M@n@gement

BUSINESS VOICE

Cooperative Learning Through Boundary Spanning: How a Corporate Learning Department Ensures That Trainers and Content Stay Current

Barbara Ofstad[1] and Anne Bartel-Radic[2]*

[1]Business Science Institute, Chateau de Wiltz, Luxembourg
[2]Univ. Grenoble Alpes, Grenoble INP, CERAG, 38000 Grenoble, France

Abstract

Continuous learning is central to ensuring organizations remain innovative and high-performing. Corporate trainers play a critical role in educating and training employees. However, in an era of digital transformation and, more recently, artificial intelligence, trainers need new skills and methods to stay current and facilitate the transformation of the workforce. The skills gap is best filled through cooperative learning with other trainers. However, cooperative learning is hindered by different spatial, organizational, and cultural boundaries that are difficult to overcome.
This paper attempts to understand how cooperative learning of trainers can be enhanced through boundary spanning. It examines the case of the corporate learning department of a German high-tech multinational through ethnographic action research by the department manager, including 21 semi-directive interviews and direct observation. Using a grounded theory approach, we explore how the concept, causes, context, contingencies, and conditions of boundary spanning enhance cooperative learning among corporate trainers.
The findings show that boundary spanning leads to cooperative learning through pedagogical scaffolding, communities of practice, and a new learning culture. Spontaneous boundary spanning occurs in parallel to guided boundary spanning. Both are made possible by appropriate leadership values and attitudes, trust, flexibility, and dedicated time and capacity.
Our paper provides recommendations on the key issues managers face in facilitating boundary spanning and cooperative learning among their employees. We also show how key barriers and risks can be mitigated to enable employees to learn cooperatively with colleagues from different and distant organizational units.

Keywords: *Boundary spanning*; *Cooperative learning*; *Corporate training*; *Digital transformation*; *Pedagogical scaffolding*; *Vocational education and training*

Handling editor: Anne-sophie fernandez; Received: 15 April 2023; Revised: 31 January 2024; Accepted: 6 March 2024; Published: 30 September 2024

Significant technological and demographic changes in Europe will make skilled workers an even scarcer resource than they are today (Cedefop, 2024). In Germany alone, over 50% of companies across all sectors report that a lack of skilled workers is hampering their business activities (Peichl et al., 2022). Companies therefore train younger people not for altruistic reasons but to fill the talent pipeline for skilled workers and ensure workforce capacity. Filling the gaps that baby boomers will leave behind has raised concerns among human resource management (HRM) strategists across Europe. In addition, digital transformation and the move to the Internet of Things and artificial intelligence require constant innovation and new and specific employee skills (R4E, 2024). Harnessing the potential of unskilled workers, implementing programs to bring inactive women back into the workforce, and reaching out to minorities through targeted diversity recruitment efforts are just some of the strategies that can help find additional employees. An equally promising, if not more effective, approach is to invest in existing loyal employees by providing them with opportunities to acquire new skills.

These skills can only be partially acquired from outside the organization. In the era of digital transformation, where knowledge rapidly evolves and becomes integral to business models, companies must actively transfer knowledge from experts to novices (Dudézert et al., 2012). In the German economic

***Corresponding author:** Anne Bartel-Radic, Email: anne.bartel-radic@sciencespo-grenoble.fr

 Citation: M@n@gement 2024: **27**(4): 114–129 - http://dx.doi.org/10.37725/mgmt.2024.9611
Published by AIMS, with the support of the Institute for Humanities and Social Sciences (INSHS).

model, the training of skilled workers through upskilling and the training of entry-level workers through dual vocational training is considered one of the key success factors for its industrial success (Li et al., 2019). In vocational education and training (VET), in-house trainers pass on their knowledge and skills to apprentices and dual students, who alternate between traditional classroom-based learning and on-the-job training. Our research focuses on these in-house trainers, who are at the heart of corporate learning. Ensuring that trainers and training content and formats remain current is strategic. Likewise, newly developed knowledge must be shared among trainers for dissemination throughout the organization, especially when it comes to new technologies. Such cooperative learning (Johnson & Johnson, 1999) as well as new informal learning approaches (Kortsch et al., 2021; Welk et al., 2023) require communication and knowledge sharing.

We investigate the cooperative learning of trainers in the vocational training department of a German high-tech multinational company. The department has some 25 managers and 175 trainers who train approximately 4,600 apprentices and dual students per year in 22 centers across Germany – separated by spatial, organizational, and cultural boundaries. A boundary can be defined as a border that separates organizations, individuals, cultures, and entities of all kinds (Schotter et al., 2017). Boundaries can hinder the efficient exchange of knowledge and learning, while boundary spanning allows for better collaboration between groups, thereby adding value to the organization (Mäkelä et al., 2019). In this study, we consider not only the spatial and organizational boundaries between training centers, regions, and workplaces but also the blurred cultural boundaries between traditional vocational training and emerging forms of learning found within these centers. Crossing and bridging boundaries between employees and organizational units is central to knowledge sharing and cooperative learning among trainers.

We therefore focus on the following research question: How does boundary spanning enhance cooperative learning in the corporate training department of a German high-tech multinational? One of the authors, who manages this department, engaged in ethnographic action research spanning 2 years. This paper supplements direct observation with semi-directive interviews conducted in 2021, involving 21 managers and trainers from the department. The qualitative data were analyzed following the principles and methodological processes of grounded theory (Corbin & Strauss, 1990; MacDonald, 2001) using the '6C' coding scheme, whereby results refer to the causes, conditions, context, contingencies, and consequences of the boundary spanning concept. It turns out that cooperative learning is the major outcome of boundary spanning.

The managerial recommendations not only contribute to securing a skilled workforce but also address a pressing issue of upskilling trainers within the contemporary corporate training landscape. For HR and corporate training professionals, we offer practical insights into how boundary-spanning practices can be leveraged to enhance organizational effectiveness. By addressing the research question on the facilitation of cooperative learning through boundary spanning, we delineate the essential traits and responsibilities managers should seek in employees to foster boundary spanning. Furthermore, we suggest actionable strategies for engaging employees in boundary-spanning activities, while identifying potential risks and offering mitigation strategies to overcome barriers to cooperative learning.

Literature review

Digital transformation challenges workforce training

Digital transformation – as opposed to digitalization and digitization – describes the systemic change resulting from the emergence and implementation of digital technologies in business and society. It is a 'fundamental change process enabled by digital technologies that aims to bring radical improvement and innovation to an entity (e.g., an organization, a business network, an industry, or a society) in order to create value for its stakeholders by strategically leveraging its key resources' (Gong & Ribiere, 2021, p. 10). Especially in the high-tech industry, knowledge is changing profoundly, rapidly, and constantly, expanding in both scope and fluidity. Digital transformation requires organizations to leverage their capabilities within ecosystems (Caputo et al., 2019), where success hinges on effective collaboration across boundaries and effective boundary management. Concurrently, new learning models such as dynamic exchange and ecosystem- or community-based learning appear less formal, more individually controllable, and more learner-centered (Schuchmann & Seufert, 2015).

Continuous learning has always been essential for resilient organizations, and even more so in a VUCA (volatile, uncertain, complex, and ambiguous) environment and at times of digital transformation. Learning is considered an organizational capability, which can be both a barrier to market entry and a source of sustainable competitive advantage. It consists of multilayered knowledge that can be local (object-based), architectural (function-based), or process-oriented (interaction and communication across boundaries). The more knowledge becomes architectural and process-oriented, the less it can be described as individual knowledge and the more it becomes dynamic and firm-specific (Kusunoki et al., 1998).

In this context of digital transformation in a VUCA environment, corporate training has undergone profound changes. The portfolio of educational offerings can no longer consist

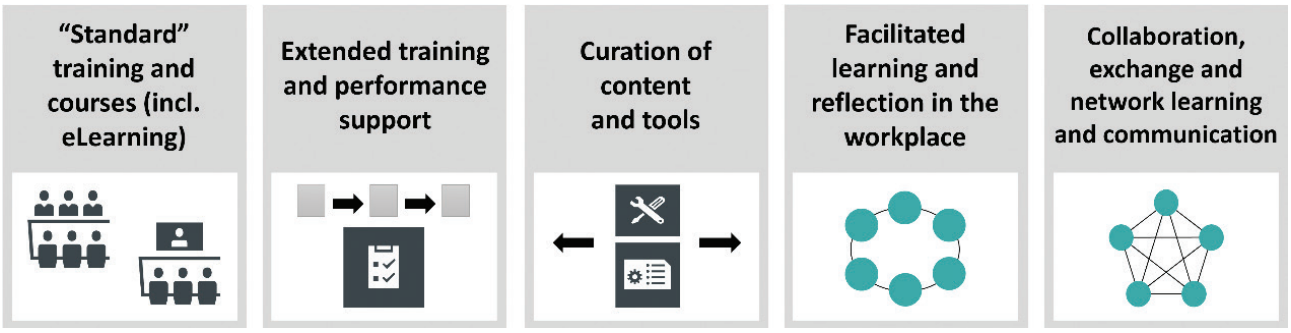

Figure 1. Extended portfolio of offerings for education providers.
Source: Seufert & Meier (2016), p. 30

solely of classical classroom training and transfer-oriented formats (Seufert & Meier, 2016; see Figure 1).

