2				2					
Internal process quality	3			3		3	3			3	3		3			3		2		3
Work-life balance																				
Feedback					3															
Autonomy																				
Quantitative demands																				
Working conditions																	3			
Relationship to colleagues																				

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.

Commitment	negative	satisfactory	positive
high	7	30	8
moderate	0	9	1
low	2	1	0
	Employees' perception of the work environment		

Figure 5.5: Perception matrix

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 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

Aalto, A.-M., Heponiemi, T., Josefsson, K., Arffman, M., and Elovainio, M. (2018). Social relationships in physicians' work moderate relationship between workload and wellbeing-9-year follow-up study. *Eur. J. Public Health* 28, 798–804. doi: 10.1093/eurpub/ckx232

Agarwal, P., and Sajid, S. M. (2017). A study of job satisfaction, organizational commitment and turnover intention among public and private sector employees. *J. Manage. Res.* 17, 123–136. Available online at: http://web.b.ebscohost.com/ehost/detail/detail?vid=1&sid=f3ce0c59-1e9c-4bed-8fcc-597bdf97747a%40sessionmgr101&bdata=JnNpdGU9ZWhvc3QtbGl2ZQ%3d%3d#AN=127108456&db=buh

Aggarwal-Gupta, M., Vohra, N., and Bhatnagar, D. (2010). Perceived organizational support and organizational commitment: The mediational influence of psychological well-being. *J. Bus. Manage.* 16, 105–124. Available online at: http://web.a.ebscohost.com/ehost/

pdfviewer/pdfviewer?vid=0&sid=a57ba944-6645-4c42-acd2-4fb1218bd584%40ses-sionmgr4008

Albrecht, S. L. (2012). The influence of job, team and organizational level resources on employee well-being, engagement, commitment and extra-role performance. *Int. J. Manpow*. 33, 840–853. doi: 10.1108/01437721211268357

Alegre, I., Mas-Machuca, M., and Berbegal-Mirabent, J. (2016). Antecedents of employee job satisfaction: do they matter? *J. Bus. Res.* 69, 1390–1395. doi: 10.1016/j.jbusres.2015.10.113

Bakker, A. B., and Demerouti, E. (2007). The Job Demands-Resources model: state of the art. *J. Manage. Psychol.* 22, 309–328. doi: 10.1108/02683940710733115

Bell, P. A., and Sundstrom, E. D. (1997). "Environmental psychology: evolution and current status," in *States of Mind: American and Post-Soviet Perspectives on Contemporary Issues in Psychology*, eds D. F. Halpern and A. Voiskunskii (New York, NY: Oxford University Press), 373–390.

Bianchi, R., Manzano-García, G., and Rolland, J.-P. (2021). Is burnout primarily linked to work-situated factors? A relative weight qnalytic study. *Front. Psychol.* 11:623912. doi: 10.3389/fpsyg.2020.623912

Bowling, N. A., Eschleman, K. J., and Wang, Q. (2010). A meta-analytic examination of the relationship between job satisfaction and subjective wellbeing. *J. Occup. Organ. Psychol*. 83, 915–934. doi: 10.1348/096317909X478557

Bryson, J., Pajo, K., Ward, R., and Mallon, M. (2006). Learning at work: organisational affordances and individual engagement. *J. Workplace Learn*. 18, 279–297. doi: 10.1108/13665620610674962

Buffet, M.-A., Gervais, R. L., Liddle, M., and Eeckelaert, L. (2013). *Well-Being at Work: Creating a Positive Work Environment. Literature Review. Luxembourg.* European Agency for Safety and Health at Work. doi: 10.2802/52064. Available online at: https://op.europa.eu/en/publication-detail/-/publication/9aec8ad1-a02c-4853-95eb-d8ef0b3ff94f/language-en (accessed July 14, 2021).

Cannas, M., Sergi, B. S., Sironi, E., and Mentel, U. (2019). Job satisfaction and subjective well-being in Europe. *Econ. Soc*. 12, 183–196. doi: 10.14254/2071-789X.2019/12-4/11

Chang, M.-L., and Cheng, C.-F. (2014). How balance theory explains high-tech professionals' solutions of enhancing job satisfaction. *J. Bus. Res*. 67, 2008–2018. doi: 10.1016/j.jbusres.2013.10.010

Chiang, C.-F., and Wu, K.-P. (2014). The influences of internal service quality and job standardization on job satisfaction with supports as mediators: flight attendants at branch workplace. *Int. J. Hum. Resour. Manage*. 25, 2644–2666. doi: 10.1080/09585192.2014.884616

Chirumbolo, A., Urbini, F., Callea, A., Lo Presti, A., and Talamo, A. (2017). Occupations at risk and organizational well-being: an empirical test of a job insecurity integrated model. *Front. Psychol*. 8:2084. doi: 10.3389/fpsyg.2017.02084

Christiansen, N., Sliter, M., and Frost, C. T. (2014). What employees dislike about their jobs: relationship between personality-based fit and work satisfaction. *Pers. Individ. Dif*. 71, 25–29. doi: 10.1016/j.paid.2014.07.013

Culibrk, J., Deli´c, M., Mitrovi´c, S., and Culibrk, D. (2018). Job satisfaction, organizational commitment and job involvement: the mediating role of job involvement. *Front. Psychol*. 9:132. doi: 10.3389/fpsyg.2018.00132

DeNeve, J.-E., Diener, E., Tay, L., and Xuereb, C. (2013). "The objective benefits of subjective well-being," in *World Happiness Report 2013*, eds J. F. Helliwell, R. Layard, and J. Sachs (New York: UN Sustainable Network Development Solutions Network), 54–79.

DeYoung, R. K. (1999). “Environmental psychology,” in *Encyclopedia of Environmental Science*, eds D. E. Alexander and R. W. Fairbridge (Hingham, MA: Kluwer Academic Publishers), 223–224.

DeYoung, R. K. (2013). “Environmental psychology overview,” in *Series in Applied Psychology. Green Organizations: Driving Change with I-O Psychology,* eds A. H. Huffman and S. R. Klein (New York: Routledge), 17–33.

Di Fabio, A. (2017). The psychology of sustainability and sustainable development for well-being in organizations. *Front. Psychol*. 8:1534. doi: 10.3389/fpsyg.2017.01534

Diener, E., Heintzelman, S. J., Kushlev, K., Tay, L., Wirtz, D., Lutes, L. D., and Oishi, S. (2017). Findings all psychologists should know from the new science on subjective well-being. *Canad. Psychol*. 58, 87–104. doi: 10.1037/cap0000063

Diener, E., Oishi, S., and Tay, L. (2018). Advances in subjective well-being research. *Nat. Hum. Behav*. 2, 253–260. doi: 10.1038/s41562-018-0307-6

Eiffe, F., Ponocy, I., Gärtner, K., and Till, M. (2016). *Analytic Report on Subjective Well-Being (Statistical Working Papers)*. Luxembourg: Eurostat. Available online at: https://ec.europa.eu/eurostat/de/web/products-statistical-workingpapers/-/KS-TC-16-005 (accessed July 14, 2021).

Fisher, C. D. (2010). Happiness at work. *Int. J. Manage. Rev.* 12, 384–412. doi: 10.1111/j.1468-2370.2009.00270.x

Fox, A., Deaney, R., and Wilson, E. (2010). Examining beginning teachers’ perceptions of workplace support. *J. Workplace Learn.* 22, 212–227. doi: 10.1108/13665621011040671

Frazier, M. L., Fainshmidt, S., Klinger, R. L., Pezeshkan, A., and Vracheva, V. (2017). Psychological safety: a meta-analytic review and extension. *Pers. Psychol*. 70, 113–165. doi: 10.1111/peps.12183

Fuller, A., and Unwin, L. (2004). “Expansive learning environments. Integrating organizational and personal development,” in *Workplace Learning in Context,* eds H. Rainbird, A. Fuller, and A. Munro (London; New York, NY: Routledge), 126–144.

García-Buades, M. E., Peiró, J. M., Montañez-Juan, M. I., Kozusznik, M. W., and Ortiz-Bonnín, S. (2020). Happy-productive teams and work units: a systematic review of the ’happy-productive worker thesis’. *Int. J. Environ. Res. Public Health* 17:69. doi: 10.3390/ijerph 17010069

Goller, M. (2017). *Human Agency at Work: An Active Approach Towards Expertise Development.* Wiesbaden: Springer.

Gruman, J. A., and Saks, A. M. (2013). “Organizational socialization and newcomers’ psychological capital and well-being,” in *Advances in Positive Organizational Psychology,* ed A. B. Bakker (Bingley, UK: Emerald), 211–236.

Hacker, W. (1973). *Allgemeine Arbeits- und Ingenieurspsychologie: Psychische Struktur und Regulation von Arbeitstätigkeiten [General Work and Engineering Psychology: Psychological Structure and Regulation of Work Activities].* Berlin: Deutscher Verlag der Wissenschaften.

Hacker, W. (2003). Action regulation theory: a practical tool for the design of modern work processes? *Eur. J. Work Organ. Psychol*. 12, 105–130. doi: 10.1080/13594320344000075

Hacker, W. (2020). *Psychische Regulation von Arbeitstätigkeiten 4.0. [Psychological Regulation of Work Activities 4.0].* Mensch - Technik - Organisation: v.51. Zürich: vdf Hochschulverlag AG.

Hackman, J. R., and Oldham, G. R. (1974). *The Job Diagnostic Survey. An Instrument for the Diagnosis of Jobs and the Evaluation of Job Redesign Projects*. New Haven, CT: Yale University.

Herrera, J., and De Las Heras-Rosas, C. (2021). The organizational commitment in the company and its relationship with the psychological contract. *Front. Psychol.* 11:609211. doi: 10.3389/fpsyg.2020.609211

Hoekstra, A., Korthagen, F., Brekelmans, M., Beijaard, D., and Imants, J. (2009). Experienced teachers' informal workplace learning and perceptions of workplace conditions. *J. Workplace Learn.* 21, 276–298. doi: 10.1108/13665620910954193

Huang, Y.-H., Lee, J., McFadden, A. C., Murphy, L. A., Robertson, M.M., Cheung, J. H., and Zohar, D. (2016). Beyond safety outcomes: an investigation of the impact of safety climate on job satisfaction, employee engagement and turnover using social exchange theory as the theoretical framework. *Appl. Ergon*. 55, 248–257. doi: 10.1016/j.apergo.2015.10.007

Jain, A. K., Giga, S. I., and Cooper, C. L. (2009). Employee wellbeing, control and organizational commitment. *Leader. Organ. Dev. J*. 30, 256–273. doi: 10.1108/01437730910949535

Jenkins, A., and Mostafa, T. (2015). The effects of learning on wellbeing for older adults in England. *Ageing Soc.* 35, 2053–2070. doi: 10.1017/S0144686X14000762

Jeong, S., Han, S. J., Lee, J., Sunalai, S., and Yoon, S. W. (2018). Integrative literature review on informal learning: antecedents, conceptualizations, and future directions. *Hum. Resour. Dev. Rev.* 17, 128–152. doi: 10.1177/1534484318772242

Karasek, R. A. Jr. (1979). Job demands, job decision latitude, and mental strain: implications for job redesign. *Admin. Sci.Q.* 24, 285–308. Retrieved fromhttp://www.jstor.com/stable/2392498

Klein, H. J., Cooper, J. T., Molloy, J. C., and Swanson, J. A. (2014). The assessment of commitment: advantages of a unidimensional, target-free approach. *J. Appl. Psychol.* 99, 222–238. doi: 10.1037/a0034751

Koslowsky, M., Weisberg, J., Yaniv, E., and Zaitman-Speiser, I. (2012). Ease of movement and sector affiliation as moderators of the organizational and career commitment. *Int. J. Manpow*. 33, 822–839. doi: 10.1108/01437721211268348

Krueger, R. A. (1999). *Analyzing and Reporting Focus Group Results. Focus Group Kit, Vol. 6*. Thousand Oaks, CA: SAGE.

Kuhn, P., and Yu, L. (2021). How costly is turnover? Evidence from retail. *J. Labor Econ.* 39, 461–496. doi: 10.1086/710359

Lancaster, S., and Di Milia, L. (2014). Organisational support for employee learning. *Eur. J. Train. Dev.* 38, 642–657. doi: 10.1108/EJTD-08-2013-0084

Louws, M. L., Meirink, J. A., van Veen, K., and van Driel, J. H. (2016). Exploring the relation between teachers' perceptions of workplace conditions and their professional learning goals. *Prof. Dev. Educ.* 43, 770–788. doi: 10.1080/19415257.2016.1251486

Mayring, P. (2014). *Qualitative Content Analysis: Theoretical Foundation, Basic Procedures and Software Solutions.* Klagenfurt: Beltz. Available online at: https://nbn-resolving.org/urn:nbn:de:0168-ssoar-395173 (accessed July 14, 2021).

Mayring, P. (2015). "Qualitative content analysis: theoretical background and procedures," in *Approaches to Qualitative Research in Mathematics Education*, eds A. Bikner-Ahsbahs, C. Knipping, and N. Presmeg (Dordrecht: Springer Netherlands), 365–380.

Morgeson, F. P., and Humphrey, S. E. (2006). The Work Design Questionnaire (WDQ): developing and validating a comprehensive measure for assessing job design and the nature of work. *J. Appl. Psychol.* 91, 1321–1339. doi: 10.1037/0021-9010.91.6.1321

Mousteri, V., Daly, M., and Delaney, L. (2018). The scarring effect of unemployment on psychological well-being across Europe. *Soc. Sci. Res.* 72, 146–169. doi: 10.1016/j.ssresearch.2018.01.007

Mowday, R. T., Steers, R. M., and Porter, L. W. (1979). The measurement of organizational commitment. *J. Vocat. Behav.* 14, 224–247. doi: 10.1016/0001-8791(79)90072-1

Nohl, A.-M. (2013). *Interview und Dokumentarische Methode*. Wiesbaden: VS Verlag für Sozialwissenschaften. doi: 10.1007/978-3-531-19421-9

O'Connell, M., and Kung, M. (2007). The cost of employee turnover. *Ind. Manage.* 49, 14–19. Available online at: https://www.proquest.com/docview/211624856/abstract/69AB1314E14978PQ/5?accountid=14570

Oliver, D. G., Serovich, J. M., and Mason, T. L. (2005). Constraints and opportunities with interview transcription: towards reflection in qualitative research. *Soc. Forces* 84, 1273–1289. doi: 10.1353/sof.2006.0023

Olsen, E., Bjaalid, G., and Mikkelsen, A. (2017). Work climate and the mediating role of workplace bullying related to job performance, job satisfaction, and work ability: a study among hospital nurses. *J. Adv. Nurs.* 73, 2709–2719. doi: 10.1111/jan.13337

Patel, R. S., Bachu, R., Adikey, A., Malik, M., and Shah, M. (2018). Factors related to physician burnout and its consequences: a review. *Behav. Sci*. 8:98. doi: 10.3390/bs8110098

Patton, M. Q. (2015). *Qualitative Research and Evaluation Methods: Integrating Theory and Practice, 4th Edn.* Los Angeles; London; New Delhi; Singapore; Washington, DC: SAGE.

Peiró, J. M., Kozusznik, M. W., Rodríguez-Molina, I., and Tordera, N. (2019). The happy-productive worker model and beyond: patterns of wellbeing and performance at work. *Int. J. Environ. Res. Public Health* 16:479. doi: 10.3390/ijerph16030479

Pot, F. D. (2017). "Workplace innovation and wellbeing at work," in *Aligning Perspectives on Health, Safety and Well-Being. Workplace Innovation: Theory, Research and Practice*, eds P. R. Oeij, D. Rus, and F. D. Pot (Cham: Springer International Publishing) 95–110.

Scharp, Y. S., Breevaart, K., Bakker, A. B., and van der Linden, D. (2019). Daily playful work design: a trait activation perspective. *J. Res. Pers.* 82:103850. doi: 10.1016/j.jrp.2019.103850

Schulte, P., and Vainio, H. (2010). Well-being at work - overview and perspective. *Scand. J. Work Environ. Health* 36, 422–429. doi: 10.5271/sjweh.3076

Schürmann, E., and Beausaert, S. (2016). What are drivers for informal learning? *Eur. J. Train. Dev.* 40, 130–154. doi: 10.1108/EJTD-06-2015-0044

Siegrist, J. (1996). Adverse health effects of high-effort/low-reward conditions. *J. Occup. Health Psychol.* 1, 27–41.

Steffgen, G., Sischka, P. E., and Fernandez de Henestrosa,M. (2020). The quality of work index and the quality of employment index: a multidimensional approach of job quality and its links to well-being at work. *Int. J. Environ. Res. Public Health* 17:7771. doi: 10.3390/ijerph17217771

Tanwar, K., and Prasad, A. (2016). The effect of employer brand dimensions on job satisfaction: gender as a moderator. *Manage. Decis.* 54, 854–886. doi: 10.1108/MD-08-2015-0343

Taylor, P., McLoughlin, C., Meyer, D., and Brooke, E. (2013). Everyday discrimination in the workplace, job satisfaction and psychological wellbeing: age differences and moderating variables. *Ageing Soc*. 33, 1105–1138. doi: 10.1017/S0144686X12000438

Trivellas, P., Akrivouli, Z., Tsifora, E., and Tsoutsa, P. (2015). The impact of knowledge sharing culture on job satisfaction in accounting firms. The mediating effect of general competencies. *Proc. Econ. Fin*. 19, 238–247. doi: 10.1016/S2212-5671(15)00025-8

Uribetxebarria, U., Gago,M., Legarra,M., and Elorza, U. (2020). The link between HIWPs and well-being at work: the mediating role of trust. *Employ. Relat. Int. J.* 43, 842–857. doi: 10.1108/ER-05-2020-0223

Van der Heijden, B. I. J. M., Houkes, I., van den Broeck, A., and Czabanowska, K. (2020). "I just can't take it anymore": how specific work characteristics impact younger versus older nurses' health, satisfaction, and commitment. *Front. Psychol*. 11:762. doi: 10.3389/fpsyg.2020.00762

Van der Rijt, J., van den Bossche, P., van de Wiel, M. W. J., Maeyer, S., de, Gijselaers, W. H., and Segers, M. S. R. (2013). Asking for help: a relational perspective on help seeking in the workplace. *Vocat. Learn*. 6, 259–279. doi: 10.1007/s12186-012-9095-8

Van Wingerden, J., Bakker, A. B., and Derks, D. (2017). The longitudinal impact of a job crafting intervention. Eur. J. Work Organ. Psychol. 26, 107–119. doi: 10.1080/1359432X.2016.1224233

Vitale, D. C., Armenakis, A. A., and Feild, H. S. (2008). Integrating qualitative and quantitative methods for organizational diagnosis. *J. Mix. Methods Res*. 2, 87–105. doi: 10.1177/1558689807309968

Volpert, W. (1983). "Das Modell der hierarchisch-sequentiellen Handlungsorganisation. [The model of hierarchical-sequential action organization]," in *Kognitive und Motivationale Aspekte der Handlung. [Cognitive and Motivational Aspects of Action]*, eds W. Hacker, W. Volpert, and M. von Cranach (Bern: Huber), 38–58.

Vonderlin, R., Schmidt, B., Müller, G., Biermann, M., Kleindienst, N., Bohus, M., and Lyssenko, L. (2021). Health-oriented leadership and mental health from supervisor and employee perspectives: a multilevel and multisource approach. *Front. Psychol*. 11:614803. doi: 10.3389/fpsyg.2020.614803

Wright, T. A., and Bonett, D. G. (2007). Job satisfaction and psychological wellbeing as nonadditive predictors of workplace turnover. *J. Manage*. 33, 141–160. doi: 10.1177/0149206306297582

Yin, R. K. (2018). *Case Study Research and Applications: Design and Methods, 6th Edn.* Los Angeles; London; New Dehli; Singapore; Washington DC; Melbourne: SAGE.

Zboralski, K. (2009). Antecedents of knowledge sharing in communities of practice. *J. Knowl. Manage*. 13, 90–101. doi: 10.1108/13673270910962897

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)*.[19] The publication is available at https://doi.org/10.1007/s11612-022-00657-2

6.1 Einführung zur Bedeutsamkeit organisationalen Knowledge Sharings

Der Austausch arbeitsbezogenen Wissens (Knowledge Sharing) erfuhr bereits 1996 mit Grant's „knowledge-based view" (S. 110) besondere Aufmerksamkeit. Grant forderte Organisationen auf, Arbeitsumgebungen zu schaffen, in denen Mitarbeitende ihr Wissen vernetzen, ausbauen und effektiv nutzen können. Ziel müsse sein, optimale Lern- und Austauschbedingungen für die Mitarbeitenden zu gestalten, sodass langfristig auch auf organisationaler Ebene von deren Entwicklung profitiert werden kann (Antunes und Pinheiro, 2020). Aktuelle Studien belegen die positiven Effekte einer den Wissensaustausch begünstigenden Gestaltung von Arbeitsumgebungen: Auf individueller Ebene können Mitarbeitende durch gut funktionierendes Knowledge Sharing tätigkeitsbezogenes Wissen entwickeln. Dies unterstützt sie bei der erfolgreichen Bewältigung ihrer Arbeitsaufgaben und fördert ihr individuelles Wohlbefinden (Zutavern und Seifried 2021). Ferner wirken sich Möglichkeiten zum Teilen von Wissen positiv auf die Arbeitszufriedenheit der Beschäftigten aus (Kianto et al. 2016) und reduzieren das Risiko, an Burnout zu erkranken (Bianchi et al. 2021). Über die individuelle Ebene hinaus hat Knowledge Sharing auch auf Team- und Organisationsebene positive Effekte. Beispielsweise fördert das Teilen von Wissen die Vertrauensbasis zwischen den Mitarbeitenden, was sich seinerseits günstig auf deren Zusammenarbeit auswirkt (Alsharo et al. 2017). So erweisen sich Teams, die Wissen untereinander teilen, als besonders produktiv (Jamshed und Majeed, 2019) und innovativ (Cheung et al. 2016; Kucharska 2021). Auch auf Organisationsebene werden Lernprozesse in Gang gesetzt, wenn Mitarbeitende innerhalb ihrer Teams und teamübergreifend Wissen teilen

[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.