Corporate learning has also become more flexible and personalized through the capabilities of digital learning platforms (DLPs) and new learning providers entering the corporate learning arena. While the COVID-19 pandemic accelerated the use of DLPs in corporate learning environments (Mehta et al., 2021), the changes are also deeper. Learning platforms and small-group work have enabled corporate training to 'come to the user', by setting personal learning interests and recommended learning paths (driven by individually set preferences or artificial intelligence-based suggestions), assessing individual competencies and development vectors, monitoring and controlling individual learning progress, and even choosing the time and place of their learning journey (Mehta et al., 2021). However, the sharing of tacit knowledge through DLPs has its limitations (Chanal & Kimble, 2010), especially since it may result in individuals gaining digital exposure (whether positive or negative), a prospect not universally embraced. Similarly, this development has placed more responsibility for learning on employees themselves. Micro-learning is another trend in technology-enabled industrial learning. Small learning nuggets, accessible individually through a DLP or orchestrated as group learning, can be used when operational constraints (capacity and fixed schedules) require flexibility and a learning experience that takes into account the cognitive information processing of the human brain. Short but intense and repeated learning sessions can promote knowledge retention and motivation (Roth et al., 2022).

Facilitated workplace learning processes such as small group work, peer coaching, and case studies, alongside dynamic interaction and learning in ecosystem-like networks, constitute contemporary learning offerings aimed at fostering empowerment and innovation. New learning models such as dynamic exchange and learning in communities (Seufert & Meyer, 2016) are more informal (Welk et al., 2023), more individually controllable, and more learner-centered. Collaboration and networking remain important and effective, despite the array of workplace technology and tools, learning facilitation, and thinking. This makes social, cooperative learning particularly relevant. Social learning can occur, for example, as a strategy of 'exploitative learning' (Garcias et al., 2015) with the help of more senior employees to copy, extend, and multiply existing capabilities, or it can occur as cooperative learning, defined as:

> a versatile procedure […] for a variety of purposes […] to teach specific content (formal cooperative learning groups), to ensure active cognitive processing of information during a lecture or demonstration (informal cooperative learning groups), and to provide long-term support and assistance for academic progress (cooperative base groups). (Johnson & Johnson, 1999, p. 68)

Essential ingredients for effective learning are team rewards and individual accountability, as well as a focus on problem-solving and communication (Slavin, 2014). It also requires managers to be role models and give their employees support for such changes (Schwarzmüller et al., 2018) and 'collective mindful attention' (Rouby & Thomas, 2023), which has to be learned by managers to facilitate learning processes.

Boundary spanning – A catalyst for learning?

These new forms of learning rely on human interaction, and over and above technology platforms that enable more effective learning. Cooperative learning and organizational knowledge creation require teams to share knowledge, especially tacit knowledge (Nonaka & Krogh, 2009). Communities of practice have long been described as particularly conducive to knowledge sharing and team learning (Wenger, 1998) and can be managed and nurtured to effectively disseminate tacit knowledge (Chanal & Kimble, 2010). Trust in colleagues (Lin, 2007) and team psychological safety (Siemsen et al., 2009) are essential for knowledge sharing, especially when employees lack confidence in their own recently acquired or fragile knowledge (Lin, 2007).

Cummings (2004) has shown that teams that share knowledge with external, structurally diverse members perform better. However, various boundaries impede inter-unit

interaction and hinder the formation of communities of practice where employees feel safe to share new insights and engage in cooperative learning. 'Boundary spanning' has long been used to explain how to maneuver across national, cultural, organizational, or other group boundaries. More recently, it has been expanded to include 'a set of communication and coordination activities performed by individuals within and between organizations' (Bartel-Radic & Munch, 2023; Schotter et al., 2017, p. 404), where boundary objects containing tacit knowledge are shared through processes, tools (Carlile, 2004), and methods (Roberts & Beamish, 2017). Collective, repeated, and iterative actions and interactions are key activities for knowledge transfer and transformation across boundaries (Tippmann et al., 2017).

Leadership plays a central role in enabling these cross-boundary interactions. Digital transformation has led to the need for more relationship-oriented leadership (Schwarzmüller et al., 2018). Effective leadership tactics for bridging employees' 'social identity boundaries' have been described as 'suspending, reframing, nesting, and weaving' (Ernst & Yip, 2009, p. 16). This implies creating 'third' (neutral) spaces for interaction, activating a shared identity, embedding groups within a larger whole, and cutting across work group roles through social group membership to facilitate boundary spanning among employees. Likewise, the creation of a collective 'knowledge bridge' (Zhao & Anand, 2013, p. 1521; see Figure 2), an informal gateway for knowledge transfer between individuals from different teams, has proven more effective in sharing complex knowledge across boundaries than the involvement of individual boundary spanners. Such a collective bridge may be more costly due to the number of actors involved, but this can be partially offset by appropriate IT support. However, the

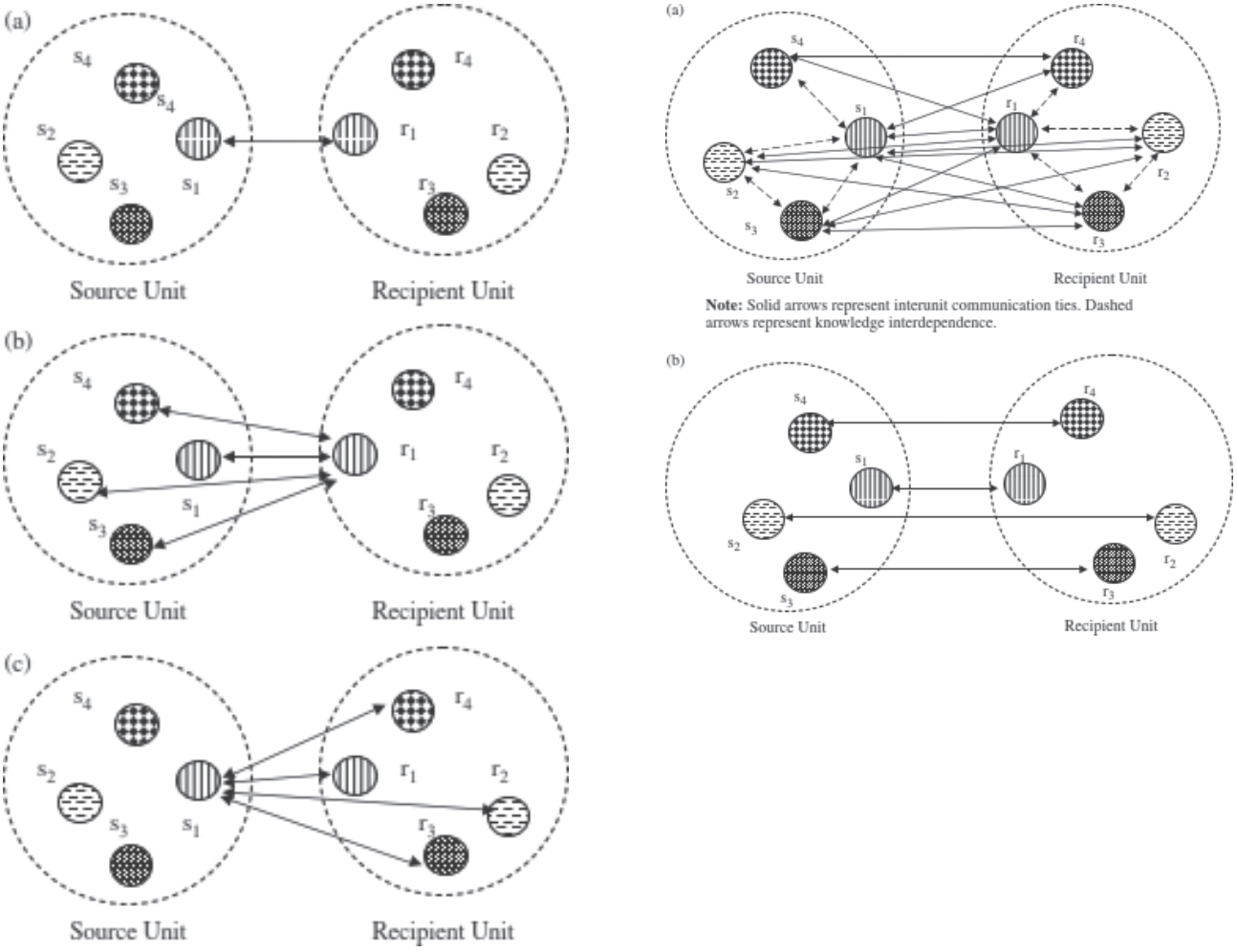

Figure 2. Boundary spanning activity types versus collective bridge types.
Note: (a) One-to-one interunit boundary spanning. (b) Many-to-one interunit boundary spanning. (c) One-to-many interunit boundary spanning.
Note: (a) Interunit collective bridge for transferring collective knowledge. (b) Interunit collective bridge for transferring individual knowledge.
Source: Zhao & Anand (2013), p. 1518 and p. 1521 © 2013 Wiley.

proliferation of confidential information also has negative side effects, as such networks invite – sometimes unwanted – transparency (Zhao & Anand, 2013).

Roberts and Beamish (2017) use scaffolding to illustrate global boundary spanning in the context of corporate learning and educational theory. Scaffolding is a pedagogical concept wherein the teacher assists the learner, enabling the learner's personal competence development (i.e., learning). This approach closely aligns with the notion of the teacher as a catalyst or facilitator of learning, a concept rooted in earlier pedagogical frameworks (Wass et al., 2011).

Boundary spanners could thus act as active facilitators in building and nurturing communities of practice where cooperative learning thrives organically. Without cooperative learning, boundary spanning might remain limited to one-on-one interactions, impeding effective knowledge dissemination or hindering group learning dynamics. Conversely, without boundary spanning, external influences may struggle to penetrate individual units. While spontaneous communities of practice may arise, fostering and guiding them without champions and boundary-spanning initiatives across units can be challenging (Chanal & Kimble, 2010). Therefore, this study explores how boundary spanning can enrich cooperative learning among corporate trainers within a high-tech multinational corporation.

Case and methodology

Case: The Vocational Education and Training Department of a German MNC

We studied the corporate training department of a high-tech multinational company in Germany, a country with a long tradition of dual vocational training including apprenticeships and, more recently, study programs. The department trains 3,600 apprentices and dual students each year on average. It is also responsible for the technical training and retraining of employees. Some 25 managers coordinate approximately 175 in-house trainers and support staff in 19 different training centers located across Germany.

Digital technologies and skills are an integral part of training programs. Digital skills cover content (e.g., robotics, basic coding skills, data analytics, and cybersecurity) and creative methodologies or didactics (e.g., virtual and hybrid learning formats, simulations, gamification software, or flipped classroom formats). It typically includes company-specific, often embedded, expertise. Trainers who have recently moved from business units may have different and innovative expertise, and they can teach other trainers. Mutual learning within the organization is therefore key but requires overcoming organizational (including hierarchical), spatial, and cultural boundaries.

There are few, if any, truly comparable vocational training organizations in Germany and worldwide in terms of size, depth of training activities, and technological sophistication, which makes this case particularly interesting to study. The size of the MNC, as well as the training department itself, implies many organizational boundaries. The high-tech company has experienced significant shifts in digital transformation and learning, fostering a notable environment of creativity, learning, and innovation throughout the organization.

Research paradigm and methodology

Our study follows the interpretive research paradigm, which aims to find 'plausible interpretations that fit lived experience' (Avenier & Thomas, 2015, p. 71) rather than claiming truth. We argue that boundary spanning research should drill down into the inherently tacit and complex nature of the phenomenon to be successful. The validity of our research is ensured through rich contextual descriptions. An interpretive approach, characterized by a focus on interpretation and context rather than comparison and social structures (Moore & Mahadevan, 2020, p. 130), aligns well with single case study research. Within the interpretive paradigm, a single case study can effectively showcase the uniqueness of research findings. Therefore, uniqueness to uncover patterns (Langley, 1999) rather than generalizability to the 'population' is not a compromise but the goal (Avenier & Thomas, 2015; Welch et al., 2011).

'Interpretive approaches frequently adopt a managerial perspective and seek to maintain or improve the existing organizational order' (Collien, 2021, p. 452). This was precisely our objective through an ethnographic action research methodology (Tacchi, 2015): to gain a deep understanding of bridging intra-organizational boundaries to enrich cooperative learning among trainers. Given that one of the authors served as department manager, access to data, actors, and extensive first-hand experience of the company and its VET department was readily available. The transformation of 'train-the-trainer' initiatives was explored and experimented over a 2-year period through ethnographic research and interviews and managerial action. Ethnographic action research combines the ethnographic approach with action research. In an ethnographic research process, 'the researcher is experienced in the dual role of participant and observer' (Moore & Mahadevan, 2020, p. 127), and data are collected through participant observation in addition to in-depth interviews and other methods. Ethnographic action research 'builds upon notions of immersion, long-term engagement, and understanding local context holistically' (Tacchi, 2015, p. 220). Like action research in general, it implies changing the way the organization works, 'using the research results to influence organizational outcomes' (Zhang et al., 2015, p. 157).

The ethnographic action researcher kept a manager's diary between October 2020 and September 2021, documenting contextual and longitudinal observations in a researcher's logbook with the goal of making the research even more useful

Table 1. Interviewees

Person no.	Age group	Researcher's direct report	Level of education	Region
I01	50+	No	6	1
I02	50+	Yes	>6	2
I03	50+	Yes	6	3
I04	50+	Yes	>6	4
I05	40–49	Yes	6	4
I06	40–49	Yes	>6	7
I07	40–49	No	6	6
I08	50+	No	>6	1
I09	50+	Yes	>6	1
I10	40–49	Yes	6	5
I11	30–39	No	>6	4
I12	40–49	No	>6	5
I13	40–49	No	>6	2
I14	20–29	No	>6	2
I15	40–49	No	>6	4
I16	40–49	No	6	4
I17	40–49	No	6	1
I18	40–49	No	6	3
I19	50+	No	>6	2
I20	40–49	No	>6	1
I21	40–49	No	6	7

Source: own elaboration.

to the organization (Zhang et al., 2015). The following quote from this logbook (May 26, 2021) illustrates the appropriateness of this process:

> The interview with I16 – our learning expert – was the most interesting part of the transcription. We touched on the topics of my primary inductive research and got a lot of brainstorming ideas to make learning even more effective next year. This, I realized, is the benefit of these interviews. True action research, me in the middle, influencing the course of action ahead of us, while reflecting on the various feedback I receive.

It was here that the idea of learning days for all was born: 'Half-day shared, orchestrated learning opportunities were scheduled once a month on Wednesday afternoons for everyone in the team'.

In addition, the researcher conducted 21 semi-structured interviews with VET trainers and managers. The interviewee sample given in Table 1 varies in terms of age group, location, (highest) level of education (coded according to European Qualifications Framework), role and hierarchical level (regional manager, head office staff, local – training center – manager, and trainer/coach), and whether the interviewee was a direct report of the researcher-manager. Nine held a bachelor's degree or equivalent, and 12 held a master's degree or above. For data protection reasons, the table does not show which five interviewees were female and who identified as one of six headquarter managers, one of six local training center managers, one of three trainers, and as one of the six regional managers responsible for several centers. The interviews were conducted online and recorded via Microsoft Teams, transcribed, and coded in NVivo using grounded theory methodology. The data collection and analysis process was carried out in German; only the verbatim accounts reported in this paper have been translated into English. Our coding procedure adhered to the principles of open, axial, and selective data coding (Corbin & Strauss, 1990; MacDonald, 2001).

The following findings draw upon all the collected data, with a particular emphasis on the 21 qualitative interviews conducted with members of the corporate training department. Figure 3 illustrates the key findings, while Table 2 highlights some of the most noteworthy verbatim quotes.

Results: Boundary spanning to foster cooperative learning

In this case, cooperative learning through boundary spanning was triggered by external and internal changes faced by the training department, especially regarding digital transformation and technologies. We observed that boundary spanning can happen when time constraints and corporate culture allow it. It was typically hindered by fear (of making mistakes) and hierarchy, when people simply did not reach out to other regions. We identified two primary forms of boundary spanning: it can occur spontaneously or be facilitated by management or other role models to support the growth and learning of other department members within teams. Successful cooperative learning allowed others to grow through scaffolding, belong to communities of practice, enhance individual employability, and to foster the organizational strength of the training department. We saw boundary spanning happening within a training center – across the invisible cultural boundary of age or learning style – or across the hierarchical or physical boundaries of training centers, with the intention of transferring methods or skills from one individual to other individuals or teams.

In greater detail, this case study sheds light on three key aspects of the topic, which can be framed as sub-questions: (1) Why do we need boundary spanning in VET? (2) What are the different forms of boundary spanning, and what is their link with cooperative learning? (3) Under what conditions can boundary spanning and cooperative learning occur?