Um die skizzierten positiven Entwicklungen für Mitarbeitende und Organisation zu fördern, gilt es die organisationalen Rahmenbedingungen kontinuierlich zu evaluieren und bestmögliche Austauschbedingungen für Mitarbeitende zu schaffen. Detaillierte Hinweise zur Gestaltung günstiger Austauschbedingungen können u. a. Mitarbeitende der operativen Ebene liefern (für erste Befunde siehe Gentner et al. im Druck). Studien, die an der betrieblichen Praxis der Mitarbeitenden orientiert sind und den Prozess des Knowledge Sharings näher in den Blick nehmen, fehlen jedoch derzeit. Insbesondere negative Erfahrungen mit organisationalem Knowledge Sharing bleiben weitgehend unberücksichtigt (Ahmad und Karim 2019). Dabei kann durch die Beachtung negativer Erfahrungen aus dem Arbeitsalltag der Mitarbeitenden wertvolles Potenzial zur Optimierung der betreffenden Prozesse geborgen und – bei adäquater Umsetzung dieser Potenziale – das Wohlbefinden der Mitarbeitenden gesteigert werden (Geddes et al. 2020). Mit der vorliegenden Untersuchung wird solch ein konstruktiver Umgang mit Herausforderungen im Arbeitsprozess verfolgt, indem das Augenmerk auf Schwierigkeiten bei der Weitergabe arbeitsbezogenen Wissens liegt. Um wahrgenommene Hürden für organisationales Knowledge Sharing möglichst prozessorientiert zu erfassen, wurde über die Schilderung konkreter Vorkommnisse (Critical Incidents) zunächst untersucht, in welchen Situationen das Teilen von Wissen im Arbeitsalltag der Mitarbeitenden scheitert (RQ 1). Darüber hinaus wurden die Mitarbeitenden gefragt, welche sonstigen Herausforderungen sie im Zusammenhang mit dem Teilen von Wissen erleben (RQ 2). Schließlich sollten die Mitarbeitenden schildern, welche Potenziale ihrer Meinung nach bestehen, um das Teilen von Wissen zu fördern (RQ 3). Indem prozessorientierte und individuelle Erfahrungen der Mitarbeitenden berücksichtigt werden, kann es gelingen, potenzielle Hürden für organisationales Knowledge Sharing abzubauen und den innerbetrieblichen Wissensaustausch sowie das arbeitsplatzbezogene Lernen zu unterstützen.

6.2 Theoretische Überlegungen zu Knowledge Sharing

Zentral für die Analyse potenzieller Hürden beim organisationalen Knowledge Sharing ist die Definition des zugrundeliegenden Wissensbegriffs. Zu diesem Zweck empfiehlt es sich, Wissen zunächst von Daten und Informationen abzugrenzen (Davenport und Prusak 2010): Die drei Begriffe – Daten, Informationen und Wissen – sind aufeinander aufbauende Konzepte, die in der genannten Reihenfolge stufenweise an Komplexität gewinnen (Davenport und Prusak 2010). ***Daten*** sind das am wenigsten komplexe Konzept. Bestehend aus einer Kombination von

Zeichen (North 2021) bilden sie objektive Fakten, die keine immanente Bedeutung haben (Davenport und Prusak 2010). Erst durch weitere Verarbeitungsschritte, wie z.B. die Kombination oder Kategorisierung mehrerer Daten, erhalten sie einen Kontext und werden bedeutsam (Davenport und Prusak 2010), sodass auf dieser Ebene von ***Informationen*** gesprochen wird (Krcmar 2015). Informationen können im Rahmen des generierten Bedeutungskontextes interpretiert werden, wodurch sie zum Aufbau einer Entscheidungsgrundlage für konkrete Handlungen beitragen (North 2021). Dieser Verarbeitungsprozess ist stets situativ (Søndergaard et al. 2007) und erfolgt auf Basis individueller Erfahrungen, Ideen, Expertise, Einstellungen, Perspektiven und Intentionen (Davenport und Prusak 2010; Nonaka und Takeuchi 1995; Wang und Noe 2010). Durch die Verarbeitung von Informationen wird wiederum eine höhere Komplexitätsstufe erreicht, und man spricht nun von ***Wissen***. Lässt sich das generierte Wissen einfach kodifizieren, d.h. in Wort und Zahl ausdrücken, kann es gut kommuniziert werden (***explizites*** Wissen, Nonaka und Takeuchi 1995). ***Implizites*** Wissen lässt sich hingegen nur schwer kodifizieren und kommunizieren. Da es neben den Fähigkeiten und Fertigkeiten einer Person (Know-how) auch dessen individuelle Schemata, mentalen Modelle sowie Überzeugungen und Wahrnehmungen umfasst, ist es sehr ***individuell*** (Nonaka und Takeuchi 1995). Kollektives Wissen – im Organisationskontext auch als ***organisationales*** Wissen bezeichnet – umfasst zusätzlich gemeinsame Regeln, Werte und Einstellungen, die sich durch das „Zusammenwirken einer Vielzahl von Entscheidungsbedingungen, zumeist Interaktionen zwischen den betrieblichen Akteuren“ entwickelt haben (Pawlowsky, 2019, S. 110).

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.[20] 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

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

ihrer organisationalen Tätigkeit anwenden (Knowledge Transfer nach Wang und Noe 2010 oder Wissensnutzung nach Probst et al. 2012), ist separat zu betrachten.[21] Der wechselseitige Austauschprozesse zwischen den Mitarbeitenden selbst, kann jedenfalls durch die Gestaltung der Arbeitsumgebung beeinflusst werden. In Abhängigkeit von der Ausprägung der Merkmale einer Arbeitsumgebung ergibt sich eine Gesamtkonzeption, die Lernen – beispielsweise durch das Teilen von Wissen – begünstigt oder hemmt. Fuller und Unwin (2004) unterscheiden diesbezüglich expansive und restriktive Lernumgebungen (LU), wobei expansive LU als lernförderlich gelten. Typische Merkmale expansiver LU sind die Anerkennung von und der Zugang zu Wissen und Expertise, die Verfügbarkeit nötiger Ressourcen und Unterstützung der Führungskraft zur individuellen Entwicklung sowie die Verankerung intra- und interdisziplinären Lernens in der Organisationskultur. In restriktiven LU werden die benannten Merkmale hingegen vernachlässigt oder gar nicht realisiert, wodurch Mitarbeitenden der Zugang zu Wissen, Lerngelegenheiten und Entwicklung erschwert wird.[22] Anknüpfend an Fuller und Unwin belegt Kankaraš (2021) in einer europaweiten Erhebung, dass LU, in denen informelles Lernen überdurchschnittlich ausgeprägt ist, die Mitarbeiterzufriedenheit und Organisationsperformance fördern. Da der wechselseitige Austausch zwischen Organisationsmitgliedern ein wesentlicher Bestandteil informeller Lernaktivitäten ist, verdeutlichen die Befunde die Relevanz organisationalen Knowledge Sharings für Mitarbeitende und Organisation.

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 agilem, konstruktiv-disruptivem Arbeiten sind häufig interdisziplinäre Lösungsansätze gefragt, die ein komplexes Zusammenarbeiten innerhalb der Organi-

[21] Das Bausteinmodell nach Probst und Kollegen (2012) bietet eine Übersicht über die zentralen Prozesse des organisationalen Wissensmanagements. In seiner Gänze verdeutlicht das Modell die komplexen Interdependenzen der einzelnen Bausteine und betont die Relevanz einer metaperspektivischen Verortung des Wissensmanagements durch eine strategische Ausrichtung und Evaluation des implementierten Wissensmanagementkonzeptes. Eine vergleichende Übersicht einschlägiger Modelle des Wissensmanagements – darunter auch das Bausteinmodell nach Probst und Kollegen (2012) – liefert North (2021).

[22] Weitere Modelle, in denen die Arbeitsumgebung als Lernumgebung beschrieben wird, sind bspw. Tynjälä's 3-P Modell (2013) sowie dessen Erweiterung zum i-PPP Modell durch Gruber und Harteis (2018), Eraut's Two-Triangle-Modell (2004) oder auch Billet's Modell der Co-participation at Work (2001).

sation erfordern. Ein gut funktionierender Wissensaustausch kann die Mitarbeitenden unterstützen, diesen Anforderungen gerecht zu werden. Die Ergebnisse vorangegangener Forschungsprojekte mit dem IT-Dienstleister zeugen von einer guten Arbeitsatmosphäre, in der Probleme thematisiert werden können, und Veränderungsprozesse auch auf strategischer Ebene unterstützt werden (Gentner et al. im Druck; Zutavern und Seifried 2021).

Zur Beantwortung der in Abschnitt 1 explizierten Forschungsfragen wurden 30 Mitarbeitende des IT-Dienstleisters zu Schwierigkeiten beim Teilen von Wissen befragt. Im Rahmen leitfadengestützter Interviews berichteten die Fachkräfte über Critical Incidents (Flanagan 1954), in welchen Situationen ihres Arbeitsalltages bzw. unter welchen Bedingungen das Teilen von Wissen scheitert (RQ1). Darüber hinaus erläuterten sie Herausforderungen, die sie beim Teilen von Wissen erleben (RQ2), und Potenziale, um das Teilen von Wissen zu fördern (RQ3) (Der Interviewleitfaden ist dieser Arbeit in Anhang B beigefügt). Durch das qualitative Untersuchungsdesign konnten individuelle Eindrücke aus der Arbeitsrealität der Mitarbeitenden (Patton 2015; Yin 2018) und konkrete Verhaltensweisen beim Teilen von Wissen erfasst werden. Solch praxisbezogene Schilderungen sind zum einen enorm wertvoll, um Hürden für organisationales Knowledge Sharing zu identifizieren, da sie die subjektiv wahrgenommenen Schwierigkeiten der Betroffenen abbilden. Zum anderen konnten anhand der individuellen Erfahrungen konkrete Potenziale zur Optimierung des Wissensaustauschs identifiziert werden. Verbesserungsvorschläge der Mitarbeitenden bei der Gestaltung des betrieblichen Wissensmanagements zu berücksichtigen, kann die Akzeptanz für veränderte oder neue Maßnahmen und Prozesse erhöhen und damit deren erfolgreiche Implementierung begünstigen. Zur Beantwortung der Forschungsfragen war es folglich zielführend, die Arbeitsrealität der Mitarbeitenden möglichst authentisch zu erfassen, sodass ein qualitatives Erhebungsdesign angemessen schien.

Die Teilnehmenden wurden über ein vom Unternehmen versendetes Informationsschreiben gewonnen. Hierin wurde die gesamte Belegschaft über das Forschungsvorhaben informiert. Interessierte Mitarbeitende wurden gebeten, sich zur Terminkoordination direkt mit dem Forschungsteam in Verbindung zu setzen. Die finale Stichprobe (N = 30) umfasst Mitarbeitende aller drei Organisationsstandorte und aller sieben Organisationseinheiten. Zehn Teilnehmende haben disziplinarische Führungsverantwortung. In der Stichprobe sind 13 weibliche und 17 männliche Teilnehmende vertreten. Mitarbeitende über 50 Jahre sind im Vergleich zu den jüngeren Altersgruppen überrepräsentiert (n = 17). Die Altersstruktur spiegelt sich in der Berufserfahrung der Teilnehmenden wider (12 Teilnehmende weisen mehr als 30 Jahre Berufserfahrung auf).

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).

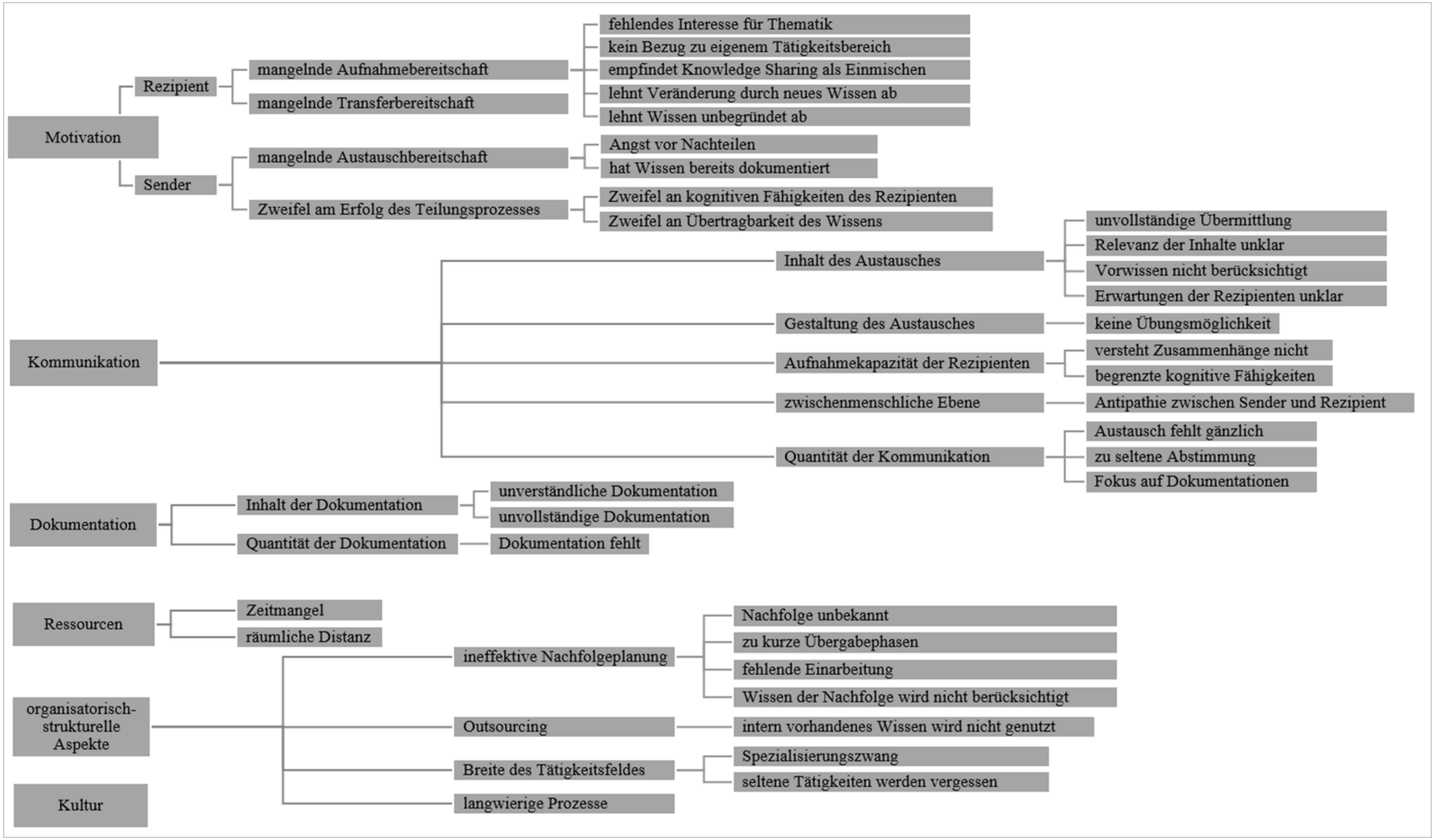

Figure 6.1: Aggregierte Übersicht kodierter Hürden vor, während und nach organisationalem Knowledge Sharing [Aggregated overview of coded barriers before, during, and after organizational knowledge sharing]

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.

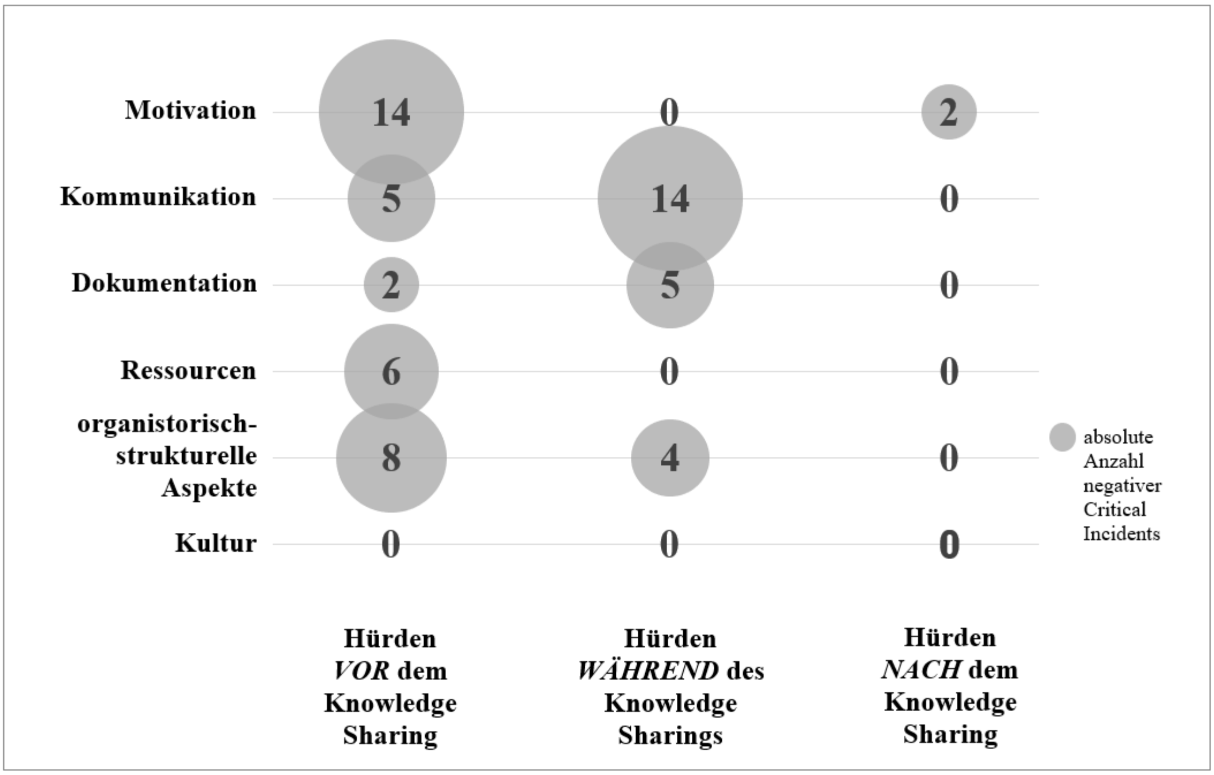

Figure 6.2: Hürden vor, während und nach organisationalem Knowledge Sharing aus Sicht der befragten IT-Fachkräfte (insgesamt 60 Critical Incidents) [Barriers before, during and after organizational knowledge sharing from the perspective of the IT professionals]

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 neuen 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 die Motivation, sich in diesen einzuarbeiten“ (I10).[23] Ein anderer Mitarbeiter machte die für ihn frustrierende Erfahrung, dass seine Bemühungen, Wissen weiterzugeben, schlicht nicht angenommen wurden: „In einer Besprechung [habe ich] Kritik zu einer Thematik geäußert, [da ich] berechtigte Zweifel an der Umsetzung dieses Vorhabens [hatte]. Leider wurde das nicht berücksichtigt. Vielmehr wurden meine Einwände unfreundlich und unbegründet abgewiesen“ (I14). In Bezug auf die Sender thematisierten die Mitarbeitenden *mangelnde Austauschbereitschaft* und *Zweifel am Erfolg des Teilungsprozesses* als Blockaden für organisationales Knowledge Sharing. Zwei Wissensgeber haben beispielsweise „Angst vor Nachteilen (z.B. Konkurrenz, überflüssig werden) [und halten deshalb] Spezialwissen manchmal zurück“ (I16). Andere „erachten [die Weitergabe des eigenen Wissens] als sinnlos, da [der Rezipient] das [zu teilende Wissen] ohnehin nicht verstehen würde“ (I04) oder „das Wissen so umfangreich [ist], dass es nicht an einen anderen Mitarbeitenden weitergegeben werden kann“ (I04). Aufgrund dieser subjektiven Überzeugungen initiierten die potenziellen Sender also keinen Austauschprozess.