Why do we need boundary spanning in VET?

Regarding the *causes* of boundary spanning in VET, not only new digital technologies used in the company, such as robotics, low-level coding skills, data analytics, cybersecurity, but also

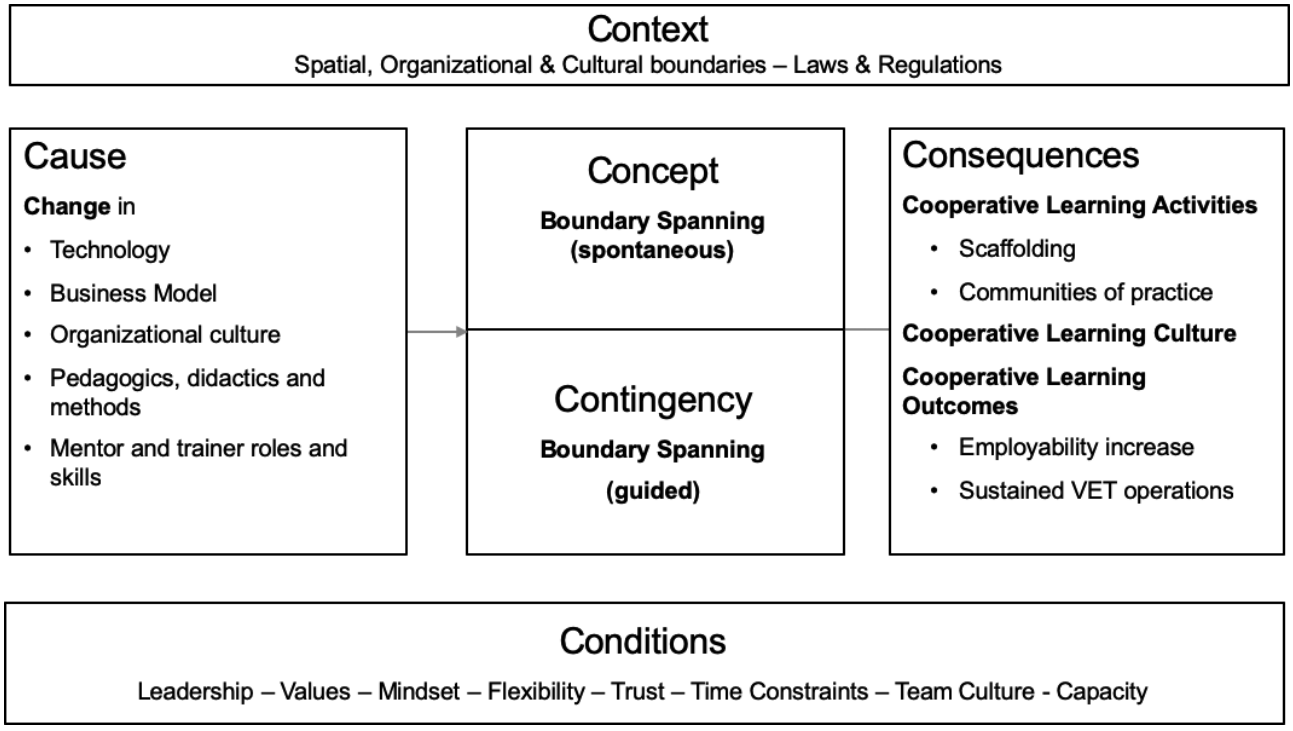

Figure 3. How boundary spanning enhances cooperative learning: findings.
Source: own elaboration, relying on Corbin and Strauss' 6C model (Corbin & Strauss, 1990).

digital-twin simulations were mentioned as important drivers. Respondents said digital transformation required them to consider very different business models, such as SaaS, cloud-based services, and software platforms that require coopetition (i.e., simultaneous cooperation and competition), often with partners that were previously competitors. This required a shift in organizational culture, wherein previously defined boundaries were blurring. For instance, the concept of lifelong and virtual learning was cultivated within the MNC, explained and advocated to every colleague to bolster employability. Additionally, novel work paradigms incorporating designated time for remote work had been implemented. Interviews also showed that pedagogy, didactics, and learning methods were changing. For example, gamified learning had increased, supported by appropriate software solutions and apps. In general, trainers were said to understand their role more as coaches, learning alongside or together with learners. This required methodological prowess utilizing creative formats such as reverse teaching (trainees teaching trainers) or joint exploration of topics where the trainer does not have the immediate solution.

Interviewees considered the *context* in which this happens to be highly dependent on the perceived situation in the different training centers. Barriers were mentioned by 18 out of 21 respondents. Many (13 out of 21) expressed fear to cross these boundaries: fear of making mistakes or being allocated additional tasks. Hierarchical power and structures were described as less important in recent years, replaced by trust, but were sometimes seen as a hindrance to asking for help. Interviewees saw the regulations of the VET legal framework and the public funding of employee training in Germany as rigid and as hindering flexibility and freedom in learning. For instance, a standardized curriculum of basic skills had to be delivered, demonstrated, and evaluated (e.g., welding training for mechanics, even though welding was not a daily requirement for all mechanics in the company). However, the regulatory framework was also perceived by some as a safe framework within which to operate. Interviewees 14 and 19 spoke of a 'balancing act' to cope with these changes, which was challenging to manage. Many interviewees also mentioned the different expectations faced by the training department. Some trainers told us that three- and four-day classroom sessions were ineffective for their own training. Trainers who felt less proficient in new technologies experienced a sense of vulnerability and were reluctant to ask questions that revealed their lack of knowledge. The same behavior was observed in cross-regional, cross-location discussion groups. People often remained passive.

Upon hearing this, management attempted to intervene by recommending smaller breakout groups to foster an environment of psychological safety for exchange and learning, while refraining from directly participating in these groups to avoid inhibiting open discussion.

Table 2. Relevant quotes from the interviews: 6C analysis of boundary spanning

Categories	Axial codes	Illustrative quotes of open coding procedure
Causes	Technology	The greatest challenge lies in effectively conveying topics related to future technology. (I16)
	Business model	The role of a VET trainer has undergone significant transformation, and the era of isolated competency is now obsolete. (I6) Today I view us not as a VET department, but a true training department. While we can debate how to make this distinction between vocational or not, we have a mission encompassing both initial vocational training (where we have a historical tradition) and for continuous education and training for our staff. This has changed, but I see our goal and this goal will always remain in flux due to staff turnover, because our corporate goals change and because our products undergo change. (I4)
	Pedagogy and didactics	Hardware is one side of this whole topic, didactics and methods the other side. And the latter is much more important regarding digitalization. (I3)
	Mentor and trainer roles and skills	I think VET trainers have acquired more self-confidence. They realize their task is not just to show up in the morning and to teach their learning units and to go home in the evenings. […] They want to be visible, they want to shape VET […] their self-confidence and courage have increased to openly discuss matters and to make suggestions and contributions. (I7)
Context	Spatial barriers	The relationship level is often present within locations […] but not across locations due to geographical distance. And if I can't build a bridge to initiate exchanges which can then be continued via collaboration tools [e.g., Microsoft Teams], I cannot achieve this cross-fertilization. (I6)
	Organizational barriers	If you do bridge building, then you need to watch out that other managers don't tear down the bridge again. (I21) I realize that we still work in a way that we did five years ago, what you describe as hierarchy-based. (I5)
	Cultural barriers	Fear to trying something new maybe and making mistakes. […] Especially in these learning communities there are colleagues who are experts in their field, and now I need to grow out of my comfort zone, and I don't want to make mistakes and still need to do my job. (I14) Boundary spanning can happen at the same training center. Colleagues with factory and academic backgrounds learn from each other. (I1)
	Laws and regulations	Well, the challenge for me is, in particular, that we are a very modern company, and very forward-thinking. Yet, we navigate governmental restrictions, and this is not meant in a negative way, because it gives us a certain sense of security. We should not forget this, these restrictions, and laws […] including legislation on working time. (I9)
Concept	Boundary spanning (spontaneous)	If I can't establish a bridge to initiate exchanges […], I can't achieve cross-fertilization. (I6) In my view, this very informal learning, where we learn from each other, this is a form of learning which has always been present in one way or another. However, not in a way that it constituted a distinct way of learning. As a result, people have had to get used to this. (I14)
Contingency	Boundary spanning (guided)	In the beginning I imagined an ecosystem that functions just like this, […] but […] they needed me in this role to actively build these bridges again and again. (I21) These days, you need to value communication skills, this ability to talk to networks and the ability to combine this, to lead and network … this is maybe more important than the latest technical aspect. (I3)
Consequences	Activities: scaffolding	There are people who are simply able to go one step further pedagogically. It is either a given characteristic or not. You can't learn this, you really have to want to take others along and be happy to know that you have taught them to go further at the end of the day. (I3)
	Activities: Communities of practice	And what really is undergoing change now, is this whole topic of learning communities, sometimes also smaller nuggets, shorter sessions, simple opportunities for exchange. In fact, I see this as a clash of generations, it really depends on your normal workday, how well you can integrate this into your […] operations, your everyday work. If you're someone who does a lot of classroom teaching, can you build it into your sessions or not? Acceptance levels vary, I think it still has to become mainstream. This is a transition we are currently stuck in. (I14)
	Cooperative learning culture	The culture has definitely changed. It has become more open, that is, I think, the same for everyone. It's fun, and improves or maintains motivation. (I8) And I believe it's exactly this culture change we need. Because a young person who starts their first job and thinks their responsibility starts in the mornings at 8 a.m. and certainly doesn't go beyond 8 hours of work and waits for this time to finish, that young person will have a general problem. This is exactly the issue here. Along these lines, the question of 'how do I go about work?' must be asked. This is about solution orientation and continuous new acquisition of competencies. This is the mindset which we need to convey to young learners. (I6)
	Employability	We really want to […] secure the future of our employees. (I17)
	Sustainability of operations	We can only win if we're seen as customized qualifiers. (I6)