Organisatorisch-strukturelle Aspekte der Arbeitsumgebung stellten aus Sicht der IT-Fachkräfte die zweit häufigste Hürde für organisationales Knowledge Sharing dar. Aufgrund der fehlenden Nachbesetzung freier Stellen und Mängel in der Einarbeitung neuer Mitarbeitender wurde insbesondere eine *ineffektive Nachfolgeplanung* thematisiert. Darüber hinaus berichtete ein Mitarbeitender, dass Wissen extern eingeholt wurde (*Outsourcing*), „[obwohl intern] genau dieses Wissen auch vorhanden [gewesen wäre]. Als Mitarbeitender hat man also keine Gelegenheit sein gesamtes Wissen anzuwenden. Das ist frustrierend und man fühlt sich abgespeist“ (I14). Schließlich führt die *Breite des Tätigkeitsfeldes* zu einem gewissen Spezialisierungszwang. „Dadurch bilden sich zunehmend Kopfmonopole [und man ist] immer wieder auf die Unterstützung der Kolleg:innen angewiesen“ (I28). Außerdem kommen einige Tätigkeiten nur sehr selten vor, sodass sich „inaktive Wissensbestände“ (I20) bilden, die leicht in Vergessenheit geraten. Auch durch *langwierige Prozesse* „geht viel verloren, weil man sich einfach nicht mehr an alle Details erinnern kann“ (I23).

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 vor[liegen]. Die Lücken müssen geschlossen werden, indem der Wissensgeber erneut

[23] Die Kombination aus dem Buchstaben „I“ und einer zweistelligen Zahlenfolge kennzeichnet die interviewte Person.

konsultiert oder andere Quellen zu Rate gezogen werden. Das bläht den Vorgang der Wissensteilung auf“ (I20). Zwei Mitarbeitende berichteten außerdem, dass „das zu vermittelnde Wissen nicht erfolgreich aufgenommen“ wird, wenn das Vorwissen der Rezipienten unberücksichtigt bleibt (I29). Ebenso führten fehlende Anwendungsmöglichkeiten im eigenen Tätigkeitsbereich dazu, dass die Relevanz der Inhalte unklar bleibt, „man leicht ab[schaltet] und am Ende kaum etwas mit[nimmt]“ (I29). Überdies beeinflusst die *Gestaltung des Austauschprozesses* dessen Erfolg. Dürfen die Rezipienten während des Knowledge Sharings nur zuschauen, merken sie im Anschluss schnell, dass „die bloße Weitergabe (mündlich oder über Dokumentationen) nicht ausreichend ist. Vielmehr braucht man Gelegenheit das neu Gelernte anzuwenden“ (I17). In wenigen Fällen wird die Kommunikation auch durch die *Aufnahmekapazität der Rezipienten* begrenzt, z.B. wenn der Wissensnehmer „nach der Übernahme fest[stellt], dass nicht alle Zusammenhänge klar sind“ (I07). Schließlich erläuterte ein Mitarbeitender, dass zwischen Sender und Rezipient manchmal einfach „keine positive Beziehung aufgebaut werden [kann und] diese Antipathie einen erfolgreichen Vermittlungsprozess [hemmt]“ (I03; *zwischenmenschliche Ebene*).

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.

Zusätzlich zu den Hürden vor, während und nach organisationalem Knowledge Sharing ließen sich in den Situationsbeschreibungen Hinweise auf ***negative Langzeitfolgen*** für das Teilen von Wissen finden. Auffällig war, dass Mitarbeitende, deren Knowledge Sharing Initiativen abgelehnt wurden, berichteten, in Zukunft wahrscheinlich weniger Wissen zu teilen. Aufgrund der „sehr frustrierenden und demotivierenden Erfahrung“ (I16) „wird man als Wissensgeber zurückhaltender und stellt die eigenen Bemühungen, sein Wissen […] weiterzugeben, nach und nach ein“ (I12). Insbesondere, wenn die Initiative mehrfach abgewiesen wird, „wird man sich in Zukunft zweimal überlegen, ob man sich einbringt oder nicht“ (I28). Die Schilderungen der Mitarbeitenden lassen erkennen, dass negative Knowledge Sharing Erfahrungen zu Verhaltensänderungen der Mitarbeitenden führen können. Daraus können – wie in einem Schneeballsystem – negative Konsequenzen erwachsen, die über den einen missglückten Austauschprozess 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.

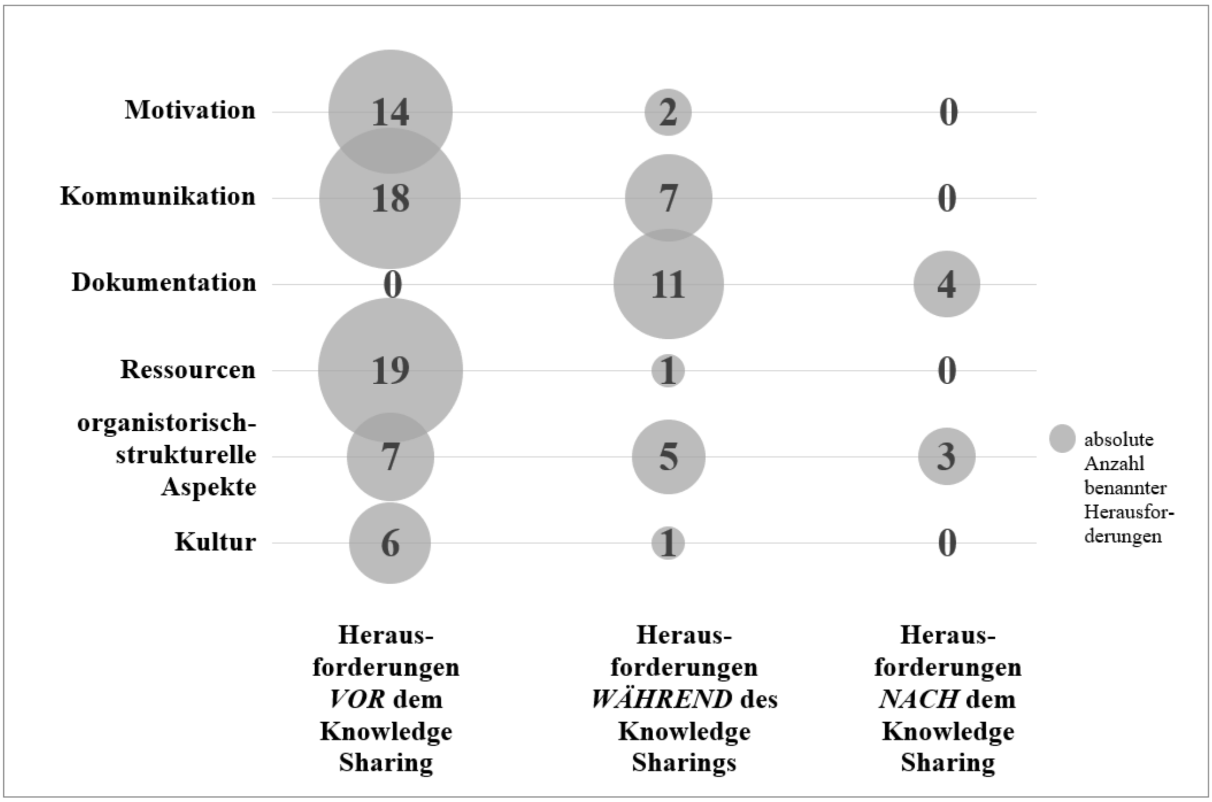

Figure 6.3: Wahrgenommene Herausforderungen vor, während und nach dem Knowledge Sharing aus Sicht der befragten IT-Fachkräfte (insgesamt 98 Aussagen) [Perceived challenges before, during and after knowledge sharing from the perspective of the IT professionals]

Bezüglich der Herausforderungen vor dem Teilen von Wissen monierten einige Mitarbeitende analog zu den negativen Situationsbeschreibungen die fehlende Bereitschaft, Wissen zu teilen (8 Aussagen zum Themenbereich Motivation). Insgesamt sahen sie die größte Herausforderung jedoch in fehlenden Ressourcen (19 Aussagen) und der Kommunikation zwischen Sender und Rezipient (18 Aussagen). Als problematisch wurden vor allem knappe zeitliche Kapazitäten erachtet (13 Aussagen), „[d]a man stets vom operativen Geschäft getrieben wird“ (I21), und der Zugang zu adäquaten Wissensquellen (10 Aussagen), weil die „Ansprechpartner oft nicht bekannt [sind]“ (I30). Hinzu kommen kulturelle Defizite, wie eine grundsätzliche Unverbindlichkeit des Knowledge Sharings und ein fehlendes Bewusstsein für die Relevanz der Thematik. Während des Knowledge Sharings sahen die Mitarbeitenden die größte Herausforderung darin, Wissen ausreichend und strukturiert zu dokumentieren (11 Aussagen). In den Situationsbeschreibungen wurde diese Problematik etwas seltener thematisiert (5 Critical Incidents). Nach einem erfolgreichen Austauschprozess reduzieren die fehlende Anwendung des geteilten Wissens (3 Aussagen) und dessen geringe Halbwertszeit die Nachhaltigkeit des Knowledge Sharings (4 Aussagen).

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 motivationale Defizite der Sender und Rezipienten 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 der frustrierenden Erfahrung in künftigen Austauschgelegenheiten zurückhaltender sein werden.

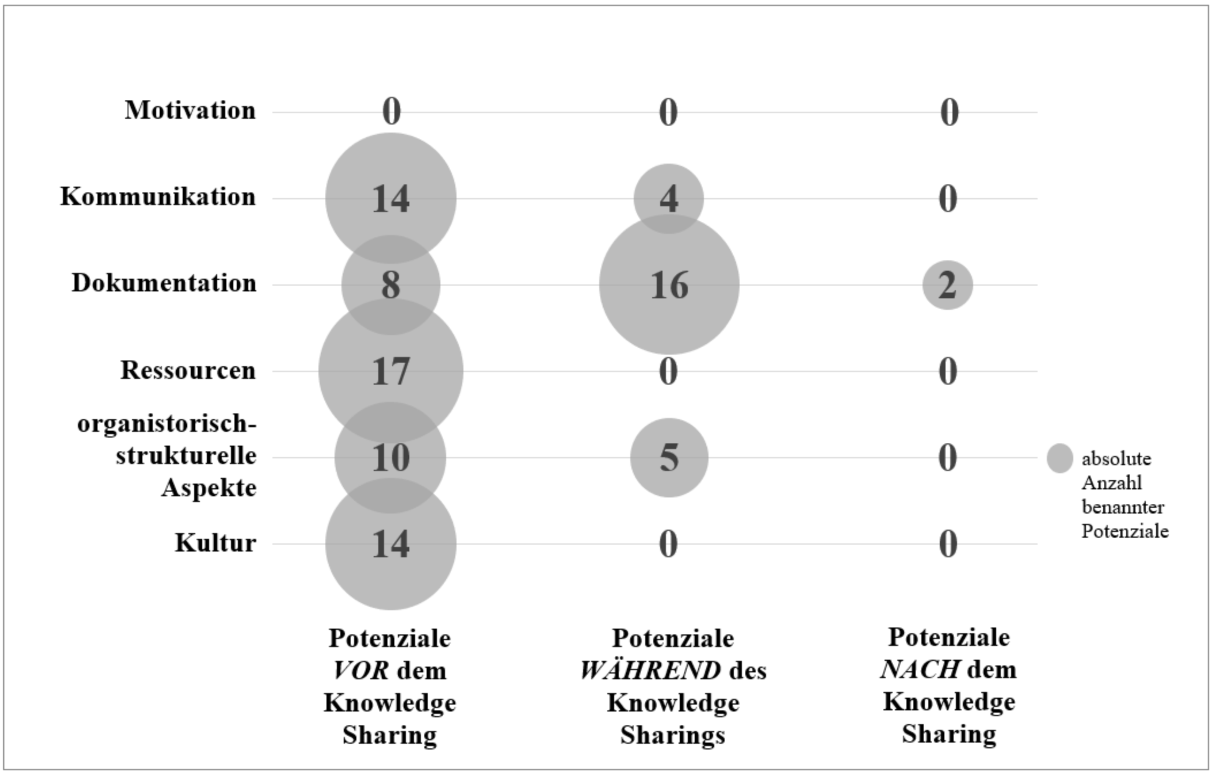

Figure 6.4: Potenziale zur Förderung des organisationalen Knowledge Sharings aus Sicht der befragten IT-Fachkräfte (insgesamt 90 Aussagen) [Potential for promoting organizational knowledge sharing from the perspective of the IT professionals]

Die Erfahrungen der IT-Fachkräfte decken sich mit Befunden anderer Untersuchungen. Beispielsweise konnte nachgewiesen werden, dass intrinsisch motivierte Mitarbeitende häufig und effektiv Wissen teilen und gleichzeitig weniger oft kontraproduktive Verhaltensweisen (Knowledge Hiding) an den Tag legen (Gagné et al. 2019). Auch der positive Einfluss eines hohen Verantwortungsbewusstseins der Mitarbeitenden (Serenko und Bontis 2016), guter zwischenmenschlicher Beziehungen (Zhang und Jiang 2015) und organisationaler Bemühungen um ein austauschfreundliches Klima (Hsu 2006) auf die Bereitschaft, Wissen zu teilen, wurden empirisch bestätigt. Befunde zu konkreten Stellschrauben zur Förderung von Knowledge Sharing sind hingegen rar. Diesbezüglich zeigen unsere Analysen, dass insbesondere eine frühzeitige und strukturierte Nachfolgeplanung sowie Unterstützung bei der Strukturierung und anwendungsorientierten Dokumentation und Kommunikation von Wissen zu einem effektiven und effizienten Austausch beitragen können. Zudem eröffneten die Erfahrungen der Mitarbeitenden, dass eine gewisse Nachsorge sinnvoll sein kann, um den Transfer des geteilten Wissens sicherzustellen. Insgesamt ließen sich in den Erfahrungen der IT-Fachkräfte sowie den benannten Herausforderungen und Potenzialen Merkmale einer eher restriktiven Lernumgebung erkennen (Fuller und Unwin 2004; Kankaraš 2021). Vor allem der Zugang zu Wissen (unbekannte Ansprechpartner, knappe zeitliche Ressourcen, Inhalt und Quantität von Dokumentationen und Kommunikation, ineffektive Nachfolgeplanung) und die Verankerung von Knowledge Sharing in der Unternehmenskultur (Unverbindlichkeit, fehlendes Bewusstsein für Relevanz der Thematik) wurden als ausbaufähig geschildert.

Bei der Interpretation der Befunde sind folgende Limitationen der Studie zu berücksichtigen: Erstens beziehen sich die Erfahrungen der Mitarbeitenden auf die Arbeits- und Austauschbedingungen einer einzigen Organisation. In anderen Settings könnten die Gegebenheiten durchaus variieren. Zweitens sind die Arbeits- und Austauschbedingungen der Mitarbeitenden möglicherweise durch Branchenspezifika bedingt, sodass für Erwerbstätige anderer Branchen andere Hürden beim organisationalen Knowledge Sharing relevant sein könnten. Drittens ist zu bedenken, dass die Erhebung negativer Erfahrungen und Einflussfaktoren äußerst sensibel ist, sodass die Befragten im vorliegenden Fall ggf. sozial erwünscht geantwortet haben. Da jedoch lediglich zwei Mitarbeitende keine negativen Erfahrungen berichteten, ist ein Bias durch sozial erwünschtes Antwortverhalten zu vernachlässigen. Vielmehr gewährten die Teilnehmenden detaillierte Einblicke in ihre Arbeitsrealität. Viertens wurden in der Studie die individuellen Eindrücke der Mitarbeitenden fokussiert, ohne diese auf Team- oder Abteilungsebene mit den Eindrücken der Kolleginnen und Kollegen abzugleichen. Gruppeninterviews könnten geeignet sein, um Ursachen und Lösungen für Knowledge Sharing Hürden multiperspektivisch zu eruieren und praktikable Lösungen zu erarbeiten. Fünftens wurden die Austauschprozesse in den Situationsbeschreibungen aus der Perspektive nur einer, am Austauschprozess beteiligten Person geschildert. Um Hürden für erfolgreiches Knowledge Sharing noch detaillierter zu erfassen, könnte es hilfreich sein, die Problemlagen aus den Blickwinkeln aller am Austauschprozess Beteiligten zu beleuchten – möglicherweise auch hier in Form von Gruppeninterviews. Schließlich ist zu bedenken, dass der Fokus der Untersuchung auf missglückten Austauschprozessen, Herausforderungen und Potenzialen für Knowledge Sharing lag, sodass die Stärken in Bezug auf organisationales Knowledge Sharing unberücksichtigt bleiben und die untersuchte Arbeitsumgebung als Lernumgebung möglicherweise unterschätzt wird.

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 schonen und das Teilen von Wissen insgesamt attraktiver machen. Zusätzlich kann über eine strategische Verankerung der Thematik für die Relevanz des Knowledge Sharings sensibilisiert werden. Ebenso bedeutsam ist es, Knowledge Sharing in den Arbeitsprozess zu integrieren, sodass das Teilen von Wissen zum Automatismus und individuelle Kompetenzentwicklung nachhaltig gefördert wird (z.B. indem die Weitergabe von Wissen in Prozessbeschreibungen verankert wird). Solch günstige Bedingungen für den innerbetrieblichen Wissensaustausch und arbeitsplatzbezogenes Lernen unterstützen die Mitarbeitenden bei der Ausübung ihrer Tätigkeit und fördern ihre individuelle Kompetenzentwicklung. Abschließend sei angemerkt, dass bei der Gestaltung einer Lern- und Arbeitsumgebung immer die Entstehungsgeschichte des Status Quo zu berücksichtigen ist. Zum einen, um durch den Einbezug der gemeinsamen Historie aus Fehlern zu lernen und damit die Akzeptanz für Veränderungen zu steigern. Zum anderen, um den Kontext der Organisation und etwaige externe Restriktionen einzubeziehen und dadurch Fehlentwicklungen zu vermeiden. Aus der Perspektive der Organisationsentwicklung kann es mit dieser systematischen Vorgehensweise gelingen, Wissen nachhaltig zu sichern und damit langfristig wettbewerbsfähig zu bleiben.

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6.7 Literatur

Ahmad, F., & Karim, M. (2019). Impacts of knowledge sharing: A review and directions for future research. *Journal of Workplace Learning, 31*(3), 207–230. https://doi.org/10.1108/JWL-07-2018-0096.

Alsharo, M., Gregg, D. & Ramirez, R. (2017). Virtual team effectiveness: The role of knowledge sharing and trust. *Information & Management 54*(4), 479–490. https://doi.org/10.1016/j.im.2016.10.005.

Antunes, H. d. J. G. & Pinheiro, P. G. (2020). Linking knowledge management, organizational learning and memory. *Journal of Innovation & Knowledge 5*(2), 140–149. https://doi.org/10.1016/j.jik.2019.04.002

Bianchi, R., Manzano-García, G., & Rolland, J.-P. (2021). Is Burnout Primarily Linked to Work-Situated Factors? A Relative Weight Analytic Study. *Frontiers in Psychology, 11*, Article 623912. https://doi.org/10.3389/fpsyg.2020.623912.

Billett, S. (2001). Learning through work: Workplace affordances and individual engagement. *Journal of Workplace Learning 13*(5), 209–214. https://doi.org/10.1108/EUM0000000005548.

Birt, L., Scott, S., Cavers, D., Campbell, C. & Walter, F. (2016). Member Checking: A Tool to Enhance Trustworthiness or Merely a Nod to Validation? *Qualitative health research 26*(13), 1802–1811. https://doi.org/10.1177/1049732316654870.

Bott, G. & Tourish, D. (2016). The critical incident technique reappraised. *Qualitative Research in Organizations and Management: An International Journal 11*(4), 276–300. https://doi.org/10.1108/QROM-01-2016-1351.

Candela, A. G. (2019). Exploring the Function of Member Checking. *The Qualitative Report 24*(3), 619–628. https://doi.org/10.46743/2160-3715/2019.3726.

Cheung, S. Y., Gong, Y., Wang, M., Le Zhou & Shi, J. (2016). When and how does functional diversity influence team innovation? The mediating role of knowledge sharing and the moderation role of affect-based trust in a team. *Human Relations 69*(7), 1507–1531. https://doi.org/10.1177/0018726715615684.

Davenport, T. H. & Prusak, L. (2010). *Working knowledge: How organizations manage what they know* [Nachdr.]. Boston: Harvard Business School Press.

Eraut, M. (2004). Informal learning in the workplace. *Studies in Continuing Education 26*(2), 247–273. https://doi.org/10.1080/158037042000225245.

Flanagan, J. C. (1954). The critical incident technique. *Psychological Bulletin 51*(4), 327–358. https://doi.org/10.1037/h0061470.

Fuller, A. & Unwin, L. (2004). Expansive learning environments. Integrating organizational and personal development. In H. Rainbird, A. Fuller & A. Munro (Hrsg.), *Workplace learning in context* (S. 126–144). London: Routledge.

Gagné, M., Tian, A. W., Soo, C., Zhang, B., Ho, K. S. B. & Hosszu, K. (2019). Different motivations for knowledge sharing and hiding: The role of motivating work design. *Journal of Organizational Behavior 40*(7), 783–799. https://doi.org/10.1002/job.2364.

Geddes, D., Callister, R. R., & Gibson, D. E. (2020). A Message in the Madness: Functions of Workplace Anger in Organizational Life. *Academy of Management Perspectives, 34*(1), 28–47. https://doi.org/10.5465/amp.2016.0158.

Gentner, S., Birkle, S. & Seifried, J. (im Druck). Knowledge Sharing in der betrieblichen Praxis – Empirische Befunde einer Fallstudie bei einem mittelständischen IT-Dienstleister. In A. Mensching, N. Engel, C. Fahrenwald, M. Hunold & S. M. Weber (Hrsg.), *Organisation zwischen Theorie und Praxis.* Wiesbaden: Springer.

Giustiniano, L., Lombardi, S. & Cavaliere, V. (2016). How knowledge collecting fosters organizational creativity. *Management Decision 54*(6), 1464–1496. https://doi.org/10.1108/MD-04-2015-0111.

Grant, R. M. (1996). Toward a knowledge-based theory of the firm. *Strategic Management Journal 17*(S2), 109–122. https://doi.org/10.1002/smj.4250171110.

Gruber, H. & Harteis, C. (2018). *Individual and Social Influences on Professional Learning: Supporting the acquisition and maintenance of expertise* (Bd. 24). Basel: Springer International Publishing. https://doi.org/10.1007/978-3-319-97041-7.

Han, S. (2018). The antecedents and dimensionality of knowledge-sharing intention. *European Journal of Training and Development 42*(1-2), 125–142. https://doi.org/10.1108/EJTD-09-2017-0073.

Hsu, I.-C. (2006). Enhancing employee tendencies to share knowledge—Case studies of nine companies in Taiwan. *International Journal of Information Management 26*(4), 326–338. https://doi.org/10.1016/j.ijinfomgt.2006.03.001.

Ipe, M. (2003). Knowledge Sharing in Organizations: A Conceptual Framework. *Human Resource Development Review 2*(4), 337–359. https://doi.org/10.1177/1534484303257985.

Jamshed, S. & Majeed, N. (2019). Relationship between team culture and team performance through lens of knowledge sharing and team emotional intelligence. *Journal of Knowledge Management 23*(1), 90–109. https://doi.org/10.1108/JKM-04-2018-0265.

Kankaraš, M. (2021). *Workplace learning: determinants and consequences: insights from the 2019 European company survey* (Cedefop working paper Nr. 7). Publications Office of the European Union. http://data.europa.eu/doi/10.2801/111971. Gesehen: 22.03.2022

Kianto, A., Vanhala, M., & Heilmann, P. (2016). The impact of knowledge management on job satisfaction. *Journal of Knowledge Management, 20*(4), 621–636. https://doi.org/10.1108/JKM-10-2015-0398.

Kim, E. & Park, S. (2020). Employees' perceptions of organizational learning: the role of knowledge and trust. *Kybernetes.* https://doi.org/10.1108/K-03-2020-0169.

Krcmar, H. (2015). *Informationsmanagement.* Berlin, Heidelberg: Springer-Verlag. https://doi.org/10.1007/978-3-662-45863-1.

Kucharska, W. (2021). Do mistakes acceptance foster innovation? Polish and US cross-country study of tacit knowledge sharing in IT. *Journal of Knowledge Management 25*(11), 105–128. https://doi.org/10.1108/JKM-12-2020-0922.

Landis, J. R., & Koch, G. G. (1977). The Measurement of Observer Agreement for Categorical Data. *Biometrics, 33*(1), 159–174. https://doi.org/10.2307/2529310.

Mayring, P. (2015). Qualitative Content Analysis: Theoretical Background and Procedures. In A. Bikner-Ahsbahs, C. Knipping & N. Presmeg (Hrsg.), *Approaches to Qualitative Research in Mathematics Education* (S. 365–380). Dordrecht: Springer Netherlands. https://doi.org/10.1007/978-94-017-9181-6_13.

Muhammed, S. & Zaim, H. (2020). Peer knowledge sharing and organizational performance: the role of leadership support and knowledge management success. *Journal of Knowledge Management 24*(10), 2455–2489. https://doi.org/10.1108/JKM-03-2020-0227.

Nonaka, I. & Takeuchi, H. (1995). *The knowledge creating company: How Japanese companies create the dynamics of innovation.* Oxford: Oxford Univ. Press.

North, K. (2021). *Wissensorientierte Unternehmensführung*. Wiesbaden: Springer Fachmedien. https://doi.org/10.1007/978-3-658-32771-2.

Patton, M. Q. (2015). *Qualitative research & evaluation methods: Integrating theory and practice* (Fourth edition). Thousand Oaks: SAGE.

Pawlowsky, P. (2019). *Wissensmanagement*. Berlin, Boston: De Gruyter Oldenbourg. https://doi.org/10.1515/9783110474930.

Probst, G., Raub, S. & Romhardt, K. (2012). *Wissen managen.* Gabler Verlag. https://doi.org/10.1007/978-3-8349-4563-1.

Serenko, A. & Bontis, N. (2016). Understanding counterproductive knowledge behavior: Antecedents and consequences of intra-organizational knowledge hiding. *Journal of Knowledge Management 20*(6), 1199–1224. https://doi.org/10.1108/JKM-05-2016-0203.

Søndergaard, S., Kerr, M. & Clegg, C. (2007). Sharing knowledge: Contextualising socio-technical thinking and practice. *The Learning Organization*, *14*(5), 423–435. https://doi.org/10.1108/09696470710762646.

Tynjälä, P. (2013). Toward a 3-P Model of Workplace Learning: A Literature Review. *Vocations and Learning*, *6*(1), 11–36. https://doi.org/10.1007/s12186-012-9091-z.

Wang, S. & Noe, R. A. (2010). Knowledge sharing: A review and directions for future research. *Human Resource Management Review 20*(2), 115–131. https://doi.org/10.1016/j.hrmr.2009.10.001.

Yin, R. K. (2018). *Case study research and applications: Design and methods* (Sixth edition). Thousand Oaks: SAGE.

Zhang, X. & Jiang, J. Y. (2015). With whom shall I share my knowledge? A recipient perspective of knowledge sharing. *Journal of Knowledge Management 19*(2), 277–295. https://doi.org/10.1108/JKM-05-2014-0184.

Zutavern, S. & Seifried, J. (2021). Exploring Well-being at Work–An Interview Study on How IT Professionals Perceive Their Workplace. *Frontiers in psychology 12*, 688219. https://doi.org/10.3389/fpsyg.2021.688219.

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 & Frommberger, 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, dairy 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

[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 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

Amenduni, F., Ryymin, E., Maetoloa, K., & Cattaneo, A. (2022). Facing Disruptive Changes With Informal Workplace Learning Strategies: The Experience of European Companies. *Frontiers in Psychology, 13*, 889850. https://doi.org/10.3389/fpsyg.2022.889850

Anselmann, V., & Mulder, R. H. (2022). Using the Vignette Technique to Increase Insight into Professional Development at Work. In M. Goller, E. Kyndt, S. Paloniemi, & C. Damşa (Eds.), *Professional and practice-based learning. Methods for Researching Professional Learning and Development* (Vol. 33, pp. 71–86). Springer International Publishing. https://doi.org/10.1007/978-3-031-08518-5_4

Bartlett, R., & Milligan, C. (2021). *Diary method: Research methods. Bloomsbury research methods.* Bloomsbury Academic. https://permalink.obvsg.at/

Bauer, T. N., & Erdogan, B. (2014). Delineating and Reviewing the Role of Newcomer Capital in Organizational Socialization. *Annual Review of Organizational Psychology and Organizational Behavior, 1*(1), 439–457. https://doi.org/10.1146/annurev-orgpsych-031413-091251

Bergen, N., & Labonté, R. (2020). "Everything Is Perfect, and We Have No Problems": Detecting and Limiting Social Desirability Bias in Qualitative Research. *Qualitative Health Research, 30*(5), 783–792. https://doi.org/10.1177/1049732319889354

BIBB. (2022, December 14). *Wenig Dynamik auf dem Ausbildungsmarkt [Little dynamism on the training market]* [Press release]. https://www.bibb.de/dokumente/pdf/finalpmbilanzausbildungsmarkt2022.pdf

BMBF (Ed.). (2020). *Ausbildung & Beruf. Rechte und Pflichten während der Berufsausbildung [Training & Occupation. Rights and obligations during vocational training.].* https://www.die-duale.de/SharedDocs/Downloads/dieduale/de/Neue-Broschuere-Ausbildung-und-Beruf.pdf?__blob=publicationFile&v=2

BMBF. (2021). *Berufsbildungsbericht 2021 [Report on vocational education and training 2021].* Bonn. https://www.bmbf.de/SharedDocs/Downloads/de/2021/berufsbildungsbericht-2021.pdf?__blob=publicationFile&v=4

Böhn, S., & Deutscher, V. (2019). Betriebliche Ausbildungsbedingungen im dualen System – Eine qualitative Meta-Analyse zur Operationalisierung in Auszubildendenbefragungen Auszubildendenbefragungen [Training Conditions in VET – A Qualitative Meta-Synthesis for the Operationalization in Apprentice Questionnaires]. *German Journal of Educational Psychology, 33*(1), 49–70. https://doi.org/10.1024/1010-0652/a000234

Böhn, S., & Deutscher, V. K. (2021). Development and Validation of a Learning Quality Inventory for In-Company Training in VET (VET-LQI). *Vocations and Learning, 14*(1), 23–53. https://doi.org/10.1007/s12186-020-09251-3

Decius, J., Schaper, N., & Seifert, A. (2021). Work Characteristics or Workers' Characteristics? An Input-Process-Output Perspective on Informal Workplace Learning of Blue-Collar Workers. *Vocations and Learning, 14*(2), 285–326. https://doi.org/10.1007/s12186-021-09265-5

Deißinger, T., & Frommberger, D. (2010). Berufsbildung im internationalen Vergleich – Typen nationaler Berufsbildungssysteme. In R. Nickolaus, G. Pätzold, H. Reinisch, & P. T. Tramm (Eds.), *UTB Pädagogik: Vol. 8442. Handbuch Berufs- und Wirtschaftspädagogik* (1st ed., pp. 343–348). Klinkhardt.

Diener, E., Oishi, S., & Tay, L. (2018). Advances in subjective well-being research. *Nature Human Behaviour, 2*(4), 253–260. https://doi.org/10.1038/s41562-018-0307-6

Euler, D. (2004). Lernortkooperation - eine unendliche Geschichte? [Learning site cooperation - a never-ending story?]. In *Forum Wirtschaftspädagogik: Bd. 1. Handbuch der Lernortkooperation. 1: Theoretische Fundierung [Handbook of learning site cooperation. 1: Theoretical foundation]* (pp. 12–24). Bertelsmann.

Flanagan, J. C. (1954). The critical incident technique. *Psychological Bulletin, 51*(4), 327–358. https://doi.org/10.1037/h0061470

Harris, L., Cooper-Thomas, H., Smith, P., & Smollan, R. (2020). Reclaiming the social in socialization: A practice-based understanding of newcomer adjustment. *Human Resource Development Quarterly, 31*(2), 193–211. https://doi.org/10.1002/hrdq.21384

Harteis, C., Goller, M., & Caruso, C. (2020). Conceptual Change in the Face of Digitalization: Challenges for Workplaces and Workplace Learning. *Frontiers in Education, 5*, Article 1. https://doi.org/10.3389/feduc.2020.00001

KMK. (2007). *Handreichung für die Erarbeitung von Rahmenlehrplänen der Kultusministerkonferenz für den berufsbezogenen Unterricht in der Berufsschule und ihre Abstimmung mit Ausbildungsordnungen des Bundes für anerkannte Ausbildungsberufe [Guidance on the development of framework curricula of the Standing Conference of the Ministers of Education and Cultural Affairs in the field of vocational education and training for occupation-related instruction at vocational schools and their coordination with federal training regulations for recognised training occupations]*. Bonn. https://www.kmk.org/fileadmin/veroeffentlichungen_beschluesse/2007/2007_09_01-Handreich-Rlpl-Berufsschule.pdf

Korte, R., Brunhaver, S., & Sheppard, S. (2015). (Mis)Interpretations of Organizational Socialization: The Expectations and Experiences of Newcomers and Managers. *Human Resource Development Quarterly, 26*(2), 185–208. https://doi.org/10.1002/hrdq.21206

Korte, R., & Lin, S. (2013). Getting on board: Organizational socialization and the contribution of social capital. *Human Relations, 66*(3), 407–428. https://doi.org/10.1177/0018726712461927

Korte, R. F. (2009). How newcomers learn the social norms of an organization: A case study of the socialization of newly hired engineers. *Human Resource Development Quarterly, 20*(3), 285–306. https://doi.org/10.1002/hrdq.20016

Krötz, M., & Deutscher, V. (2021). Differences in Perception Matter – How Differences in the Perception of Training Quality of Trainees and Trainers Affect Drop-Out in VET. *Vocations and Learning, 14*(3), 369–409. https://doi.org/10.1007/s12186-021-09263-7

Mornata, C., & Cassar, I. (2018). The role of insiders and organizational support in the learning process of newcomers during organizational socialization. *Journal of Workplace Learning, 30*(7), 562–575. https://doi.org/10.1108/JWL-06-2017-0045

Nerland, M. (2022). Researching Professional Learning in Complex Environments: Opportunities and Challenges from a Qualitative Research Perspective. In M. Goller, E. Kyndt, S. Paloniemi, & C. Damşa (Eds.), *Professional and practice-based learning. Methods for Researching Professional Learning and Development* (Vol. 33, pp. 603–618). Springer International Publishing. https://doi.org/10.1007/978-3-031-08518-5_27

OECD. (2019). *Returns to different forms of job related training: Factoring in informal learning. OECD Social, Employment and Migration Working Papers: Vol. 231*. OECD Publishing. https://doi.org/10.1787/b21807e9-en

Ployhart, R. E., & Vandenberg, R. J. (2010). Longitudinal Research: The Theory, Design, and Analysis of Change. *Journal of Management, 36*(1), 94–120. https://doi.org/10.1177/0149206309352110

Rausch, A. (2014). Using Diaries in Research on Work and Learning. In C. Harteis, A. Rausch, & J. Seifried (Eds.), *Discourses on Professional Learning* (pp. 341–366). Springer Netherlands. https://doi.org/10.1007/978-94-007-7012-6_17

Rausch, A., Goller, M., & Steffen, B. (2022). Uncovering Informal Workplace Learning by Using Diaries. In M. Goller, E. Kyndt, S. Paloniemi, & C. Damşa (Eds.), *Professional and practice-based learning. Methods for Researching Professional Learning and Development* (Vol. 33, pp. 43–70). Springer International Publishing. https://doi.org/10.1007/978-3-031-08518-5_3

Seeber, S., & Seifried, J. (2019). Herausforderungen und Entwicklungsperspektiven der beruflichen Bildung unter veränderten Rahmenbedingungen [Challenges and development prospects of vocational education and training under changing conditions]. *Journal of Educational Science, 22*(3), 485–508. https://doi.org/10.1007/s11618-019-00876-2

Seifried, J., & Rausch, A. (2022). Applying the Experience Sampling Method to Research on Workplace Learning. In M. Goller, E. Kyndt, S. Paloniemi, & C. Damşa (Eds.), *Professional and practice-based learning. Methods for Researching Professional Learning and Development* (Vol. 33, pp. 19–41). Springer International Publishing. https://doi.org/10.1007/978-3-031-08518-5_2

Small, M. L., & Cook, J. M. (2021). Using Interviews to Understand Why: Challenges and Strategies in the Study of Motivated Action. *Sociological Methods & Research*, 004912412199555. https://doi.org/10.1177/0049124121995552

Stewart, D., Shamdasani, P., & Rook, D. (2007). *Focus Groups*. SAGE Publications, Ltd. https://doi.org/10.4135/9781412991841

van der Heijden, B. I. J. M., Houkes, I., van den Broeck, A., & Czabanowska, K. (2020). “I Just Can’t Take It Anymore”: How Specific Work Characteristics Impact Younger Versus Older Nurses' Health, Satisfaction, and Commitment. *Frontiers in Psychology, 11*, 762. https://doi.org/10.3389/fpsyg.2020.00762

Wesselink, R., Biemans, H., Gulikers, J., & Mulder, M. (2018). Models and Principles for Designing Competence-based Curricula, Teaching, Learnign and Assessment. In M. Mulder (Ed.), *Technical and Vocational Education and Training: Vol. 23. Competence-based Vocational and Professional Education: Bridging the Worlds of Work and Education* (1st ed., pp. 533–553). Springer International Publishing.

Willemsen, R. F., Aardoom, J. J., Chavannes, N. H., & Versluis, A. (2022). Online synchronous focus group interviews: Practical considerations. *Qualitative Research*, 146879412211101. https://doi.org/10.1177/14687941221110161

Yin, R. K. (2018). *Case study research and applications: Design and methods* (Sixth edition). SAGE.

Zutavern, S., & Seifried, J. (2019). Employer-Branding als Beitrag zu Employability und Beruflichkeit [Employer branding as a contribution to employability and professionalism]. In J. Seifried, K. Beck, & B.-J. Ertelt (Eds.), *Wirtschaft - Beruf - Ethik. Beruf, Beruflichkeit, Employability [Occupation, professionalism, employability]* (pp. 197–214). wbv Media.

Complete List of References

Aalto, A.-M., Heponiemi, T., Josefsson, K., Arffman, M., & Elovainio, M. (2018). Social relationships in physicians' work moderate relationship between workload and wellbeing-9-year follow-up study. *European Journal of Public Health*. Advance online publication. https://doi.org/10.1093/eurpub/ckx232

Agarwal, P., & Sajid, S. M. (2017). A study of job satisfaction, organizational commitment and turnover intention among public and private sector employees. *Journal of Management Research, 17*(3), 123–136. https://search.proquest.com/scholarly-journals/study-job-satisfaction-organizational-commitment/docview/2474304876/se-2?accountid=14570

Aggarwal-Gupta, M., Vohra, N., & Bhatnagar, D. (2010). Perceived Organizational Support and Organizational Commitment: The Mediational Influence of Psychological Well-Being. *Journal of Business and Management, 16*(2), 105–124.

Ahmad, F., & Karim, M. (2019). Impacts of knowledge sharing: A review and directions for future research. *Journal of Workplace Learning, 31*(3), 207–230. https://doi.org/10.1108/JWL-07-2018-0096.

Albrecht, S. L. (2012). The influence of job, team and organizational level resources on employee well-being, engagement, commitment and extra-role performance. *International Journal of Manpower, 33*(7), 840–853. https://doi.org/10.1108/01437721211268357

Alegre, I., Mas-Machuca, M., & Berbegal-Mirabent, J. (2016). Antecedents of employee job satisfaction: Do they matter? *Journal of Business Research, 69*(4), 1390–1395. https://doi.org/10.1016/j.jbusres.2015.10.113

Alsharo, M., Gregg, D. & Ramirez, R. (2017). Virtual team effectiveness: The role of knowledge sharing and trust. *Information & Management 54*(4), 479–490. https://doi.org/10.1016/j.im.2016.10.005.

Amenduni, F., Ryymin, E., Maetoloa, K., & Cattaneo, A. (2022). Facing Disruptive Changes With Informal Workplace Learning Strategies: The Experience of European Companies. *Frontiers in Psychology, 13*, 889850. https://doi.org/10.3389/fpsyg.2022.889850

Ananiadou, K., & Claro, M. (2009). *21st Century Skills and Competences for New Millennium Learners in OECD Countries. OECD Education Working Papers: Vol. 41*. OECD Publishing. https://doi.org/10.1787/218525261154

Anderson, V. (2017). Criteria for Evaluating Qualitative Research. *Human Resource Development Quarterly, 28*(2), 125–133. https://doi.org/10.1002/hrdq.21282

Anselmann, V., & Mulder, R. H. (2022). Using the Vignette Technique to Increase Insight into Professional Development at Work. In M. Goller, E. Kyndt, S. Paloniemi, & C. Damşa (Eds.), *Professional and practice-based learning. Methods for Researching Professional Learning and Development* (Vol. 33, pp. 71–86). Springer International Publishing. https://doi.org/10.1007/978-3-031-08518-5_4

Antunes, H. d. J. G. & Pinheiro, P. G. (2020). Linking knowledge management, organizational learning and memory. *Journal of Innovation & Knowledge 5*(2), 140–149. https://doi.org/10.1016/j.jik.2019.04.002

Ashforth, B. E. (2012). The role of time in socialization dynamics. In C. R. Wanberg (Ed.), *Oxford library of psychology. The Oxford handbook of organizational socialization* (pp. 161–186). Oxford Univ. Press. https://doi.org/10.1093/oxfordhb/9780199763672.013.0009

Ashforth, B. E., & Saks, A. M. (1996). Socialization Tactics: Longitudinal Effects On Newcomer Adjustment. *Academy of Management Journal, 39*(1), 149–178. https://doi.org/10.2307/256634

Ashforth, B. E., Sluss, D. M., & Saks, A. M. (2007). Socialization tactics, proactive behavior, and newcomer learning: Integrating socialization models. *Journal of Vocational Behavior, 70*(3), 447–462. https://doi.org/10.1016/j.jvb.2007.02.001

Autor:innengruppe Bildungsberichterstattung. (2022). *Bildung in Deutschland 2022. Ein indikatorengestützter Bericht mit einer Analyse zum Bildungspersonal [Education in Germany 2022. An indicator-based report with an analysis on personnel in education]*. Bildung in Deutschland: Vol. 2022. wbv Publikation. https://www.bildungsbericht.de/de/bildungsberichte-seit-2006/bildungsbericht-2022 https://doi.org/10.3278/6001820hw

Bachmann, R., Bechara, P., & Vonnahme, C. (2020). Occupational Mobility in Europe: Extent, Determinants and Consequences. *De Economist*, *168*(1), 79–108. https://doi.org/10.1007/s10645-019-09355-9

Baethge, M., Buss, K.-P. & Lanfer, C. (2003). *Konzeptionelle Grundlagen für einen Nationalen Bildungsbericht: Berufliche Bildung und Weiterbildung/Lebenslanges Lernen. [Conceptual Basis for a National Education Report: Vocational Education and Training and Further Education / Lifelong Learning.]* Reihe: Bildungsreform, Band 7, Bonn und Berlin: Bundesministerium für Bildung und Forschung.