(Continued)

Table 2 (Continued) Relevant quotes from the interviews: 6C analysis of boundary spanning

Categories	Axial codes	Illustrative quotes of open coding procedure
Conditions	Values	The trainer who says I ultimately stand in front of my group, and I do this in a formal classroom setting and I wait until headquarters gives me a […] curriculum on how to convey my topics in a project setting or in an Microsoft Teams setting … because I don't have any idea of how to do online […] training… I think this type of person, who, as matter of fact behaves like a first-year apprentice (I'm being a bit catty now) won't have a place in VET, because we've got this quest for quality in our businesses. (I6)
	Mindset	But this new open thinking, to say we discuss this and accept out of the ordinary solutions that may fail, but we take aspects which may offer a solution, we question these critically […] both sides may benefit from this. (I18)
	Team culture	You are always as open to change as the people in your environment. (I13)
	Trust	A real aspect for me, in my view, was to gain trust. And gaining trust via action and not via just talking. (I10)
	Leadership	The culture has definitely changed. It has become more open… Managers should embody this topic as a role model. (I8)
	Flexibility	We rely on each other; we depend greatly on each other. […] We don't actually have a 'No, I won't do this for you!' attitude, rather we step in for one another. This is very cooperative, almost familial, where we say, 'OK, we do this, and we manage this'. (I18)
	Time constraints	I think you can create a time window if you really want to. There is ample freedom to allow learners engage in self-learning phases. During this time, trainers can learn themselves. It's possible to do a self-learning unit even if the apprenticeship group is present. Or you can learn together with the group. This is why I think if you want to learn, the opportunity exists, but you have to take the initiative to seize the opportunity. This is not something that is handed on a plate to you. (I21)
	Capacity	Where I sense my colleagues' extreme sense of bitterness is in the overload of learning provision. In other words, just by offering online learning and curated content, which is sometimes really nicely done, doesn't mean that colleagues accept it […] then when they realize these courses exist, and are available in half-day increments, these courses can be integrated into their daily work as a VET trainer, and they adopted them. (I13)

Source: own elaboration.

The different forms of boundary spanning and their link with cooperative learning

The *concept* of boundary spanning in learning was the central phenomenon, resulting from selective coding (Corbin & Strauss, 1990, p. 424) and was spontaneous or guided. It occurred within a training center (bridging different learning attitudes), across training centers, or between a training center and headquarters. Often, like-minded individuals bonded over topics they were passionate about (e.g., technology). Additionally, boundary spanning occurred with other companies (e.g., other training providers). When the interviews revealed that informal information sharing had already begun in some locations and regions, the researcher-manager chose to develop this further and encourage co-learning. This initiative aimed to foster guided boundary spanning, conceptualized here as a *contingency* of spontaneous boundary spanning. Virtual training formats that allowed the wider team to benefit from the experience of other trainers had been piloted during the COVID-19 pandemic. Department managers reintroduced them as part of new 'learning days'. These half-day sessions were set on fixed dates each month, scheduled early enough in the year for trainers to plan their units accordingly. The department also provided a wide range of optional offerings (working groups tailored to different disciplines, procedural training, and suggestions for self-training), from which participants could choose freely, without any requirement to attend. This voluntary nature of the training was positively received. Another deliberate approach to fostering and promoting formal boundary spanning was for management to look for boundary spanning qualities when hiring trainers. As some interviewees noted, social skills were previously not considered as important as technical expertise. When management realized how important such interpersonal skills had become, they changed the recruitment criteria. Rewarding boundary spanners through incentives was seen as another way to encourage the creation of learning communities, although these rewards were not systematic. In addition, on numerous occasions, after hearing about a successful practice, project, or implementation, VET department managers asked trainers to present their findings in plenary sessions, either at learning days or meetings with all employees held four times a year. In this way, they formally 'nominated' boundary spanners.

The dividing line between informal and formal, spontaneous, and guided boundary spanning was seen by many as somewhat blurred. For example, informal boundary spanning was formalized due to homeworking during the pandemic.

Similarly, a training center manager (I16) cited instances of formal boundary spanning, wherein training center employees convened to engage in collective learning. Over time, these gatherings transitioned into a seamless routine, eventually acquiring an informal nature. In this scenario, the local manager, newly appointed to the role, facilitated a transition from the previous management style to a new learning-oriented culture.

This example vividly demonstrates boundary spanning across cultures and learning styles.

The *consequences* of boundary spanning proved to be cooperative learning activities and a new learning culture leading to organizational sustainability and individual employability. Boundary spanning across units enables the dissemination of new knowledge and facilitates effective learning from trainers who possess valuable expertise, often gained through experimentation or previous roles, particularly in technical domains. Managers recognized the significance of presenting this knowledge in appropriate, comprehensible practice cases to ensure that trainers grasp its practical utility and swiftly adapt to these changes. Pedagogical scaffolding (Roberts & Beamish, 2017) emerged as effective for bridging skills gaps with the help of other co-learning colleagues. As one of the interviewees put it:

> I have to build coalitions, I have to accept to a much greater extent that I don't know everything, instead I have to […] find someone who is suitable […]. I have to take that into account for the sake of the company. And the company benefits because this network thinking, this systemic thinking, creates added value. (I3)

Other beneficial activities included fostering communities of practice, which provided greater freedom, informality, and variety in learning experiences, epitomizing a distinct learning culture. Another added value was the speed of implementation of new technological know-how. While contributing to the employability of individual trainers, it was also recognized that such learning led to the sustainability of future operations, which is important for training managers who needed to justify budget and staffing requirements.

Conditions of cooperative learning through boundary spanning

The *conditions* under which boundary spanning in learning could be achieved and cooperative learning enhanced were related to leadership, values, mindset, team culture, trust, and flexibility. Role modeling, openness, empathy, and fostering a respectful relationship between leaders and team members were frequently cited as key attributes that significantly impacted effective leadership: 'The culture has definitely changed. It has become more open, that is, I think, the same for everyone. It's fun, and improves or maintains motivation. […] I think managers should live this matter and ask for it' (I8). In terms of mindset, it was interesting to see how the absence of jealousy and the value of learning were described as a distinguishing feature in a multinational company (compared to the small- or medium-sized companies where I19 had previously worked):

> I have never experienced in [this company] anyone that blocks. On the contrary, in [this company] you always motivate. Here is a group. Here is an opportunity. Either in small, simple courses or in job shadowing, in a larger setting, if you say you really want to get another level of education, a continuing education type of qualification that allows you to continue to be employable in the everyday work environment. I have to say that this is different in this training department than in other departments that I have worked in.

Other managers described how job shadowing or tandem teaching was used to train new trainers or to teach new topics to more experienced trainers. According to the managers, this worked best on a peer-to-peer basis without direct supervisor involvement.

However, interviewees saw time constraints, team influence, and lack of capacity as critical issues. Team spirit depends on the constellation and size of the group (I13, see Table 2): when team spirit is positive and there is trust, boundary spanning in learning seems to be easy. In contrast, team members who were not open to change risked influencing the wider team. Additionally, lack of time was often perceived as a barrier to acquiring new knowledge and skills, as trainer resources were limited due to tighter schedules than in the past. Trainers also noted that virtual or other new training methods required more preparation, which took time away from teaching.

Overall, this research yielded two unexpected findings. First, it underscored the significance of the VET department's perception as 'future-proof' or sustainable in its operations, encompassing both the future employability of existing trainers and the reputation and credibility of the department. This aspect had not been initially considered in the semi-structured interview protocols, making it a genuinely inductive finding. Additionally, the perceived speed at which new skills were acquired and taught was praised. This can be attributed to the overarching culture of change within the organization, where a traditional training department, lacking dynamism and forward-thinking, could risk appearing outdated. Hence, regional and local managers expressed concerns regarding the organizational resilience of the training department, emphasizing the imperative for an HR department, typically viewed as a cost center, to generate added value. Accordingly, the training department must demonstrate a positive business case and foster a pipeline of young talent.