Bakker, A. B., & Demerouti, E. (2007). The Job Demands-Resources model: state of the art. *Journal of Managerial Psychology*, *22*(3), 309–328. https://doi.org/10.1108/02683940710733115

Balali, S., Steinmacher, I., Annamalai, U., Sarma, A., & Gerosa, M. A. (2018). Newcomers' Barriers… Is That All? An Analysis of Mentors' and Newcomers' Barriers in OSS Projects. *Computer Supported Cooperative Work (CSCW), 27*, 679–714. https://doi.org/10.1007/s10606-018-9310-8

Bartlett, R., & Milligan, C. (2021). *Diary method: Research methods. Bloomsbury research methods*. Bloomsbury Academic. https://permalink.obvsg.at/

Bauer, T. (2010). *Onboarding New Employees: Maximizing Success*. SHRM Foundation.

Bauer, T. N., Bodner, T., Erdogan, B., Truxillo, D. M., & Tucker, J. S. (2007). Newcomer adjustment during organizational socialization: A meta-analytic review of antecedents, outcomes, and methods. *The Journal of Applied Psychology*, *92*(3), 707–721. https://doi.org/10.1037/0021-9010.92.3.707

Bauer, T. N., & Erdogan, B. (2011). Organizational Socialization: The Effective Onboarding of New Employees. In S. Zedeck (Ed.), *APA handbooks in psychology. APA handbook of industrial and organizational psychology, Volume 3: Maintaining, expanding, and contracting the organization* (1st ed., pp. 51–64). American Psychological Association.

Bauer, T. N., & Erdogan, B. (2014). Delineating and Reviewing the Role of Newcomer Capital in Organizational Socialization. *Annual Review of Organizational Psychology and Organizational Behavior*, *1*(1), 439–457. https://doi.org/10.1146/annurev-orgpsych-031413-091251

Bauer, T. N., Perrot, S., Liden, R. C., & Erdogan, B. (2019). Understanding the consequences of newcomer proactive behaviors: The moderating contextual role of servant leadership. *Journal of Vocational Behavior*, *112*, 356–368. https://doi.org/10.1016/j.jvb.2019.05.001

Beldarrain, Y. (2019). Developing an Agile Global Workforce. In V. H. Kenon & S. V. Palsole (Eds.), *The Wiley Handbook of Global Workplace Learning* (pp. 45–65). Wiley. https://doi.org/10.1002/9781119227793.ch3

Bell, P. A., & Sundstrom, E. D. (1997). Environmental Psychology: Evolution and Current Status. In D. F. Halpern & A. Voĭskunskiĭ (Eds.), *States of mind: American and post-Soviet perspectives on contemporary issues in psychology* (pp. 373–390). Oxford University Press.

Bender, E., Schaper, N., & Schürmann, M. (2019). Factors Driving Employees' Intention to Stay. *Zeitschrift Für Arbeits- Und Organisationspsychologie A&O, 63*(4), 238–250. https://doi.org/10.1026/0932-4089/a000313

Bergen, N., & Labonté, R. (2020). "Everything Is Perfect, and We Have No Problems": Detecting and Limiting Social Desirability Bias in Qualitative Research. *Qualitative Health Research, 30*(5), 783–792. https://doi.org/10.1177/1049732319889354

Berger, C. R., & Calabrese, R. J. (1975). Some Explanations in Initial Interaction and Beyond: Toward a Developmental Theory of Interpersonal Communication. *Human Communication Research, 1*(2), 99–112. https://doi.org/10.1111/j.1468-2958.1975.tb00258.x

Bergmann, F. (2017). *Neue Arbeit, neue Kultur [New work, new culture]* (S. Schuhmacher, Trans.) (8. Auflage, 3. broschierte Ausgabe). Arbor Verlag.

Bianchi, R., Manzano-García, G., & Rolland, J.-P. (2021). Is Burnout Primarily Linked to Work-Situated Factors? A Relative Weight Analytic Study. *Frontiers in Psychology, 11*, Article 623912. https://doi.org/10.3389/fpsyg.2020.623912

BIBB. (2017). Ausbildungsordnungen und wie sie entstehen [Training regulations and how they are developed] https://www.bibb.de/dienst/veroeffentlichungen/de/publication/show/8269

BIBB (2021a). *Evaluierung der Erprobungsverordnung des Ausbildungsberufes Kaufmann und Kauffrau für Büromanagement. [Evaluation of the trial regulations for the training occupation of office management assistant.]* Retrieved from https://www.bibb.de/dienst/veroeffentlichungen/de/publication/show/17117

BIBB (2021b). *Informationen zu Aus- und Fortbildungsberufen: Kaufmann für Büromanagement/ Kauffrau für Büromanagement (Ausbildung) [Information on initial and continuing training occupations: Office management assistant (apprenticeship)]*. Retrieved from https://www.bibb.de/de/berufeinfo.php/profile/apprenticeship/239212

BIBB. (2022, December 14). *Wenig Dynamik auf dem Ausbildungsmarkt [Little dynamism on the training market]* [Press release]. https://www.bibb.de/dokumente/pdf/finalpmbilanzausbildungsmarkt2022.pdf

Billett, S. (2001a). Learning through work: Workplace affordances and individual engagement. *Journal of Workplace Learning, 13*(5), 209–214. https://doi.org/10.1108/EUM0000000005548

Billett, S. (2001b). Learning Throughout Working Life: Interdependencies at work. *Studies in Continuing Education, 23*(1), 19–35. https://doi.org/10.1080/01580370120043222

Billett, S. (2002). Workplace Pedagogic Practices: Co–participation and Learning. *British Journal of Educational Studies, 50*(4), 457–481. https://doi.org/10.1111/1467-8527.t01-2-00214

Billett, S. (2011). *Vocational Education*. Dordrecht: Springer Netherlands.

Billett, S. (2022). Learning in and Through Work: Positioning the Individual. In C. Harteis, D. Gijbels, & E. Kyndt (Eds.), *Professional and practice-based learning. Research Approaches on Workplace Learning* (Vol. 31, pp. 157–175). Springer. https://doi.org/10.1007/978-3-030-89582-2_7

Binkley, M., Erstad, O., Herman, J., Raizen, S., Ripley, M., Miller-Ricci, M., & Rumble, M. (2012). Defining Twenty-First Century Skills. In P. Griffin, B. McGaw, & E. Care (Eds.), *Assessment and teaching of 21st century skills* (pp. 17–66). Dordrecht: Springer.

Birkle, S. (2022). 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]. *Gruppe. Interaktion. Organisation. Zeitschrift Für Angewandte Organisationspsychologie (GIO), 53*(4), 557–565. https://doi.org/10.1007/s11612-022-00657-2

Birkle, S., & Seifried, J. (submitted). Perceived Challenges when Changing Employer–What Newcomers Experience as Helpful during their Organizational Entry. *Journal of Workplace Learning*.

Birt, L., Scott, S., Cavers, D., Campbell, C. & Walter, F. (2016). Member Checking: A Tool to Enhance Trustworthiness or Merely a Nod to Validation? *Qualitative health research 26*(13), 1802–1811. https://doi.org/10.1177/1049732316654870.

Bitkom. (2022, January 3). *IT-Fachkräftelücke wird größer: 96.000 offene Jobs [IT professional gap grows: 96,000 open jobs]* [Press release]. Berlin. https://www.bitkom.org/Presse/Presseinformation/IT-Fachkraefteluecke-wird-groesser

BMBF. (2020). *Ausbildung & Beruf. Rechte und Pflichten während der Berufsausbildung [Training & Occupation. Rights and obligations during vocational training].* https://www.die-duale.de/SharedDocs/Downloads/dieduale/de/Neue-Broschuere-Ausbildung-und-Beruf.pdf?__blob=publicationFile&v=2

BMBF. (2021). *Berufsbildungsbericht 2021 [Vocational Education and Training Report 2021].* https://www.bmbf.de/SharedDocs/Publikationen/de/bmbf/3/31684_Berufsbildungsbericht_2021.html?gclid=Cj0KCQiA45qdBhD-ARIsAOHbVdFWxBRIVoVPQCP-worHihm3Jz9hvdnL-_DrqhtZDDUUK1W40Rqk97mQaApNdEALw_wcB

BMFSFJ. (2021). FAQ zur Reform der Pflegeberufe [FAQ on the reform of the nursing professions]. Retrieved from https://www.pflegeausbildung.net/ausbildungsinteressierte/faq-zur-reform-der-pflegeberufe.html

BMWK. (2022a). *Der Mittelstand [The medium-sized business]*. https://www.bmwk.de/ Redaktion/DE/Dossier/politik-fuer-den-mittelstand.html

BMWK. (2022b). *Skilled professionals for Germany*. https://www.bmwk.de/Redaktion/EN/Dossier/skilled-professionals.html

Bott, G. & Tourish, D. (2016). The critical incident technique reappraised. *Qualitative Research in Organizations and Management: An International Journal 11*(4), 276–300. https://doi.org/10.1108/QROM-01-2016-1351.

Bourn, D. (2018). From 21st Century Skills to Global Skills. In D. Bourn (Ed.), *Understanding Global Skills for 21st Century Professions* (pp. 63–85). Springer International Publishing. https://doi.org/10.1007/978-3-319-97655-6_4

Böhn, S., & Deutscher, V. (2019). Betriebliche Ausbildungsbedingungen im dualen System – Eine qualitative Meta-Analyse zur Operationalisierung in Auszubildendenbefragungen Auszubildendenbefragungen. [Training Conditions in VET – A Qualitative Meta-Synthesis for the Operationalization in Apprentice Questionnaires.] *Zeitschrift für Pädagogische Psychologie*, 33(1), 49–70. https://doi.org/10.1024/1010-0652/a000234

Böhn, S., & Deutscher, V. K. (2021). Development and Validation of a Learning Quality Inventory for In-Company Training in VET (VET-LQI). *Vocations and Learning, 14*(1), 23–53. https://doi.org/10.1007/s12186-020-09251-3

Bowling, N. A., Eschleman, K. J., & Wang, Q. (2010). A meta-analytic examination of the relationship between job satisfaction and subjective well-being. *Journal of Occupational and Organizational Psychology*, *83*(4), 915–934. https://doi.org/10.1348/096317909X478557

Brandi, U., & Iannone, R. L. (2021). Approaches to learning in the context of work – workplace learning and human resources. *Journal of Workplace Learning*, *33*(5), 317–333. https://doi.org/10.1108/JWL-01-2020-0015

Breiter, C., & Scardamalia, M. (2016). Intentional Learning as a Goal of Instruction. In L. Resnick (Ed.), *Psychology of Education and Instruction Series. Knowing, Learning, and instruction: Essays in Honor of Robert Glaser* (pp. 361–392). Routledge.

Bridgman, T., Cummings, S., & Ballard, J. (2019). Who Built Maslow's Pyramid? A History of the Creation of Management Studies' Most Famous Symbol and Its Implications for Management Education. *Academy of Management Learning & Education, 18*(1), 81–98. https://doi.org/10.5465/amle.2017.0351

Brockmann, M., Clarke, L., & Winch, C. (2008). Knowledge, skills, competence: European divergences in vocational education and training (VET)—the English, German and Dutch cases. *Oxford Review of Education*, 34(5), 547–567. https://doi.org/10.1080/03054980701782098

Brodsky, A. (2022). *Lernen am Arbeitsplatz im dualen Studium [Learning on the job in dual study programs]*. Springer Fachmedien Wiesbaden. https://doi.org/10.1007/978-3-658-36605-6

Brynjolfsson, E., & McAfee, A. (2014). *The second machine age: Work, progress, and prosperity in a time of brilliant technologies.* New York, NY: Norton.

Bryson, J., Pajo, K., Ward, R., & Mallon, M. (2006). Learning at work: Organisational affordances and individual engagement. *Journal of Workplace Learning, 18*(5), 279–297. https://doi.org/10.1108/13665620610674962

Caldwell, C., & Peters, R. (2018). New employee onboarding – psychological contracts and ethical perspectives. *Journal of Management Development, 37*(1), 27–39. https://doi.org/10.1108/JMD-10-2016-0202

Candela, A. G. (2019). Exploring the Function of Member Checking. *The Qualitative Report 24*(3), 619–628. https://doi.org/10.46743/2160-3715/2019.3726.

Cannas, M., Sergi, B. s., Sironi, E., & Mentel, U. (2019). Job satisfaction and subjective well-being in Europe. *Economics and Sociology, 12*(4), 183–196. https://doi.org/10.14254/2071-789X.2019/12-4/11

Cedefop (2011). *Vocational education and training is good for you: The social benefits of VET for individuals. Research paper (European Centre for the Development of Vocational Training): Vol. 17.* Luxembourg: Publications Office.

Cedefop (2012). *From education to working life: The labour market outcomes of vocational education and training*. Luxembourg: Publications Office. Retrieved from http://dx.doi.org/10. 2801/92129

Cedefop (2013). *On the way to 2020. Research paper / CEDEFOP, European Centre for the Development of Vocational Training: Vol. 31*. Luxembourg: Publications Office. Retrieved from http://dx.doi.org/10.2801/47144

Cedefop (2016). *Future skill needs in Europe: Critical labour force trends. Cedefop research paper: No 59.* Luxembourg: Publications Office.

Cedefop (2017a). *Looking back to look ahead: Preparing the future of vocational education and training in Europe 2020-30. Briefing note: September 2017*. Luxembourg: Publications Office.

Cedefop (2017b). *Opinion survey on vocational education and training in Europe*. Luxembourg: Publications Office.

Cedefop (2017c). *Spotlight on VET: Germany*. Retrieved from https://www.cedefop.europa.eu/en/publications/8116

Cedefop (2019). VET in Germany. In Cedefop (Ed.), *Spotlight on VET – 2018 compilation: vocational education and training systems in Europe* (pp. 28–29). Luxembourg: Publications Office. Retrieved from http://data.europa.eu/doi/10.2801/009

Cerasoli, C. P., Alliger, G. M., Donsbach, J. S., Mathieu, J. E., Tannenbaum, S. I., & Orvis, K. A. (2018). Antecedents and Outcomes of Informal Learning Behaviors: A Meta-Analysis. *Journal of Business and Psychology, 33*(2), 203–230. https://doi.org/10.1007/s10869-017-9492-y

Chambers, E., Foulon, M., Handfield-Jones, H., Hankin, S., & Michaels III, E. (1998). The war for talent. *The McKinsey Quarterly*, 3, 44–57.

Chang, M.-L., & Cheng, C.-F. (2014). How balance theory explains high-tech professionals' solutions of enhancing job satisfaction. *Journal of Business Research, 67*(9), 2008–2018. https://doi.org/10.1016/j.jbusres.2013.10.010

Cheung, S. Y., Gong, Y., Wang, M., Le Zhou & Shi, J. (2016). When and how does functional diversity influence team innovation? The mediating role of knowledge sharing and the moderation role of affect-based trust in a team. *Human Relations 69*(7), 1507–1531. https://doi.org/10.1177/0018726715615684.

Chiang, C.-F., & Wu, K.-P. (2014). The influences of internal service quality and job standardization on job satisfaction with supports as mediators: Flight attendants at branch workplace. *The International Journal of Human Resource Management, 25*(19), 2644–2666. https://doi.org/10.1080/09585192.2014.884616

Chirumbolo, A., Urbini, F., Callea, A., Lo Presti, A., & Talamo, A. (2017). Occupations at Risk and Organizational Well-Being: An Empirical Test of a Job Insecurity Integrated Model. *Frontiers in Psychology, 8*, 2084. https://doi.org/10.3389/fpsyg.2017.02084

Cho, H. J., & Kim, J.-M. (2016). Administrative assistants' informal learning and related factors. *Journal of Workplace Learning, 28*(7), 406–423. https://doi.org/10.1108/JWL-11-2015-0079

Choi, W., & Jacobs, R. L. (2011). Influences of formal learning, personal learning orientation, and supportive learning environment on informal learning. *Human Resource Development Quarterly, 22*(3), 239–257. https://doi.org/10.1002/hrdq.20078

Christiansen, N., Sliter, M., & Frost, C. T. (2014). What employees dislike about their jobs: Relationship between personality-based fit and work satisfaction. *Personality and Individual Differences, 71*, 25–29. https://doi.org/10.1016/j.paid.2014.07.013

Clark, H., Jassal, P. K., Kyte, S. B., & LeFebvre, M. (2019). The New Learning Economy and the Rise of the Working Learner. In V. H. Kenon & S. V. Palsole (Eds.), *The Wiley Handbook of Global Workplace Learning* (pp. 67–81). Wiley. https://doi.org/10.1002/9781119227793.ch4

Cook, S. D. N., & Yanow, D. (1993). Culture and Organizational Learning. *Journal of Management Inquiry, 2*(4), 373–390. https://doi.org/10.1177/105649269324010

Cooper-Thomas, H., Anderson, N., & Cash, M. (2012). Investigating organizational socialization: A fresh look at newcomer adjustment strategies. *Personnel Review, 41*(1), 41–55. https://doi.org/10.1108/00483481211189938

Crouse, P., Doyle, W., & Young, J. D. (2011). Workplace learning strategies, barriers, facilitators and outcomes: A qualitative study among human resource management practitioners. *Human Resource Development International*, 14(1), 39–55. https://doi.org/10.1080/13678868.2011.542897

Culibrk, J., Deli´c, M., Mitrovi´c, S., & Culibrk, D. (2018). Job satisfaction, organizational commitment and job involvement: the mediating role of job involvement. *Frontiers in Psychology*, (9)132, https://doi.org/10.3389/fpsyg.2018.00132

Davenport, T. H., & Prusak, L. (2010). *Working knowledge: How organizations manage what they know* [Reprint]. Harvard Business School Press.

Decius, J., Schaper, N., & Seifert, A. (2021). Work Characteristics or Workers' Characteristics? An Input-Process-Output Perspective on Informal Workplace Learning of Blue-Collar Workers. *Vocations and Learning, 14*(2), 285–326. https://doi.org/10.1007/s12186-021-09265-5

Dede, C. (2010). Comparing Frameworks for 21st Century Skills. In J. Bellanca & R. Brandt (Eds.), *21st century skills: Rethinking how students learn* (pp. 51–76). Bloomington, IN: Solution Tree Press.

Deißinger, T., & Frommberger, D. (2010). Berufsbildung im internationalen Vergleich – Typen nationaler Berufsbildungssysteme [Vocational training in international comparison - Types of national vocational training systems]. In R. Nickolaus, G. Pätzold, H. Reinisch, & P. T. Tramm (Eds.), *UTB Pädagogik: Vol. 8442. Handbuch Berufs- und Wirtschaftspädagogik* (1st ed., pp. 343–348). Bad Heilbrunn: Klinkhardt.

Deloitte. (2022). *Striving for balance, advocating for change: The Deloitte Global 2022 Gen Z and Millennial Survey*. https://www.deloitte.com/global/en/issues/work/genzmillennialsurvey.html

De Neve, J.-E., Diener, E., Tay, L., & Xuereb, C. (2013). The objective benefits of subjective well-being. In J. F. Helliwell, R. Layard, & J. Sachs (Eds.), *World Happiness Report 2013* (pp. 54–79).

DeYoung, R. K. (1999). Environmental Psychology. In D. E. Alexander & R. W. Fairbridge (Eds.), *Encyclopedia of Environmental Science* (pp. 223–224). Kluwer Academic Publishers.

DeYoung, R. K. (2013). Environmental Psychology Overview. In A. H. Huffman & S. R. Klein (Eds.), *Series in applied psychology. Green organizations: Driving change with I-O psychology* (pp. 17–33). Routledge.