Another surprising discovery pertained to the conditions surrounding boundary spanning. Many interviews with local managers and trainers highlighted the lack of flexibility in trainers' regular schedules to accommodate learning, and the overarching requirement for both time and trainers' capacity to facilitate ample learning opportunities. Interestingly, this concern was more prominently raised by local managers and trainers rather than regional managers. A paradox emerged: while trainers acknowledged the need for learning, they often felt constrained by time limitations, whereas management

viewed this issue not necessarily as a capacity problem but rather as a matter of personal organization. To address this challenge, 'learning hour goals' were established, delineating specific time allocations for training while maintaining flexibility. Additionally, department managers proactively promoted learning days and training opportunities and encouraged trainers to participate in learning. However, cultural barriers emerged, preventing individuals from participating in these learning initiatives. Some trainers preferred traditional teaching methods, while others resisted new approaches or virtual learning platforms. Furthermore, some trainers hesitated to admit their knowledge gaps or slow learning pace in front of their peers. These attitudes varied depending on the prevailing local culture endorsed by the local manager. In response, the researcher/department head collaborated with local managers to address future challenges, reinforce company values, and foster a growth mindset, thereby overcoming cultural barriers and providing motivation and support to individuals in their skill development journey.

Managerial recommendations: allocate time, space, and trust for boundary spanning

Employees need to acquire new skills due to digital transformation, changing environments, and shifting business needs. However, they often perceive a lack of time for learning, creating a challenging paradox that many managers must contend with. The present case exemplifies this dilemma and proposes a solution: cooperative learning facilitated through boundary spanning. We clearly observed that boundary spanning across local units – such as training centers – can be an effective source of cooperative learning, especially in innovative environments where there is no off-the-shelf knowledge. While trainers excel at imparting knowledge, identifying individuals who have something new to teach their peers, and who are willing to do so, can be both effective and challenging. As evidenced by our study, scaling boundary spanning activities so that one trainer reaches many peers requires active encouragement and careful help from management. Therefore, to harness the potential of boundary spanning for fostering cooperative learning, we recommend that managers

- provide virtual learning opportunities for individual or cooperative learning: cooperative learning venues should be open (i.e., voluntary) and people-centered (based on employee needs);
- identify leaders for the cause, both in management and the workforce, who could be appropriate boundary-crossing role models;
- prioritize learning by actively promoting a learning culture, implementing learning objectives, and adapting KPIs to monitor progress;
- carefully manage and monitor trainers' time constraints and capacity issues. Where possible, provide sufficient resources and/or help balance short-term and long-term priorities.

Regarding the *conditions* and *motivations* that foster boundary spanning in VET, it is important and accepted to provide virtual learning opportunities that support cooperative (team) or self-directed learning. Our empirical findings show that lack of capacity is the primary obstacle to effective peer learning in a training department. This lack of capacity manifests as trainers either not having the time or feeling unable to allocate time for learning. Making learning a priority is something that managers must actively model and make time for. Simply assuming that everyone can somehow fit learning into their already busy schedules misses the point and leaves employees grappling with a significant challenge: how to keep pace with the technologies and methodologies they need to teach. If not addressed openly and honestly, this problem can lead to frustration, management and staff alienation, individual burnout, and even resignations.

Methods for enabling boundary spanning in VET learning should prioritize openness and a people-oriented approach. This can be achieved through practical 1:1 learning opportunities such as job rotation, job shadowing (where trainers can attend other trainers' sessions), or tandem teaching. Additionally, regular 1:n or n:n cross-regional virtual meetings can be set up to facilitate exchange, along with the creation of virtual platforms and communities. In the case studied, the company introduced bimonthly two-hour 'great teaching' sessions, where trainers from Germany, Austria, and Switzerland met to discuss methods and didactics on equal footing, engaging in peer-to-peer dialogue. This action research component was observed during the study, proving so successful in 2020 that it was extended in 2021 to monthly, voluntary 'learning days' with faculty communities (comprising mechanics, electronics, commercial, and IT personnel). The most controversial issue in this context is the real or perceived lack of capacity – depending on the trainers' or their managers' perspective – to participate regularly, particularly in certain cases and centers.

Depending on the culture of the organization, asking colleagues to accept 'shadowing' of their daily work may be unfamiliar territory for individuals. Without proper introduction and explanation, this can evoke feelings of being controlled by others perceived as agents of management surveillance. Meanwhile, the colleagues shadowing or receiving tandem teaching may feel like beginners again, despite their professional experience. When one is training a group of young people, there is an additional risk that experienced trainers may feel they are losing face. Other barriers may be financial or capacity related, since providing learning opportunities for trainers means that they cannot be actively involved in

teaching or supervising apprentices at the same time. If the underlying – cultural – assumption of trainers is that only hours spent directly teaching learners really contribute to operations, trainers may be reluctant to introduce self- or group-learning sessions for these learners for fear of being told that they are not being productive enough. It is therefore crucial to carefully and holistically plan any such shift in organizational culture, engaging all hierarchical levels, while ensuring that values, metrics, and goals are properly aligned and clearly communicated to the employees identified to become a learning community. Failure to execute this transition effectively can result in organizational ambiguity and individual discontent, along with the financial repercussions of squandered training hours.

This implies a call to action for leaders. Managers wield significant influence over leadership styles and foster trust through their own behavior and communication, guiding system changes and shaping shared values (e.g., shifts in VET teaching philosophy). They possess the power to positively impact the perception of department's long-term sustainability, while enhancing boundary spanning between training centers. The interviews revealed a palpable enthusiasm for sharing and generating knowledge across sites. Managers are therefore encouraged to exhibit such behaviors and see out individuals with this passion and optimism when identifying boundary spanners in their organization who can facilitate cooperative learning.

Formal encouragement of boundary spanning may involve incentives and the designation of official boundary spanning roles and responsibilities. In many cases, however, trainers' intrinsic motivation, combined with a natural curiosity about technology and people, will be sufficient. Moreover, instructor communities typically foster open communication. The initial step involves identifying leaders who champion this cause. In scenarios where there is a scarcity of boundary spanners or a need for expanded boundary spanning, prioritizing the identification of boundary spanning qualities when recruiting new instructors may be the most effective approach.

It is also important to understand that boundary spanning takes time and, to some extent, courage, since in VET, this means accepting peer observation of teaching and/or admitting shortfalls in knowledge. Encouraging trainers to actively share their knowledge and allow others to participate and grow in their learning is a key leadership quality. Leaders should specifically acknowledge capacity issues as a significant obstacle and actively communicate the importance of mutual learning for future operational efficiency. They should also cultivate an atmosphere of trust that accepts mistakes and setbacks, while leading by example by engaging in learning and boundary spanning to lend credibility to their communication.

An often-overlooked obstacle is the background of trainers, many of whom originate from manufacturing environments where the divide between management and employees is perceived as more pronounced than in HR departments. Speaking on behalf of management and taking on a formal or informal leadership role is not something that comes naturally to everyone, nor is it always expected within social groups. As a leader, understanding these nuances and navigating the complexities of perceived hierarchies or differences to advance social capital for the team's benefit can pose a challenge, albeit a worthwhile one. It necessitates a keen awareness and transparent communication, coupled with encouragement and boundary spanning across social and cultural divides, to cultivate a culture where all employees feel a sense of belonging and can thrive.

A summary of the key management questions and recommendations is presented in Table 3. We recommend that managers provide learning scaffolds for trainers while fostering an open and people-oriented learning environment. Managers should prioritize other managers as key actors in facilitating boundary spanning across training centers. When identifying individuals for this role, managers should seek out specific boundary spanning qualities, including strong interpersonal skills, a keen interest in networking, and, to a lesser extent, technical competencies for knowledge sharing.

Table 4 illustrates how to overcome organizational barriers and mitigate risks when implementing boundary spanning. Typically, capacity constraints are the biggest barrier. Additionally, cultural barriers may exist within the organization, such that working with colleagues can lead to hostility and mistrust. Staffing and talent pipeline challenges can also be barriers to effective boundary management. Moreover, social and cultural boundaries may not be readily identifiable.

Conclusion: Contributions and outlook

As this study shows, boundary spanning in a corporate learning department can foster cooperative learning, thereby elevating individual learning experiences into a collective enhancement of employability. Furthermore, these learning and transformative processes are pivotal in ensuring the sustainability of vocational training operations. Consequently, nurturing boundary-spanning attributes in staff and managers to enable cooperative learning emerges as a management task worthy of consideration.

To achieve this, it is essential to identify individuals possessing valuable knowledge and facilitate its dissemination. This entails evaluating the interpersonal skills and mindsets of potential internal boundary spanners, as well as those of prospective hires or promotions. Lack of boundary-spanning 'champions' within the management team, reluctance to share knowledge, or apprehension toward active training roles of other trainers can impede cooperative learning initiatives. Providing suitable incentives (monetary rewards, public recognition, or career opportunities) could serve as effective mitigation, albeit

Table 3. Managerial recommendations

Managerial questions	Managerial recommendations
How can boundary spanning facilitate the learning and teaching of new content by in-house trainers?	**Providing learning scaffolds** (in other words help) for trainers through boundary spanning activities: • cognitive scaffolds such as experimental teaching, practice cases, projects, and good preparation, yet a flexible response to questions and improvisation • relational scaffolds such as open workshops, empathic help while building trust, striving for reciprocity in sharing information, and experiences in a safe environment • material scaffolds such as providing sufficient time and capacity for trainers to train and taking into account the equipment available
What methods can managers use to foster boundary spanning?	**Developing an open and people-oriented organization** • practical opportunities such as job rotation, job shadowing (trainer peer-to-peer observation), or tandem teaching • regular cross-regional virtual meetings to facilitate exchange • virtual platforms and communities
What characteristics and roles should managers look for to foster boundary spanning?	**Seeking out managers** as the key actors in facilitating boundary spanning across training centers and enabling social learning • a passion for sharing and generating knowledge across locations • a fire for the cause • optimism **Identifying boundary spanners who make cooperative learning successful** through • strong interpersonal skills • a keen interest in networking across locations • some know-how and cognitive skills, although the latter are not as important as networking and interpersonal skills
How can you motivate employees to go the extra mile?	**Explaining the need for a culture of learning and sharing** • explaining boundary spanning and why it is important • encouraging boundary spanning for learning actively **Encouraging boundary spanning formally** • designating formal boundary spanning roles and responsibilities • incentives (in many cases, trainers' intrinsic motivation combined with natural curiosity about technology and people will make incentives unnecessary) • identifying leaders and allies for the cause • looking for boundary spanning attributes when recruiting new trainers

Source: own elaboration.

requiring additional resources in the short and long term. Revising hiring criteria for new managers and trainers to include considerations of boundary spanning traits alongside technological and methodological expertise are appropriate measures to mitigate the risk of failing to promote cooperative learning among trainers. Leadership and organizational culture play an important role in disseminating messages and learning to teams. Additionally, managers should prioritize individuals in the target practice zone, specifically employees who stand to benefit from boundary spanning initiatives. Those employees requiring skill development need adequate time for learning, which is often underestimated in day-to-day operations. Creating a neutral zone as a 'third space' can be an appropriate measure; in this case, monthly 'virtual learning days' were formally introduced and open to all local teams. Other non-mandatory learning opportunities may include annual trainers' meetings, bar camps, 1:1 learning opportunities, and, in general, measures to build social ties and trust between different units. However, this seemingly straightforward solution is often embedded in a culture of change and lifelong learning and involves new technologies, new business models, and new ways of working and learning. It also entails instilling the understanding that continuous learning and sometimes continuous teaching as boundary spanners between units necessitate time and effort investment.

In addition to managerial insights, our study makes a contribution to theory. We introduce the distinction between spontaneous and guided boundary spanning, exemplified by the scheduled 'learning days'. The working groups formed in this context serve as 'collective bridges' in the sense of Zhao and Anand (2013), facilitating effective relationship building across boundaries. Investigating boundary spanning in the empirical field of corporate training provides a further theoretical contribution, complementing the foundational work of Roberts and Beamish (2017). We identify their concept of pedagogical scaffolding as a cooperative learning activity, rather than 'just' boundary spanning in learning. In addition, our research provides an empirically grounded

Table 4. How to overcome barriers to implementing more boundary spanning for learning

Barriers	Risks	Mitigations from a manager's perspective
Capacity constraints may result in insufficient learning time during business hours. Financial or capacity constraints due to double staffing may prevent learning time from being allocated. Existing productivity KPIs may not allow for sufficient learning time.	Frustration Alienation between management and employees Individual burnout Resignations	Provide time for employees to learn. Be an active role model for taking time to learn and enabling an inclusive and appreciative culture. Provide time and support for those who cross boundaries.
There may be cultural barriers in the organization where teaming up with colleagues can lead to a climate of hostility and mistrust or a feeling of 'losing face' or 'being spied on'. In addition, managers should be aware of employees' fear of making mistakes and/or being judged by colleagues, fear of exposure.	Organizational confusion and individual frustration Financial risk of training that does not achieve the intended outcome	Plan and explain organizational culture change holistically. Allow for learning from mistakes. Ensure that values, metrics, and goals are properly aligned and communicated to employees to become a learning community.
Staffing and talent pipeline issues can be difficult to address: Management teams may not have individuals who can establish boundary spanning. Teams may be unwilling to share knowledge. Individuals may be unwilling to take an active role in training other trainers.	Hiring or retaining people who lack the interpersonal skills or attitudes can prevent cooperative learning and scaling on new topics such as digital technologies and methodologies.	Identify staff with the required potential. Offer appropriate incentives (monetary rewards, public recognition, career opportunities). Add short- and long-term resources, if possible. Revise hiring criteria for new managers and trainers to include considerations of boundary-spanning traits alongside technological and methodological expertise.
Social and cultural boundaries may not be readily identifiable: Be aware of social/hierarchical barriers that may prevent in-house trainers from engaging in formal/informal leadership.	Risk of obsolescence of individual trainers' knowledge may lead to employability problems in the long run; lower quality of vocational training may lead to problems for graduates in the workplace. If not addressed, the reputation of the VET sector and the sustainability of its operations are at risk.	Be aware of and openly communicate the risks of obsolescence and why boundary spanning is important. Offer help when someone starts to reach out to other teams, cultures, or methods. Find role models who actively share and discuss the virtues of this behavior. Allow time for trainers to actively share their knowledge. Actively discuss capacity conflicts and communicate the importance of learning from each other for future operational effectiveness. Create an atmosphere of trust while leading by example.

Source own elaboration.

conceptualization of cooperative learning in terms of activities, culture, and outcomes. Cooperative learning activities include pedagogical scaffolding (Roberts & Beamish, 2017), which was found to be effective in bridging the skill gap with the help of other co-learning peers. Another beneficial cooperative learning activity is the creation of communities of practice across boundaries (Wenger, 1998), which allowed for more freedom, informality, and variety in learning to exemplify a different learning culture. The case of a training department was also particularly insightful because the sustainability of the operations was considered to be dependent on cooperative learning. Indeed, as a cost center dedicated to training and a pipeline of young talent, actors felt that they needed to create a lifelong learning culture. Our research also contributes to the literature by identifying the conditions for cooperative learning through boundary spanning. Several conditions have been mentioned in previous work, such as time and capacity constraints (Roberts & Beamish, 2017), trust (Lin, 2007), or leadership (Ernst & Yip, 2009; Schwarzmüller et al., 2018), but our study provides a more integrated framework and further illustration of the different conditions.

The limitation of this study is its focus on a single corporate training department, whose characteristics are not necessarily the same as those of other departments. We advocate for additional research across similar and diverse settings to better understand how our findings are transferable to other organizations and contexts.

Acknowledgments

We thank coeditor in chief Anne-Sophie Fernandez for her handling of the manuscript review and revision process. The new Business Voice section workshop she organized with Lionel Garreau in early 2023 was also very helpful for crafting the paper. We also thank the two anonymous reviewers for their constructive feedback on earlier versions of the manuscript, and Stephen Platt for help with copyediting.

References

Avenier, M.-J. & Thomas, C. (2015). Finding one's way around various methodological guidelines for doing rigorous case studies: A comparison of four epistemological frameworks. *Systèmes d'information & Management*, *20*(1), 61–98. doi: 10.3917/sim.151.0061

Bartel-Radic, A. & Munch, F. (2023). Cross-cultural boundary spanning activities in a global team: Insights from an ethnographic case study. *International Journal of Cross Cultural Management*, *23*(2), 339–365. doi: 10.1177/14705958231185432

Caputo, A., Fiorentino, R. & Garzella, S. (2019). From the boundaries of management to the management of boundaries: Business processes, capabilities and negotiations. *Business Process Management Journal*, *25*(3), 391–413. doi: 10.1108/BPMJ-11-2017-0334

Carlile, P. (2004). Transferring, translating, and transforming: An integrative framework for managing knowledge across boundaries. *Organization Science*, *15*(5), 555–568. doi: 10.1287/orsc.1040.0094

Cedefop. (2024). *21st century workforce*. Retrieved from https://www.cedefop.europa.eu/en/themes/21st-century-workforce

Chanal, V. & Kimble, C. (2010). Born to be Wild: Using Communities of Practice as a Tool for Knowledge Management. *Paper presented at the Ethicomp 2010: The 'Backwards, Forwards and Sideways' changes of ICT*, Tarragona, Spain, pp. 71–80.