DGPs. (2023). *Unsere Fachgruppen [Our specialist groups]*. Deutsche Gesellschaft für Psychologie (German Psychological Society). https://www.dgps.de/fachgruppen

Diener, E., Heintzelman, S. J., Kushlev, K., Tay, L., Wirtz, D., Lutes, L. D., & Oishi, S. (2017). Findings all psychologists should know from the new science on subjective well-being. *Canadian Psychology/Psychologie Canadienne*, *58*(2), 87–104. https://doi.org/10.1037/cap0000063

Diener, E., Oishi, S., & Tay, L. (2018). Advances in subjective well-being research. *Nature Human Behaviour*, *2*(4), 253–260. https://doi.org/10.1038/s41562-018-0307-6

Di Fabio, A. (2017). The Psychology of Sustainability and Sustainable Development for Well-Being in Organizations. *Frontiers in Psychology*, *8*, 1534. https://doi.org/10.3389/fpsyg.2017.01534

Doornbos, A. J., Simons, R.-J., & Denessen, E. (2008). Relations between characteristics of workplace practices and types of informal work-related learning: A survey study among Dutch Police. *Human Resource Development Quarterly*, *19*(2), 129–151. https://doi.org/10.1002/hrdq.1231

Eckert, M., & Tramm, T. (2004). Stand und Perspektiven der Berufsbildungsforschung aus Sicht der Berufs- und Wirtschaftspädagogik [Status and perspectives of vocational education research from the perspective of vocational and business education]. In R. Czycholl & R. Zedler (Eds.), *Beiträge zur Berufsbildungsforschung der AG BFN: Nr. 5. Stand und Perspektiven der Berufsbildungsforschung*. Bundesagentur für Arbeit, Service-Haus, Geschäftsstelle für Veröff.

Eiffe, F., Ponocy, I., Gärtner, K., & Till, M. (2016). Analytic report on subjective well-being (Statistical working papers). Luxembourg. Eurostat. https://ec.europa.eu/eurostat/de/web/products-statistical-working-papers/-/KS-TC-16-005 https://doi.org/10.2785/318297

Ellis, A. M., Bauer, T. N., Mansfield, L. R., Erdogan, B., Truxillo, D. M., & Simon, L. S. (2015). Navigating Uncharted Waters: Newcomer Socialization Through the Lens of Stress Theory. *Journal of Management*, *41*(1), 203–235. https://doi.org/10.1177/0149206314557525

ELGPN (2012). *Lifelong Guidance Policy Development: A European Resource Kit* (ELGPN Tools No. 1). Retrieved from http://www.elgpn.eu/publications/elgpn-tools-no1-resource-kit

ELGPN (2015). *Guidelines for Policies and Systems Development for Lifelong Guidance: A Reference Framework for the EU and for the Commission* (ELGPN Tools No. 6). Retrieved from http://www.elgpn.eu/publications/browse-by-language/english/elgpn-tools-no-6-guidelines-for-policies-and-systems-development-for-lifelong-guidance/

Endedijk, M. D., & Bronkhorst, L. H. (2014). Students' Learning Activities Within and Between the Contexts of Education and Work. *Vocations and Learning*, 7(3), 289–311. https://doi.org/10.1007/s12186-014-9116-x

Eraut, M. (2004). Informal learning in the workplace. *Studies in Continuing Education*, *26*(2), 247–273. https://doi.org/10.1080/158037042000225245

ESPAS. (2019). *Global trends to 2030: Challenges and choices for Europe*. European Strategy and Policy Analysis System. https://doi.org/10.2872/074526

ESPAS. (2021). *ESPAS Global Trends Mid-Term Report: The Global Future - An Update.* European Strategy and Policy Analysis System. https://www.iss.europa.eu/content/espas-global-trends-mid-term-report

Euler, D. (2004). Lernortkooperation – eine unendliche Geschichte? [Learning site cooperation–an endless story?] In D. Euler (Hrsg.), *Handbuch der Lernortkooperation. Theoretische Fundierung* (S. 12-24). Bd. 1. Bielefeld: W. Bertelsmann Verlag.

Euler, D. (2015). Lernorte in der Berufsausbildung zwischen Potential und Realität [Learning sites in vocational training between potential and reality]. *BWP – Berufsbildung in Wissenschaft und Praxis*, 44(1), 6-9.

European Commission (Ed.). (2022). *Digital Economy and Society Index (DESI) 2022: Integration of digital technology*. https://digital-strategy.ec.europa.eu/en/policies/desi-integration-technology-enterprises

Eurostat (2021a). *Adult learning statistics.* Retrieved from https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Adult_learning_statistics

Eurostat (2021b). *Fertility statistics.* Retrieved from https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Fertility_statistics

Eurostat (2021c). *Labour market flow statistics in the EU.* Retrieved from https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Labour_market_flow_statistics_in_the_EU#Labour_market_flows:_transitions

Eurostat (2021d). *Mortality and life expectancy statistics.* Retrieved from https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Mortality_and_life_expectancy_statistics#Slight_increase_in_number_of_deaths_in_2017

Eurostat (2021e). *Youth unemployment rate in EU member states as of August 2019 (seasonally adjusted).* Retrieved from https://www.statista.com/statistics/266228/youth-unemployment-rate-in-eu-countries/

Federal Statistical Office. (2022, August 30). *Duale Berufsausbildung: Zahl neuer Ausbildungsverträge 2021 weiter auf historisch niedrigem Niveau [Dual vocational training: Number of new training contracts remains at historically low level in 2021]* [Press release]. https://www.destatis.de/DE/Presse/Pressemitteilungen/2022/08/PD22_363_212.html

Federal Statistical Office (Ed.). (2022a). *Gloabalisierungsindikatoren. Außenwirtschaft [Gloabalization indicators. Foreign trade].* https://www.destatis.de/DE/Themen/Wirtschaft/Globalisierungsindikatoren/aussenwirtschaft.html?nn=213448#246078

Federal Statistical Office (Ed.). (2022b). *Globalisierungsindikatoren. Kennzahlen zur Außenwirtschaft [Globalization indicators. Key figures on foreign trade]*. https://www.destatis.de/DE/Themen/Wirtschaft/Globalisierungsindikatoren/Tabellen/01_02_03_44_VGR.html

Feldman, D. C. (1981). The multiple socialization of organization members. *Academy of Management Review, 6*(2), 309–318. https://doi.org/10.5465/amr.1981.4287859

Filstad, C. (2011). Organizational commitment through organizational socialization tactics. *Journal of Workplace Learning, 23*(6), 376–390. https://doi.org/10.1108/13665621111154395

Fisher, C. D. (2010). Happiness at Work. *International Journal of Management Reviews, 12*(4), 384–412. https://doi.org/10.1111/j.1468-2370.2009.00270.x

Flanagan, J. C. (1954). The critical incident technique. *Psychological Bulletin 51*(4), 327–358. https://doi.org/10.1037/h0061470.

Fleming, S. S., Goldman, A. W., Correll, S. J., & Taylor, C. J. (2016). Settling In: The Role of Individual and Departmental Tactics in the Development of New Faculty Networks. *The Journal of Higher Education, 87*(4), 544–572. https://doi.org/10.1353/jhe.2016.0018

Foster, C., Punjaisri, K., & Cheng, R. (2010). Exploring the relationship between corporate, internal and employer branding. *Journal of Product & Brand Management, 19*(6), 401–409. https://doi.org/10.1108/10610421011085712

Fox, A., Deaney, R., & Wilson, E. (2010). Examining beginning teachers' perceptions of workplace support. *Journal of Workplace Learning, 22*(4), 212–227. https://doi.org/10.1108/13665621011040671

Frazier, M. L., Fainshmidt, S., Klinger, R. L., Pezeshkan, A., & Vracheva, V. (2017). Psychological Safety: A Meta-Analytic Review and Extension. *Personnel Psychology, 70*(1), 113–165. https://doi.org/10.1111/peps.12183

Freitosa, J., & Sim, J. (2020). I-O Psychology Around the World. In L. Koppes Bryan (Ed.), *Historical Perspectives in Industrial and Organizational Psychology* (pp. 63–82). Routledge.

Frey, C. B., & Osborne, M. A. (2017). The future of employment: How susceptible are jobs to computerisation? *Technological Forecasting and Social Change*, 114, 254–280. https://doi.org/10.1016/j.techfore.2016.08.019

Frické, M. (2019). The Knowledge Pyramid: the DIKW Hierarchy. *Knowledge Organization, 46*(1), 33–46. https://doi.org/10.5771/0943-7444-2019-1-33

Fuller, A., & Unwin, L. (2004). Expansive learning environments. Integrating organizational and personal development. In H. Rainbird, A. Fuller, & A. Munro (Eds.), *Workplace learning in context* (pp. 126–144). Routledge.

García-Buades, M. E., Peiró, J. M., Montañez-Juan, M. I., Kozusznik, M. W., & Ortiz-Bonnín, S. (2020). Happy-Productive Teams and Work Units: A Systematic Review of the 'Happy-Productive Worker Thesis'. *International Journal of Environmental Research and Public Health, 17*(1). https://doi.org/10.3390/ijerph17010069

Gagné, M., Tian, A. W., Soo, C., Zhang, B., Ho, K. S. B. & Hosszu, K. (2019). Different motivations for knowledge sharing and hiding: The role of motivating work design. *Journal of Organizational Behavior 40*(7), 783–799. https://doi.org/10.1002/job.2364.

Geddes, D., Callister, R. R., & Gibson, D. E. (2020). A Message in the Madness: Functions of Workplace Anger in Organizational Life. *Academy of Management Perspectives, 34*(1), 28–47. https://doi.org/10.5465/amp.2016.0158.

Gentner, S., Birkle, S. & Seifried, J. (im Druck). Knowledge Sharing in der betrieblichen Praxis – Empirische Befunde einer Fallstudie bei einem mittelständischen IT-Dienstleister. In A.

Mensching, N. Engel, C. Fahrenwald, M. Hunold & S. M. Weber (Hrsg.), *Organisation zwischen Theorie und Praxis.* Wiesbaden: Springer.

GERA. (2023). *Division Vocational Education*. The German Educational Research Association. https://www.dgfe.de/en/divisions-subdivisions/division-vocational-education

Gerholz, K.-H., & Brahm, T. (2014). Apprenticeship and Vocational Education: An Institutional Analysis of Workplace Learning in the German Vocational System. In C. Harteis, A. Rausch, & J. Seifried (Eds.), *Discourses on Professional Learning* (Vol. 9, pp. 143–158). Dordrecht: Springer Netherlands.

Giustiniano, L., Lombardi, S. & Cavaliere, V. (2016). How knowledge collecting fosters organizational creativity. *Management Decision 54*(6), 1464–1496. https://doi.org/10.1108/MD-04-2015-0111.

Goller, M. (2017). *Human Agency at Work: An Active Approach towards Expertise Development.* Wiesbaden: Springer.

Göhlich, M. (2018). Organisationales Lernen als zentraler Gegenstand der Organisationspädagogik [Organizational learning as a central object of organizational pedagogy]. In M. Göhlich, A. Schröer, & S. M. Weber (Eds.), *Organisation und Pädagogik. Handbuch Organisationspädagogik [Handbook of Organizational Pedagogy]* (Vol. 17, pp. 365–379). Springer Fachmedien Wiesbaden. https://doi.org/10.1007/978-3-658-07512-5_3

Grant, R. M. (1996). Toward a knowledge-based theory of the firm. *Strategic Management Journal 17*(S2), 109–122. https://doi.org/10.1002/smj.4250171110.

Greinert, W.-D. (2005). *Mass vocational education and training in Europe: Classical models of the 19th century and training in England, France and Germany during the first half of the 20th*. *Cedefop panorama series: Vol. 118*. Luxembourg: Office for Official Publ. of the European Communities.

Gruber, H., & Harteis, C. (2018). *Individual and Social Influences on Professional Learning: Supporting the acquisition and maintenance of expertise* (Vol. 24). Springer International Publishing. https://doi.org/10.1007/978-3-319-97041-7

Gruman, J. A., & Saks, A. M. (2013). Organizational Socialization and Newcomers' Psychological Capital and Well-Being. In A. B. Bakker (Ed.), *Advances in positive organizational psychology* (pp. 211–236). Emerald.

Gupta, P. D., Bhattacharya, S., Sheorey, P., & Coelho, P. (2018). Relationship between onboarding experience and turnover intention: intervening role of locus of control and self-efficacy. *Industrial and Commercial Training, 50*(2), 61–80. https://doi.org/10.1108/ICT-03-2017-0023

Hacker, W. (2003). Action regulation theory: A practical tool for the design of modern work processes? *European Journal of Work and Organizational Psychology*, *12*(2), 105–130. https://doi.org/10.1080/13594320344000075

Hacker, W. (2005). *Allgemeine Arbeitspsychologie. Psychische Regulation von Wissens-, Denk- und körperlicher Arbeit [General Work Psychology. Psychological regulation of knowledge, thinking and physical work.]* (2nd edition) Schriften zur Arbeitspsychologie: Vol. 58. Huber. http://bvbr.bib-bvb.de:8991/F?func=service&doc_library=BVB01&doc_number=013361477&line_number=0001&func_code=DB_RECORDS&service_type=MEDIA

Hacker, W. (2021). *Psychische Regulation von Arbeitstätigkeiten 4.0 [Psychological regulation of work activities 4.0]. Mensch - Technik - Organisation: v.51.* vdf Hochschulverlag AG.

Hackman, J. R., & Oldham, G. R. (1974). *The Job Diagnostic Survey. An instrument for the diagnosis of jobs and the evaluation of job redesign projects*. Yale University.

Han, S. (2018). The antecedents and dimensionality of knowledge-sharing intention. *European Journal of Training and Development 42*(1-2), 125–142. https://doi.org/10.1108/EJTD-09-2017-0073.

Harris, L., Cooper-Thomas, H., Smith, P., & Smollan, R. (2020). Reclaiming the social in socialization: A practice-based understanding of newcomer adjustment. *Human Resource Development Quarterly, 31*(2), 193–211. https://doi.org/10.1002/hrdq.21384

Harteis, C. (2019). Supporting learning at work in an era of digitalization of work. In A. Bahl & A. Dietzen (Eds.), *Work-based learning as a pathway to competence-based education*. Opladen: Barbara Budrich.

Harteis, C., Goller, M., & Caruso, C. (2020). Conceptual Change in the Face of Digitalization: Challenges for Workplaces and Workplace Learning. *Frontiers in Education, 5*, Article 1. https://doi.org/10.3389/feduc.2020.00001

Harvey, J., Wheeler, A., Halbesleben, J. R., & Buckley, M. R. (2010). How did you figure that out? Employee learning during socialization. In H. Liao, J. J. Martocchio, & A. Joshi (Eds.), *Research in personnel and human resources management. Research in Personnel and Human Resources Management* (Vol. 29, pp. 167–200). Emerald Group Publishing Limited. https://doi.org/10.1108/S0742-7301(2010)0000029007

Harteis, C., Goller, M., & Fischer, C. (2019). Die Auswirkungen der Digitalisierung auf die Bedeutung beruflicher Qualifikation aus betrieblicher Sicht [The impact of digitization on the importance of vocational qualifications from a company perspective]. In J. Seifried, K. Beck, & B.-J. Ertelt (Eds.), *Wirtschaft - Beruf - Ethik. Beruf, Beruflichkeit, Employability [Occupation, professionalism, employability]* (pp. 239–253). wbv Media.

Herrera, J., & Las Heras-Rosas, C. de (2021). The Organizational Commitment in the Company and Its Relationship With the Psychological Contract. *Frontiers in Psychology, 11*, 609211. https://doi.org/10.3389/fpsyg.2020.609211

Hoekstra, A., Korthagen, F., Brekelmans, M., Beijaard, D., & Imants, J. (2009). Experienced teachers' informal workplace learning and perceptions of workplace conditions. *Journal of Workplace Learning, 21*(4), 276–298. https://doi.org/10.1108/13665620910954193

Hsu, I.-C. (2006). Enhancing employee tendencies to share knowledge—Case studies of nine companies in Taiwan. *International Journal of Information Management 26*(4), 326–338. https://doi.org/10.1016/j.ijinfomgt.2006.03.001.

Hsu, L. M., & Field, R. (2003). Interrater Agreement Measures: Comments on Kappa n, Cohen’s Kappa, Scott’s π, and Aickin’s α. *Understanding Statistics, 2*(3), 205–219. https://doi.org/10.1207/S15328031US0203_03

Huang, Y.-H., Lee, J., McFadden, A. C., Murphy, L. A., Robertson, M. M., Cheung, J. H., & Zohar, D. (2016). Beyond safety outcomes: An investigation of the impact of safety climate on job satisfaction, employee engagement and turnover using social exchange theory as the theoretical framework. *Applied Ergonomics, 55*, 248–257. https://doi.org/10.1016/j.apergo.2015.10.007

Ipe, M. (2003). Knowledge Sharing in Organizations: A Conceptual Framework. *Human Resource Development Review 2*(4), 337–359. https://doi.org/10.1177/1534484303257985.

Jääskelä, P., Poikkeus, A.-M., Vasalampi, K., Valleala, U. M., & Rasku-Puttonen, H. (2016). Assessing agency of university students: Validation of the AUS Scale. *Studies in Higher Education*, 42(11), 2061–2079. https://doi.org/10.1080/03075079.2015.1130693

Jain, A. K., Giga, S. I., & Cooper, C. L. (2009). Employee wellbeing, control and organizational commitment. *Leadership & Organization Development Journal, 30*(3), 256–273. https://doi.org/10.1108/01437730910949535

Jamshed, S. & Majeed, N. (2019). Relationship between team culture and team performance through lens of knowledge sharing and team emotional intelligence. *Journal of Knowledge Management 23*(1), 90–109. https://doi.org/10.1108/JKM-04-2018-0265.

Jenkins, A., & Mostafa, T. (2015). The effects of learning on wellbeing for older adults in England. *Ageing and Society, 35*(10), 2053–2070. https://doi.org/10.1017/S0144686X14000762

Jennex, M. E. (2017). Big Data, the Internet of Things, and the Revised Knowledge Pyramid. ACM SIGMIS Database: *The DATABASE for Advances in Information Systems, 48*(4), 69–79. https://doi.org/10.1145/3158421.3158427

Jeong, S., Han, S. J., Lee, J., Sunalai, S., & Yoon, S. W. (2018). Integrative Literature Review on Informal Learning: Antecedents, Conceptualizations, and Future Directions. *Human Resource Development Review, 17*(2), 128–152. https://doi.org/10.1177/1534484318772242

Jia, H., Zhong, R., & Xie, X. (2021). Helping others makes me fit better: effects of helping behavior by newcomers and coworker-attributed motives on newcomers' adjustment. *Journal of Business and Psychology, 36*(3), 401–416. https://doi.org/10.1007/s10869-020-09680-w

Jones, G. R. (1986). Socialization Tactics, Self-Efficacy, and Newcomers' Adjustment to Organizations. *Academy of Management Journal, 29*(2), 262–279. https://doi.org/10.2307/256188

Ju, S., Zhang, D., & Pacha, J. (2012). Employability Skills Valued by Employers as Important for Entry-Level Employees With and Without Disabilities. *Career Development and Transition for Exceptional Individuals*, 35(1), 29–38. https://doi.org/10.1177/0885728811419167

Kalleberg, A. L. & Mouw, T. (2018). Occupations, Organizations, and Intragenerational Career Mobility. *Annual Review of Sociology*, 44(1), 283–303. https://doi.org./10.1146/annurev-soc-073117-041249

Kammeyer-Mueller, J. D., Livingston, B. A., & Liao, H. (2010). Perceived similarity, proactive adjustment, and organizational socialization. *Journal of Vocational Behavior, 78*(2), 225–236. https://doi.org/10.1016/j.jvb.2010.09.012

Kammeyer-Mueller, J. D., & Wanberg, C. R. (2003). Unwrapping the organizational entry process: Disentangling multiple antecedents and their pathways to adjustment. *Journal of Applied Psychology, 88*(5), 779–794. https://doi.org/10.1037/0021-9010.88.5.779

Kankaraš, M. (2021). *Workplace learning: determinants and consequences: insights from the 2019 European company survey* (Cedefop working paper Nr. 7). Publications Office of the European Union. http://data.europa.eu/doi/10.2801/111971. Gesehen: 22.03.2022

Kanning, U. P. (2017). *Personalmarketing, Employer Branding und Mitarbeiterbindung. Forschungsbefunde und Praxistipps aus der Personalpsychologie [Human resource marketing, employer branding and employee retention. Research findings and practical tips from personnel psychology]*. Springer. https://doi.org/10.1007/978-3-662-50375-1

Karasek, Robert, A. Jr. (1979). Job Demands, Job Decision Latitude, and Mental Strain: Implications for Job Redesign. *Administrative Science Quarterly, 24*(2), 285–308. http://www.jstor.com/stable/2392498

Kianto, A., Vanhala, M., & Heilmann, P. (2016). The impact of knowledge management on job satisfaction. *Journal of Knowledge Management, 20*(4), 621–636. https://doi.org/10.1108/JKM-10-2015-0398.

Kim, E. & Park, S. (2020). Employees' perceptions of organizational learning: the role of knowledge and trust. *Kybernetes.* https://doi.org/10.1108/K-03-2020-0169.

Kirpal, S. (2007). The individualisation of identification with work in a European perspective. In A. Brown, S. Kirpal, & F. Rauner (Eds.), *Technical and Vocational Education and Training: Vol. 5.* Identities at Work (pp. 285–314). Springer.

Klein, H. J., Cooper, J. T., Molloy, J. C., & Swanson, J. A. (2014). The assessment of commitment: Advantages of a unidimensional, target-free approach. *The Journal of Applied Psychology, 99*(2), 222–238. https://doi.org/10.1037/a0034751

Klein, H. J., & Polin, B. (2012). Are Organizations On Board with Best Practices Onboarding? In C. R. Wanberg (Ed.), *Oxford library of psychology. The Oxford handbook of organizational socialization* (pp. 267–287). Oxford Univ. Press.

Klein, H. J., Polin, B., & Sutton, K. L. (2015). Specific Onboarding Practices for the Socialization of New Employees. *International Journal of Selection and Assessment, 23*(3), 263–283. https://doi.org/10.1111/ijsa.12113

Klimoski, R. J. (2020). Reflections on the Importance of Context (with the Benefit of 2020 Hindsight). In L. Koppes Bryan (Ed.), *Historical Perspectives in Industrial and Organizational Psychology* (pp. 292–306). Routledge.

KMK. (2007). *Handreichung für die Erarbeitung von Rahmenlehrplänen der Kultusministerkonferenz für den berufsbezogenen Unterricht in der Berufsschule und ihre Abstimmung mit Ausbildungsordnungen des Bundes für anerkannte Ausbildungsberufe [Guidance on the development of framework curricula of the Standing Conference of the Ministers of Education and Cultural Affairs in the field of vocational education and training for occupation-related instruction at vocational schools and their coordination with federal training regulations for recognised training occupations]*. Bonn. Retrieved from https://www.kmk.org/fileadmin/veroeffentlichungen_beschluesse/2007/2007_09_01-Handreich-Rlpl-Berufsschule.pdf

KOFA. (2019). *Fachkräftesicherung in Deutschland – diese Potenziale gibt es noch [Securing skilled workers in Germany - this potential still exists]. Kompetenzzentrum Fachkräftesicherung.* https://www.kofa.de/daten-und-fakten/studien/fachkraefteengpaesse-in-unternehmen/?mtm_campaign=search&gclid=CjwKCAiAmuKbBhA2EiwAxQnt78YtGnsbqg-koIwC8admHfcn0vzb2evB3fXQM20frTu32JkCl8vEqsBoCarMQAvD_BwE

Kopp, B., & Mandl, H. (2014). Lerntheoretische Grundlagen von Rückmeldungen [Theoretical foundations of feedback]. In H. Ditton & A. Müller (Eds.), *Feedback und Rückmeldungen: Theoretische Grundlagen, empirische Befunde, praktische Anwendungsfelder* (pp. 29–41). Waxmann.

Korte, R., Brunhaver, S., & Sheppard, S. (2015). (Mis)Interpretations of Organizational Socialization: The Expectations and Experiences of Newcomers and Managers. *Human Resource Development Quarterly, 26*(2), 185–208. https://doi.org/10.1002/hrdq.21206

Korte, R., & Lin, S. (2013). Getting on board: Organizational socialization and the contribution of social capital. *Human Relations, 66*(3), 407–428. https://doi.org/10.1177/0018726712461927

Korte, R. F. (2009). How newcomers learn the social norms of an organization: A case study of the socialization of newly hired engineers. *Human Resource Development Quarterly, 20*(3), 285–306. https://doi.org/10.1002/hrdq.20016

Koslowsky, M., Weisberg, J., Yaniv, E., & Zaitman-Speiser, I. (2012). Ease of movement and sector affiliation as moderators of the organizational and career commitment. *International Journal of Manpower, 33*(7), 822–839. https://doi.org/10.1108/01437721211268348

Kowtha, N. R. (2018). Organizational socialization of newcomers: The role of professional socialization. *International Journal of Training and Development, 22*(2), 87–106. https://doi.org/10.1111/ijtd.12120

Krcmar, H. (2015). *Informationsmanagement*. Springer Berlin Heidelberg. https://doi.org/10.1007/978-3-662-45863-1 s

Krötz, M., & Deutscher, V. (2021). Differences in Perception Matter – How Differences in the Perception of Training Quality of Trainees and Trainers Affect Drop-Out in VET. *Vocations and Learning, 14*(3), 369–409. https://doi.org/10.1007/s12186-021-09263-7

Krueger, R. A. (1999). *Analyzing & reporting focus group results. Focus group kit: Vol. 6*. SAGE.

Kubis, A., & Popp, M. (2022). *IAB-Stellenerhebung 2/2022: Offene Stellen mit 1,93 Millionen auf erneutem Allzeithoch [IAB Job Survey 2/2022: Job vacancies at another all-time high of 1.93 million]*. https://doi.org/10.48720/IAB.FOO.20220811.01

Kucharska, W. (2021). Do mistakes acceptance foster innovation? Polish and US cross-country study of tacit knowledge sharing in IT. *Journal of Knowledge Management 25*(11), 105–128. https://doi.org/10.1108/JKM-12-2020-0922.

Kuhn, P., & Yu, L. (2021). How Costly Is Turnover? Evidence from Retail. *Journal of Labor Economics, 0*. https://doi.org/10.1086/710359

Kutscha, G. (2015). Erweiterte moderne Beruflichkeit: Eine Alternative zum Mythos „Akademisierungswahn" und zur „Employability-Maxime" des Bologna-Regimes [Expanded modern professionalism: An alternative to the myth of "mania for academia" and the "employability maxim" of the Bologna regime]. *Berufs- und Wirtschaftspädagogik - online*. (29).

Kyndt, E., & Baert, H. (2013). Antecedents of Employees' Involvement in Work-Related Learning. *Review of Educational Research, 83*(2), 273–313. https://doi.org/10.3102/0034654313478021

Kyndt, E., Dochy, F., & Nijs, H. (2009). Learning conditions for non-formal and informal workplace learning. *Journal of Workplace Learning*, 21(5), 369–383. https://doi.org/10.1108/13665620910966785

Lancaster, S., & Di Milia, L. (2014). Organisational support for employee learning. *European Journal of Training and Development, 38*(7), 642–657. https://doi.org/10.1108/EJTD-08-2013-0084

Landis, J. R., & Koch, G. G. (1977). The Measurement of Observer Agreement for Categorical Data. *Biometrics, 33*(1), 159–174. https://doi.org/10.2307/2529310

Lapointe, É., Vandenberghe, C., & Boudrias, J.-S. (2014). Organizational socialization tactics and newcomer adjustment: The mediating role of role clarity and affect-based trust relationships. *Journal of Occupational and Organizational Psychology, 87*(3), 599–624. https://doi.org/10.1111/joop.12065

Lave, J., & Wenger, E. (1991). *Situated learning: Legitimate peripheral participation. Learning in doing*. Cambridge: Cambridge University Press.

Lim, Y.-M., Lee, T. H., Yap, C. S., & Ling, C. C. (2016). Employability skills, personal qualities, and early employment problems of entry-level auditors: Perspectives from employers, lecturers, auditors, and students. *Journal of Education for Business, 91*(4), 185–192. https://doi.org/10.1080/08832323.2016.1153998

Louis, M. R. (1980). Surprise and Sense Making: What Newcomers Experience in Entering Unfamiliar Organizational Settings. *Administrative Science Quarterly, 25*(2), 226. https://doi.org/10.2307/2392453

Louws, M. L., Meirink, J. A., van Veen, K., & van Driel, J. H. (2016). Exploring the relation between teachers' perceptions of workplace conditions and their professional learning goals. *Professional Development in Education, 43*(5), 770–788. https://doi.org/10.1080/19415257.2016.1251486

Maccoby, E. E. (2015). Historical Overview of Socialization Research and Theory. In J. E. Grusec & P. D. Hastings (Eds.), *Handbook of socialization: Theory and research* (pp. 3–32). The Guilford Press.

Mack, O., & Khare, A. (2016). Perspectives on a VUCA World. In O. Mack, A. Khare, A. Krämer, & T. Burgartz (Eds.), *Managing in a VUCA World* (pp. 3–19). Springer International Publishing. https://doi.org/10.1007/978-3-319-16889-0_1

Maggiori, C., Urbanaviciute, L., & Masdonati, J. (2019). Employability Across the Lifespan. In J. Seifried, K. Beck, & B.-J. Ertelt (Eds.), *Wirtschaft - Beruf - Ethik. Beruf, Beruflichkeit, Employability [Occupation, professionalism, employability]* (pp. 257–271). wbv Media.

Malcolm, J., Hodkinson, P., & Colley, H. (2003). The interrelationships between informal and formal learning. *Journal of Workplace Learning*, 15(7/8), 313–318. https://doi.org/10.1108/13665620310504783

Manuti, A., Pastore, S., Scardigno, A. F., Giancaspro, M. L., & Morciano, D. (2015). Formal and informal learning in the workplace: A research review. *International Journal of Training and Development*, *19*(1), 1–17. https://doi.org/10.1111/ijtd.12044

Maslow, A. H. (1943). A theory of human motivation. *Psychological Review*, *50*(4), 370–396. https://doi.org/10.1037/h0054346

Mayring, P. (2014). *Qualitative content analysis: theoretical foundation, basic procedures and software solutions.* Beltz. https://nbn-resolving.org/urn:nbn:de:0168-ssoar-395173

Mayring, P. (2015). Qualitative Content Analysis: Theoretical Background and Procedures. In A. Bikner-Ahsbahs, C. Knipping, & N. Presmeg (Eds.), *Approaches to Qualitative Research in Mathematics Education* (pp. 365–380). Springer Netherlands. https://doi.org/10.1007/978-94-017-9181-6_13

Meissner, E., & Chang-Gusko, Y.-S. (2019). Arbeitsplatz der Zukunft – vom Eckbüro zum Digital Village [Workplace of the future - from corner office to digital village]. In B. Hermeier, T. Heupel, & S. Fichtner-Rosada (Eds.), *FOM-Edition. Arbeitswelten der Zukunft [Working environments of the future]* (pp. 163–180). Springer Fachmedien Wiesbaden. https://doi.org/10.1007/978-3-658-23397-6_10 s

Meyer, A. M., & Bartels, L. K. (2017). The Impact of Onboarding Levels on Perceived Utility, Organizational Commitment, Organizational Support, and Job Satisfaction. *Journal of Organizational Psychology*, *17*(5), 10–27. https://search.proquest.com/docview/1967314059?accountid=14570

Metso, S. (2014). Vocational students' perspective on organizational factors enhancing workplace learning. *Education + Training*, 56(5), 381–396. https://doi.org/10.1108/ET-05-2013-0069

Moon, H. (2018). Unleashing apprenticeship: From onboarding to professional development. *European Journal of Training and Development*, *42*(1-2), 110–124. https://doi.org/10.1108/EJTD-06-2017-0056

Morgeson, F. P., & Humphrey, S. E. (2006). The Work Design Questionnaire (WDQ): Developing and validating a comprehensive measure for assessing job design and the nature of work. *The Journal of Applied Psychology*, *91*(6), 1321–1339. https://doi.org/10.1037/0021-9010.91.6.1321

Mornata, C., & Cassar, I. (2018). The role of insiders and organizational support in the learning process of newcomers during organizational socialization. *Journal of Workplace Learning*, *30*(7), 562–575. https://doi.org/10.1108/JWL-06-2017-0045

Mousteri, V., Daly, M., & Delaney, L. (2018). The scarring effect of unemployment on psychological well-being across Europe. *Social Science Research*, *72*, 146–169. https://doi.org/10.1016/j.ssresearch.2018.01.007

Mowday, R. T., Steers, R. M., & Porter, L. W. (1979). The measurement of organizational commitment. *Journal of Vocational Behavior*, *14*(2), 224–247. https://doi.org/10.1016/0001-8791(79)90072-1

Muhammed, S. & Zaim, H. (2020). Peer knowledge sharing and organizational performance: the role of leadership support and knowledge management success. *Journal of Knowledge Management 24*(10), 2455–2489. https://doi.org/10.1108/JKM-03-2020-0227

Mündler, M.-A. (2018). Außenhandel, Arbeitsmärkte und die globale Verteilung der Einkommen [Foreign Trade, Labor Markets, and the Global Distribution of Income]. *Wirtschaftsdienst*, *98*(S1), 50–61. https://doi.org/10.1007/s10273-018-2277-8

Nerdinger, F. W., Blickle, G., & Schaper, N. (2019). *Arbeits- und Organisationspsychologie [Industrial and organizational psychology]*. Springer Berlin Heidelberg. https://doi.org/10.1007/978-3-662-56666-4

Nerland, M. (2022). Researching Professional Learning in Complex Environments: Opportunities and Challenges from a Qualitative Research Perspective. In M. Goller, E. Kyndt, S. Paloniemi, & C. Damşa (Eds.), *Professional and practice-based learning. Methods for Researching Professional Learning and Development* (Vol. 33, pp. 603–618). Springer International Publishing. https://doi.org/10.1007/978-3-031-08518-5_27

Nifadkar, S. S., & Bauer, T. N. (2016). Breach of belongingness: Newcomer relationship conflict, information, and task-related outcomes during organizational socialization. *The Journal of Applied Psychology*, *101*(1), 1–13. https://doi.org/10.1037/apl0000035

Nohl, A.-M. (2013). *Interview und dokumentarische Methode. VS Verlag für Sozialwissenschaften*. https://doi.org/10.1007/978-3-531-19421-9

Nonaka, I. & Takeuchi, H. (1995). *The knowledge creating company: How Japanese companies create the dynamics of innovation.* Oxford: Oxford Univ. Press.

North, K. (2021). *Wissensorientierte Unternehmensführung*. Wiesbaden: Springer Fachmedien. https://doi.org/10.1007/978-3-658-32771-2

O'Connell, M., & Kung, M. (2007). The cost of employee turnover. *Industrial Management, 49*(1), 14–19. https://www.proquest.com/trade-journals/cost-employee-turnover/docview/211624856/se-2?accountid=14570

OECD. (2018). *Education at a Glance 2018: OECD indicators*. Paris: OECD Publishing.

OECD (2019a). *OECD skills outlook 2019: Thriving in a digital world*. Paris: OECD Publishing. Retrieved from https://doi.org/10.1787/df80bc12-en

OECD. (2019b). *OECD Social, Employment and Migration Working Papers*. https://doi.org/10.1787/b21807e9-en

OECD. (2019c). *Returns to different forms of job related training: Factoring in informal learning. OECD Social, Employment and Migration Working Papers: Vol. 231*. OECD Publishing. https://doi.org/10.1787/b21807e9-en

OECD. (2020). *OECD Employment Outlook 2020.* OECD Publishing. https://doi.org/10.1787/1686c758-en

OECD. (2021). *Continuing Education and Training in Germany. Getting Skills Right.* OECD Publishing. https://doi.org/10.1787/1f552468-en

OECD. (2022). *Trends Shaping Education 2022.* OECD Publishing. https://doi.org/10.1787/6ae8771a-en

Oliver, D. G., Serovich, J. M., & Mason, T. L. (2005). Constraints and Opportunities with Interview Transcription: Towards Reflection in Qualitative Research. *Social Forces*, *84*(2), 1273–1289. https://doi.org/10.1353/sof.2006.0023

Olsen, E., Bjaalid, G., & Mikkelsen, A. (2017). Work climate and the mediating role of workplace bullying related to job performance, job satisfaction, and work ability: A study among hospital nurses. *Journal of Advanced Nursing*, *73*(11), 2709–2719. https://doi.org/10.1111/jan.13337

Palinkas, L. A., Horwitz, S. M., Green, C. A., Wisdom, J. P., Duan, N., & Hoagwood, K. (2015). Purposeful Sampling for Qualitative Data Collection and Analysis in Mixed Method Implementation Research. *Administration and Policy in Mental Health*, *42*(5), 533–544. https://doi.org/10.1007/s10488-013-0528-y

Patel, R. S., Bachu, R., Adikey, A., Malik, M., & Shah, M. (2018). Factors Related to Physician Burnout and Its Consequences: A Review. *Behavioral Sciences (Basel, Switzerland)*, *8*(11). https://doi.org/10.3390/bs8110098

Patton, M. Q. (2015). *Qualitative research & evaluation methods: Integrating theory and practice* (Fourth edition). SAGE.

Pawlowsky, P. (2019). *Wissensmanagement [Knowledge Management]*. De Gruyter Oldenbourg. https://doi.org/10.1515/9783110474930

Peiró, J. M., Kozusznik, M. W., Rodríguez-Molina, I., & Tordera, N. (2019). The Happy-Productive Worker Model and Beyond: Patterns of Wellbeing and Performance at Work. *International Journal of Environmental Research and Public Health*, *16*(3). https://doi.org/10.3390/ijerph16030479

Ployhart, R. E., & Vandenberg, R. J. (2010). Longitudinal Research: The Theory, Design, and Analysis of Change. *Journal of Management*, *36*(1), 94–120. https://doi.org/10.1177/0149206309352110

Polach, J. L. (2004). Understanding the experience of college graduates during their first year of employment. *Human Resource Development Quarterly*, *15*(1), 5–23. https://doi.org/10.1002/hrdq.1084

Pot, F. D. (2017). Workplace Innovation and Wellbeing at Work. In P. R. Oeij, D. Rus, & F. D. Pot (Eds.), *Aligning Perspectives on Health, Safety and Well-Being. Workplace Innovation: Theory, Research and Practice* (pp. 95–110). Springer International Publishing.

Probst, G., Raub, S., & Romhardt, K. (2012). *Wissen managen [Managing Knowledge]*. Gabler Verlag. https://doi.org/10.1007/978-3-8349-4563-1

Raemdonck, I., Gijbels, D., & van Groen, W. (2014). The influence of job characteristics and self-directed learning orientation on workplace learning. *International Journal of Training and Development*, *18*(3), 188–203. https://doi.org/10.1111/ijtd.12028

Rausch, A. (2014). Using Diaries in Research on Work and Learning. In C. Harteis, A. Rausch, & J. Seifried (Eds.), *Discourses on Professional Learning* (Vol. 9, pp. 341–366). Dordrecht: Springer Netherlands.

Rausch, A., Goller, M., & Steffen, B. (2022). Uncovering Informal Workplace Learning by Using Diaries. In M. Goller, E. Kyndt, S. Paloniemi, & C. Damşa (Eds.), *Professional and practice-based learning. Methods for Researching Professional Learning and Development* (Vol. 33, pp. 43–70). Springer International Publishing. https://doi.org/10.1007/978-3-031-08518-5_3

Rosenstiel, L. von, & Nerdinger, F. W. (2011). *Grundlagen der Organisationspsychologie: Basiswissen und Anwendungshinweise [Fundamentals of organizational psychology: basic knowledge and application notes]* (7th edition). Schäffer-Poeschel Verlag. http://site.ebrary.com/lib/alltitles/docDetail.action?docID=10773126

Sachau, D. A. (2007). Resurrecting the Motivation-Hygiene Theory: Herzberg and the Positive Psychology Movement. *Human Resource Development Review*, *6*(4), 377–393. https://doi.org/10.1177/1534484307307546

Saks, A. M., & Ashforth, B. E. (1997). Organizational Socialization: Making Sense of the Past and Present as a Prologue for the Future. *Journal of Vocational Behavior*, *51*(2), 234–279. https://doi.org/10.1006/jvbe.1997.1614

Saks, A. M., & Gruman, J. A. (2018). Socialization resources theory and newcomers' work engagement. *Career Development International*, *23*(1), 12–32. https://doi.org/10.1108/CDI-12-2016-0214

Saks, A. M., Uggerslev, K. L., & Fassina, N. E. (2007). Socialization tactics and newcomer adjustment: A meta-analytic review and test of a model. *Journal of Vocational Behavior*, *70*(3), 413–446. https://doi.org/10.1016/j.jvb.2006.12.004

Sharma, G. G., & Stol, K.-J. (2019). Exploring onboarding success, organizational fit, and turnover intention of software professionals. *Journal of Systems and Software, 159*, 110442. https://doi.org/10.1016/j.jss.2019.110442

Schulte, P., & Vainio, H. (2010). Well-being at work - overview and perspective. *Scandinavian Journal of Work, Environment & Health*, *36*(5), 422–429.