Collien, I. (2021). Concepts of power in boundary spanning research: A review and research agenda. *International Journal of Management Reviews*, *23*(4), 443–465. doi: 10.1111/ijmr.12251

Corbin, J. & Strauss, A. (1990). Grounded theory research: Procedures, canons, and evaluative criteria. *Zeitschrift für Soziologie*, *19*(6), 418–427. doi: 10.1515/zfsoz-1990-0602

Cummings, J. N. (2004). Work groups, structural diversity, and knowledge sharing in a global organization. *Management Science*, *50*(3), 352–364. doi: 10.1287/mnsc.1030.0134

Dudézert, A., Roulleaux Dugage, M., Chauvin, F., Martin, F. et al. (2012). Le KM au coeur de la stratégie d'entreprise. *Documentaliste-Sciences de l'information*, *49*(2), 26–43. doi: 10.3917/docsi.492.0026

Ernst, C. & Yip, J. (2009). Boundary-spanning leadership: Tactics to bridge social identity groups in organizations. In T. Pittinsky (Ed.), *Crossing the divide: Intergroup leadership in a world of difference* (pp. 87–100). Harvard Business Press.

Garcias, F., Dalmasso, C. & Sardas, J.-C. (2015). Paradoxical tensions in learning processes: Exploration, exploitation and exploitative learning. *M@n@gement*, *18*(2), 156–178. doi: 10.3917/mana.182.0156

Gong, C. & Ribiere, V. (2021). Developing a unified definition of digital transformation. *Technovation*, *102*, Article 102217. doi: 10.1016/j.technovation.2020.102217

Johnson, D. W. & Johnson, R. T. (1999). Making cooperative learning work. *Theory Into Practice*, *38*(2), 67–73. doi: 10.1080/00405849909543834

Kortsch, T., Decius, J. & Paulsen, H. F. (2021). 'New Learning': Wie sich das Lernen bei der Arbeit verändert. *Wirtschaftspsychologie Aktuell*, *2021*(1), 44–48.

Kusunoki, K., Nonaka, I. & Nagata, A. (1998). Organizational capabilities in product development of Japanese firms: A conceptual framework and empirical findings. *Organization Science*, *9*(6), 699–718. doi: 10.1287/orsc.9.6.699

Langley, A. (1999). Strategies for theorizing from process data. *Academy of Management Review*, *24*(4), 691–710. doi: 10.2307/259349

Li, J., Wiemann, K., Shi, W., Wang, Y. et al. (2019). Vocational education and training in Chinese and German companies in China: A 'home international' comparison. *International Journal of Training and Development*, *23*(2), 153–168. doi: 10.1111/ijtd.12151

Lin, C.-P. (2007). To share or not to share: Modeling tacit knowledge sharing, its mediators and antecedents. *Journal of Business Ethics*, *70*, 411–428. doi: 10.1007/s10551-006-9119-0

MacDonald, M. (2001). Finding a critical perspective in grounded theory. In R. S. Schreiber & P. N. Stern (Eds.), *Using grounded theory in nursing* (pp. 113–157). Springer.

Mäkelä, K., Barner-Rasmussen, W., Ehrnrooth, M. & Koveshnikov, A. (2019). Potential and recognized boundary spanners in multinational corporations. *Journal of World Business*, *54*(4), 335–349. doi: 10.1016/j.jwb.2019.05.001

Mehta, N., Chauhan, S., Gupta, P. & Jaiswal, M. (2021). Pursuing digital learning platform success: A meta-analytic investigation of user and cultural contingencies. *Communications of the Association for Information Systems*, *48*, 305–322. doi: 10.17705/1CAIS.04834

Moore, F. & Mahadevan, J. (2020). Ethnography and cross-cultural management. In B. Szkudlarek, L. Romani, D. Caprar & J. Osland (Eds.), *The Sage handbook of contemporary cross-cultural management* (pp. 128–140). Sage. doi: 10.4135/9781529714340

Nonaka, I. & von Krogh, G. (2009). Perspective – Tacit knowledge and knowledge conversion: Controversy and advancement in organizational knowledge creation theory. *Organization Science*, *20*(3), 635–652. doi: 10.1287/orsc.1080.0412

Peichl, A., Sauer, S. & Wohlrabe, K. (2022). Fachkräftemangel in Deutschland und Europa – Historie, Status quo und was getan werden muss. *ifo Schnelldienst*, *75*(10), 70–75.

R4E. (2024). *Helping Europe answer the reskilling challenges of the 21st century.* Retrieved from https://reskilling4employment.eu/en/

Roberts, M. J. D. & Beamish, P. W. (2017). The scaffolding activities of international returnee executives: A learning based perspective of global boundary spanning. *Journal of Management Studies*, *54*(4), 511–539. doi: 10.1111/joms.12266

Roth, E., Moencks, M., Beitinger, G., Freigang, A. et al. (2022). Microlearning in human-centric production systems. In *IEEE International Conference on Industrial Engineering and Engineering Management* (pp. 37–41), December 7–10, Kuala Lumpur.

Rouby, E. & Thomas, C. (2023). From individual to collective qualities of attention in dynamic work settings: Learning barriers to the development of collective mindful attention. *M@n@gement*, *26*(2), 1–15. doi: 10.37725/mgmt.2023.4541

Schotter, A. P. J., Mudambi, R., Doz, Y. & Gaur, A. (2017). Boundary spanning in global organizations. *Journal of Management Studies*, *54*(4), 403–421. doi: 10.1111/joms.12256

Schuchmann, D. & Seufert, S. (2015). Corporate learning in times of digital transformation: A conceptual framework and service portfolio for the learning function in banking organisations. *International Journal of Advanced Corporate Learning*, *8*(1), 31–39. doi: 10.3991/ijac.v8i1.4440

Schwarzmüller, T., Brosi, P., Duman, D. & Welpe, I. M. (2018). How does the digital transformation affect organizations? Key themes of change in work design and leadership. *Management Revue*, *29*(2), 114–138. doi: 10.5771/0935-9915-2018-2-114

Seufert, S. & Meier, C. (2016). From eLearning to digital transformation: A framework and implications for L&D. *International Journal of Advanced Corporate Learning*, *9*(2), 27–33. doi: 10.3991/ijac.v9i2.6003

Siemsen, E., Roth, A. V., Balasubramanian, S. & Anand, G. (2009). The influence of psychological safety and confidence in knowledge on employee knowledge sharing. *Manufacturing & Service Operations Management*, *11*(3), 429–447. doi: 10.1287/msom.1080.0233

Slavin, R. E. (2014). Making cooperative learning powerful. *Educational Leadership*, *72*(2), 22–26.

Tacchi, J. (2015). Ethnographic action research: Media, information and communicative ecologies for development initiatives (pp. 220–229).

In H. Bradbury (Ed.), *The SAGE handbook of action research*. SAGE. doi: 10.4135/9781473921290

Tippmann, E., Sharkey Scott, P. & Parker, A. (2017). Boundary capabilities in MNCs: Knowledge transformation for creative solution development. *Journal of Management Studies*, *54*(4), 455–482. doi: 10.1111/joms.12253

Wass, R., Harland, T. & Mercer, A. (2011). Scaffolding critical thinking in the zone of proximal development. *Higher Education Research & Development*, *30*(3), 317–328. doi: 10.1080/07294360.2010.489237

Welch, C., Piekkari, R., Plakoyiannaki, E. & Paavilainen-Mäntymäki, E. (2011). Theorising from case studies: Towards a pluralist future for international business research. *Journal of International Business Studies*, *42*(5), 740–762. doi: 10.1057/jibs.2010.55

Welk, S., Kortsch, T. & Kauffeld, S. (2023). How to foster informal learning: A cross-cultural study. *Zeitschrift für Arbeits- und Organisationspsychologie*, *67*(2), 92–106. doi: 10.1026/0932-4089/a000394

Wenger, E. (1998). *Communities of practice: Learning, meaning, and identity*. Cambridge University Press.

Zhang, W., Levenson, A. & Crossley, C. (2015). Move your research from the ivy tower to the board room: A primer on action research for academics, consultants, and business executives. *Human Resource Management*, *54*(1), 151–174. doi: 10.1002/hrm.21616

Zhao, Z. J. & Anand, J. (2013). Beyond boundary spanners: The 'collective bridge' as an efficient interunit structure for transferring collective knowledge. *Strategic Management Journal*, *34*(13), 1513–1530. doi: 10.1002/smj.2080