Schürmann, E., & Beausaert, S. (2016). What are drivers for informal learning? *European Journal of Training and Development*, *40*(3), 130–154. https://doi.org/10.1108/EJTD-06-2015-0044

Schwartz, G. J. (2019). An Examination of Key Factors That Influence Employee Learning in the Workplace. In V. H. Kenon & S. V. Palsole (Eds.), *The Wiley Handbook of Global Workplace Learning* (pp. 477–500). Wiley. https://doi.org/10.1002/9781119227793.ch25

Seeber, S., & Seifried, J. (2019). Herausforderungen und Entwicklungsperspektiven der beruflichen Bildung unter veränderten Rahmenbedingungen [Challenges and development prospects of vocational education and training under changing conditions]. *Zeitschrift für Erziehungswissenschaft*, 22(3), 485–508. https://doi.org/10.1007/s11618-019-00876-2

Segers, M., Endedijk, M., & Gijbels, D. (2021). From Classic Perspectives on Learning to Current Views on Learning. In F. Dochy, F. D. D. Gijbels, M. Segers, & P. van den Bossche (Eds.), *Theories of Workplace Learning in Changing Times* (pp. 3–14). Routledge.

Seifried, J., Beck, K., Ertelt, B.-J., & Frey, A. (2019). *Beruf, Beruflichkeit, Employability [Occupation, professionalism, employability]*. Wirtschaft - Beruf - Ethik. Bielfeld: wbv

Seifried, J., & Rausch, A. (2022). Applying the Experience Sampling Method to Research on Workplace Learning. In M. Goller, E. Kyndt, S. Paloniemi, & C. Damşa (Eds.), *Professional and practice-based learning. Methods for Researching Professional Learning and Development* (Vol. 33, pp. 19–41). Springer International Publishing. https://doi.org/10.1007/978-3-031-08518-5_2

Serenko, A. & Bontis, N. (2016). Understanding counterproductive knowledge behavior: Antecedents and consequences of intra-organizational knowledge hiding. *Journal of Knowledge Management 20*(6), 1199–1224. https://doi.org/10.1108/JKM-05-2016-0203.

Shavit, Y., & Muller, W. (2000). Vocational Secondary Education. *European Societies*, 2(1), 29–50. https://doi.org/10.1080/146166900360710

Siegrist, J. (1996). Adverse Health Effects of High-Effort/Low-Reward Conditions. *Journal of Occupational Health Psychology*, *1*(1), 27–41.

Small, M. L., & Cook, J. M. (2021). Using Interviews to Understand Why: Challenges and Strategies in the Study of Motivated Action. *Sociological Methods & Research*, 004912412199555. https://doi.org/10.1177/0049124121995552

Smet, K., Grosemans, I., Cuyper, N. de, & Kyndt, E. (2022). Outcomes of Informal Work-Related Learning Behaviours: A Systematic Literature Review. *Scandinavian Journal of Work and Organizational Psychology*, *7*(1), 2. https://doi.org/10.16993/sjwop.151

Søndergaard, S., Kerr, M. & Clegg, C. (2007). Sharing knowledge: Contextualising socio-technical thinking and practice. *The Learning Organization*, *14*(5), 423–435. https://doi.org/10.1108/09696470710762646

Søreide, G. E. (2016). High-skilled newcomers' identity: learners or experts? *Journal of Workplace Learning*, *28*(1), 2–16. https://doi.org/10.1108/JWL-12-2014-0088

Statista. (2017). *Statista Umfrage Arbeitnehmer 2017 [Statista Employee Survey 2017]*. https://de.statista.com/prognosen/980717/umfrage-in-deutschland-zur-haeufigkeit-des-arbeitgeberwechsels

Steinmacher, I., Gerosa, M., Conte, T. U., & Redmiles, D. F. (2019). Overcoming Social Barriers When Contributing to Open Source Software Projects. *Computer Supported Cooperative Work (CSCW)*, *28*, 247–290. https://doi.org/10.1007/s10606-018-9335-z

Steffgen, G., Sischka, P. E., & Fernandez de Henestrosa, M. (2020). The Quality of Work Index and the Quality of Employment Index: A Multidimensional Approach of Job Quality and Its Links to Well-Being at Work. *International Journal of Environmental Research and Public Health, 17*(21). https://doi.org/10.3390/ijerph17217771

Seifried, J., & Rausch, A. (2022). Applying the Experience Sampling Method to Research on Workplace Learning. In M. Goller, E. Kyndt, S. Paloniemi, & C. Damşa (Eds.), *Professional and practice-based learning. Methods for Researching Professional Learning and Development* (Vol. 33, pp. 19–41). Springer International Publishing. https://doi.org/10.1007/978-3-031-08518-5_2

Suarta, I. M., Suwintana, I. K., Sudhana, I. G. P. F. P., & Hariyanti, N. K. D. (2019). Students and Vocational Educators Perceived on the Importance Level of Employability Skills. *Advances in Social Science, Education and Humanities Research*, 383, 201–210. https://doi.org/10.2991/icss-19.2019.16

Takeuchi, T., Takeuchi, N., & Jung, Y. (2021). Toward a process model of newcomer socialization: Integrating pre- and post-entry factors for newcomer adjustment. *Human Resource Development Quarterly, 32*(3), 391–418. https://doi.org/10.1002/hrdq.21420

Tannenbaum, S. I., Beard, R. L., McNall, L. A., & Salas, E. (2010). Informal Learning and Development in Organizations. In S. W. J. Kozlowski & E. Salas (Eds.), *The organizational frontiers series. Learning, training, and development in organizations* (pp. 303–331). Routledge.

Tannenbaum, S. I., & Wolfson, M. A. (2022). Informal (Field-Based) Learning. *Annual Review of Organizational Psychology and Organizational Behavior, 9*(1), 391–414. https://doi.org/10.1146/annurev-orgpsych-012420-083050

Tanwar, K., & Prasad, A. (2016). The effect of employer brand dimensions on job satisfaction: Gender as a moderator. *Management Decision, 54*(4), 854–886. https://doi.org/10.1108/MD-08-2015-0343

Taylor, P., McLoughlin, C., Meyer, D., & Brooke, E. (2013). Everyday discrimination in the workplace, job satisfaction and psychological wellbeing: age differences and moderating variables. *Ageing and Society, 33*(7), 1105–1138. https://doi.org/10.1017/S0144686X12000438

Trivellas, P., Akrivouli, Z., Tsifora, E., & Tsoutsa, P. (2015). The Impact of Knowledge Sharing Culture on Job Satisfaction in Accounting Firms. The Mediating Effect of General Competencies. *Procedia Economics and Finance, 19*, 238–247. https://doi.org/10.1016/ S2212-5671(15)00025-8

Tynjälä, P. (2013). Toward a 3-P Model of Workplace Learning: A Literature Review. *Vocations and Learning, 6*(1), 11–36. https://doi.org/10.1007/s12186-012-9091-z

UNESCO Institute for Statistics. (2012). *International Standard Classification of Education (ISCED) 2011*. http://uis.unesco.org/sites/default/files/documents/international-standard-classification-of-education-isced-2011-en.pdf

Unson, C., & Richardson, M. (2013). Insights into the experiences of older workers and change: Through the lens of selection, optimization, and compensation. *The Gerontologist, 53*(3), 484–494. https://doi.org/10.1093/geront/gns095

Uribetxebarria, U., Gago, M., Legarra, M., & Elorza, U. (2020). The link between HIWPs and well-being at work: the mediating role of trust. Employee Relations: *The International Journal*, ahead-of-print(ahead-of-print). https://doi.org/10.1108/ER-05-2020-0223

Vähäsantanen, K., & Eteläpelto, A. (2018). Agency and Learning in the Work of Software Profes-sionals. In C. Harteis (Ed.), *Professional and practice-based learning: Volume 21. The impact of digitalization in the workplace: An educational view* (pp. 161–179). Cham, Switzerland: Springer.

van der Heijden, B. I. J. M., Houkes, I., van den Broeck, A., & Czabanowska, K. (2020). "I Just Can't Take It Anymore": How Specific Work Characteristics Impact Younger Versus Older Nurses' Health, Satisfaction, and Commitment. *Frontiers in Psychology*, *11*, 762. https://doi.org/10.3389/fpsyg.2020.00762

van der Rijt, J., van den Bossche, P., van de Wiel, M. W. J., Maeyer, S. de, Gijselaers, W. H., & Segers, M. S. R. (2013). Asking for Help: A Relational Perspective on Help Seeking in the Workplace. *Vocations and Learning*, *6*(2), 259–279. https://doi.org/10.1007/s12186-012-9095-8

van Laar, E., van Deursen, A. J., van Dijk, J. A., & Haan, J. de (2017). The relation between 21st-century skills and digital skills: A systematic literature review. *Computers in Human Behavior*, *72*, 577–588. https://doi.org/10.1016/j.chb.2017.03.010

van Maanen, J., & Schein, E. H. (1979). Toward a Theory of Organizational Socialization. *Research in Organizational Behavior*, *1*, 209–264.

van Wingerden, J., Bakker, A. B., & Derks, D. (2017). The longitudinal impact of a job crafting intervention. *European Journal of Work and Organizational Psychology*, *26*(1), 107–119. https://doi.org/10.1080/1359432X.2016.1224233

Virtanen, A., Tynjälä, P., & Eteläpelto, A. (2012). Factors promoting vocational students' learning at work: Study on student experiences. *Journal of Education and Work*, 27(1), 43–70. https://doi.org/10.1080/13639080.2012.718748

Vitale, D. C., Armenakis, A. A., & Feild, H. S. (2008). Integrating Qualitative and Quantitative Methods for Organizational Diagnosis. *Journal of Mixed Methods Research*, *2(*1), 87–105. https://doi.org/10.1177/1558689807309968

Vollmar, G. (2016). Knowledge Scorecard: Wirksamkeitsmessung von Wissensmanagement gemäß ISO 9001:2015 [Knowledge Scorecard: Effectiveness measurement of knowledge management according to ISO 9001:2015]. *Wissensmanagement (7)*, 23–25.

Vollmar, G. (2017*). Wirkung messen und Nachweis führen – wie geht das für Wissensmanagement? (Expertenwissen für DGQ-Mitglieder) [Measuring impact and providing evidence - how does this work for knowledge management? (Expert knowledge for DGQ members)].* Deutsche Gesellschaft für Qualität. https://www.wissen-kommunizieren.de/wp-content/uploads/2016/04/Wirkung-messen-und-Nachweis-f%C3%BChren-wie-geht-das-f%C3%BCr-Wissensmanagement.pdf

Volpert, W. (1983). Das Modell der hierarchisch-sequentiellen Handlungsorganisation [The model of hierarchical-sequential action organization]. In W. Hacker, W. Volpert, & M. von Cranach (Eds.*), Kognitive und motivationale Aspekte der Handlung [Cognitive and motivational aspects of action]* (pp. 38–58). Huber.

Vonderlin, R., Schmidt, B., Müller, G., Biermann, M., Kleindienst, N., Bohus, M., & Lyssenko, L. (2021). Health-Oriented Leadership and Mental Health From Supervisor and Employee Perspectives: A Multilevel and Multisource Approach. *Frontiers in Psychology*, *11*, Article 614803. https://doi.org/10.3389/fpsyg.2020.614803

Wang, S. & Noe, R. A. (2010). Knowledge sharing: A review and directions for future research. *Human Resource Management Review 20*(2), 115–131. https://doi.org/10.1016/j.hrmr.2009.10.001

Watkins, K. E., & Marsick, V. J. (1992). Towards a theory of informal and incidental learning in organizations. *International Journal of Lifelong Education*, *11*(4), 287–300. https://doi.org/10.1080/0260137920110403

Wesseling, R., Biemans, H., Gulikers, J., & Mulder, M. (2018). Models and Principles for Designing Competence-based Curricula, Teaching, Learning and Assessment. In M. Mulder

(Ed.), *Technical and Vocational Education and Training: Vol. 23. Competence-based Vocational and Professional Education: Bridging the Worlds of Work and Education* (1st ed., pp. 533–553). Cham: Springer International Publishing.

Willemsen, R. F., Aardoom, J. J., Chavannes, N. H., & Versluis, A. (2022). Online synchronous focus group interviews: Practical considerations. *Qualitative Research*, 146879412211101. https://doi.org/10.1177/14687941221110161

Wirth, K. (2015). Anforderungen dualer Ausbildung an den Lernort Schule – Erfahrungen im Betrieb systematisch einbeziehen! [Requirements of dual training for school as a learning site - integrate company experience systematically!] *BWP – Berufsbildung in Wissenschaft und Praxis*, 44(1), 14-17

Wright, T. A., & Bonett, D. G. (2007). Job Satisfaction and Psychological Well-Being as Nonadditive Predictors of Workplace Turnover. *Journal of Management*, *33*(2), 141–160. https://doi.org/10.1177/0149206306297582

Yin, R. K. (2018). *Case study research and applications: Design and methods* (Sixth edition). SAGE.

Zboralski, K. (2009). Antecedents of knowledge sharing in communities of practice. *Journal of Knowledge Management*, *13*(3), 90–101. https://doi.org/10.1108/13673270910962897

Zhang, X. & Jiang, J. Y. (2015). With whom shall I share my knowledge? A recipient perspective of knowledge sharing. *Journal of Knowledge Management* *19*(2), 277–295. https://doi.org/10.1108/JKM-05-2014-0184

Zitter, I., Hoeve, A., & Bruijn, E. de (2016). A Design Perspective on the School-Work Boundary: A Hybrid Curriculum Model. *Vocations and Learning*, 9(1), 111–131. https://doi.org/10.1007/s12186-016-9150-y

Zutavern, S., & Seifried, J. (2019). Employer-Branding als Beitrag zu Employability und Beruflichkeit. In J. Seifried, K. Beck, & B.-J. Ertelt (Eds.), *Wirtschaft - Beruf - Ethik. Beruf, Beruflichkeit, Employability [Occupation, professionalism, employability]* (pp. 197–214). wbv Media.

Zutavern, S., & Seifried, J. (2021). Exploring Well-being at Work-An Interview Study on How IT Professionals Perceive Their Workplace. *Frontiers in Psychology*, *12*, 688219. https://doi.org/10.3389/fpsyg.2021.688219

Zutavern, S., & Seifried, J. (2022). Vocational Education and Training in Germany: Benefits and Drawbacks of the Dual Approach as Preparation for Professional Employment. In C. Harteis, D. Gijbels, & E. Kyndt (Eds*.), Professional and practice-based learning. Research Approaches on Workplace Learning* (Vol. 31, pp. 347–365). Springer. https://doi.org/10.1007/978-3-030-89582-2_16

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!

Datum	
Ort	
Uhrzeit	
Interviewer	
Teilnehmer - Code	

Übersicht – Soziodemografische Daten aus Online-Umfrage.

Bitte vorab Zutreffendes ankreuzen!

Geschlecht	männlich	weiblich				
Alter	<= 25	26-30	31-40	41-50	51-60	60 +
Berufserfahrung	keine	< 5	5-10	11-20	21-30	30 +
Betriebszugehörigkeit	<= 5	6-10	11-20	21-30	30 +	
Standort	Mannheim	Wiesbaden	Stuttgart			

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 [*vorangegangene 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 [*vorangegangene Antworten wiederholen*].

[…]

Arbeitsumfang [scope of work]

Versetzen Sie sich jetzt bitte gedanklich in Ihren gewöhnlichen Arbeitsalltag.

Welche Faktoren beeinflussen Ihren **Arbeitsumfang** positiv? Inwiefern wirkt sich dies förderlich auf Ihre Produktivität aus? Und wie **wichtig** sind Ihnen diese Punkte? Berücksichtigen Sie hierbei Aspekte wie z.B.:

- 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]

Konzentrieren Sie sich bitte nun auf die **fachlichen Anforderungen** Ihres Arbeitsplatzes.

Welche Faktoren unterstützen Sie positiv beim Umgang mit Ihren fachlichen Anforderungen? Und wie **wichtig** sind Ihnen diese Punkte? Berücksichtigen Sie z.B. folgende Aspekte:

- 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 [*vorangegangene 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 unterschriebenen Scan) einfordern
- ☐ Teilnehmercode erstellen lassen
- ☐ Fragebogen zu soziodemographischen Daten (als Scan) einfordern

Teilnehmercode:

Teambeschreibung

Austritt	Ja → Wann: Nein → Funktion:
Bereich	[*Team-/Abteilungsbezeichnung*]
Größe	[*Anzahl Mitarbeitender*]
Fachliche Zusammensetzung	[*beschreiben*]
Lokation	[*an einem oder mehreren Standorten*]

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?
- ☐ Weiteres Vorgehen: Protokoll kommt per E-Mail zur Prüfung. → Bitte geprüft zurücksenden.
- ☐ 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

J

Journal of Personnel Psychology <em@editorialmanager.com>

An: Sie

So, 05.02.2023 16:50

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. JPPSY-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

____

In compliance with data protection regulations, you may request that we remove your personal registration details at any time. (Use the following URL: https://www.editorialmanager.com/jppsy/login.asp?a=r). Please contact the publication office if you have any questions.

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.
   Bei der eingereichten Dissertation mit dem Titel 'Berufliche Entwicklung am Arbeitsplatz – Eine Untersuchung zur Bedeutung des Arbeitsumfeldes für Lernen' handelt es sich um mein eigenständig erstelltes Werk, das den Regeln guter wissenschaftlicher Praxis entspricht.

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.

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:

Course	Lecturer
Interdisciplinary Work in Economics and Social Sciences	Professor Dr. Stefan Ruenzi
MAN 808 Organization Theories	Professor (em.) Dr. Dr. h.c. mult. Alfred Kieser Professor Dr. Achim Oberg Professor Dr. Michael Woywode
IS 807 Designing Qualitative Research Projects	Dr. Ekaterina Jussupow

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

2023	Birkle, S., & 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.
2022	Birkle, S. (2022). 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]. *Gruppe. Interaktion. Organisation. Zeitschrift für Angewandte Organisationspsychologie (GIO)*, *53* (4), 557–565. https://doi.org/10.1007/s11612-022-00657-2

	Gentner, S., Birkle, S. & Seifried, J. (accepted). Knowledge Sharing in der betrieblichen Praxis – Empirische Befunde einer Fallstudie bei einem mittelständischen IT-Dienstleister [Knowledge Sharing in Organizational Practice - Empirical Findings of a Case Study at a Medium-Sized IT Service Provider]. In A. Mensching, N. Engel, C. Fahrenwald, M. Hunold & S. M. Weber (Eds.), *Jahrbuch der Sektion Organisationspädagogik – Organisation zwischen Theorie und Praxis.* Springer.
	Zutavern, S., & Seifried, J. (2022). Vocational Education and Training in Germany: Benefits and Drawbacks of the Dual Approach as Preparation for Professional Employment. In C. Harteis, D. Gijbels, E. Kyndt (Eds.) *Professional and Practice-based Learning. Research Approaches on Workplace Learning* (Vol. 31, pp. 347-365). Springer. https://doi.org/10.1007/978-3-030-89582-2_16
2021	Zutavern, S., & Seifried, J. (2021). Exploring Well-being at Work–An Interview Study on How IT Professionals Perceive Their Workplace. *Frontiers in Psychology, 12*, 688219. https://doi.org/10.3389/fpsyg.2021.688219
2020	Zutavern, S., Enders, M., Rausch, A., & Seifried, J. (2020). Auszubildende an Board holen: „Onboarding" als unterstützende Maßnahme zur Einführung in den Betrieb [Getting trainees on board: "Onboarding" as supportive activity to introduce new trainees to the organization]. *überaus: Fachstelle Übergänge in Ausbildung und Beruf*. https://www.ueberaus.de/wws/auszubildende-an-bord-holen.php
2019	Zutavern, S. & Seifried, J. (2019). Employer-Branding im Spannungsfeld von Beruflichkeit und Employability [Employer branding at the interface between professionalism and employability]. In J. Seifried, K. Beck, & B.-J. Ertelt (Eds.), *Wirtschaft – Beruf – Ethik. Beruf, Beruflichkeit, Employability* (pp. 197-214). wbv Media.

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.
	Birkle, S. & Seifried, J. (2022). Professional development through onboarding. RWL12 Researching Work and Learning, Online, Toronto, Canada.
	Birkle, S. & Seifried, J. (2022). Making sense of the new work environment: How employers can support newcomers' onboarding. AERA Annual Meeting 2022, Online, San Diego (California), USA.
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. & Gentner, S. (2020). Learning the ropes – Analyzing the organizational onboarding process. 10th EARLI SIG 14 Conference Learning and Professional Development 2020 (conference canceled), Barcelona, Spain.
	Gentner, S. & Zutavern, S. (2020). What if I leave? – Perspectives on knowledge sharing. 9th PDRnet Professional Development Research Networks, Antwerp, Belgium.
	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.

2019	Zutavern, S. (2019). Onboarding new employees – Enabler of professional development. 8th PDRnet Professional Development Research Network, Landau, Germany.
	Zutavern, S. (2019). Onboarding neuer Mitarbeitender – Analyse der betrieblichen Einstiegsphase [Onboarding new employees – Analysis of the organizational entry phase]. Jahrestagung der Sektion Berufs- und Wirtschaftspädagogik 2019 der Deutschen Gesellschaft für Erziehungswissenschaft, Graz, Austria.
2018	Zutavern, S. & Seifried, J. (2018). Employee perspective on well-being at work – An interview study. 9th EARLI SIG 14 Conference Learning and Professional Development 2018, Geneva, Switzerland.

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