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What drives workplace learning: a systematic review of key antecedents

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Abstract

Purpose – The purpose of this systematic review is to examine the antecedents of workplace learning, focusing on the individual and contextual factors that facilitate or inhibit engagement in learning activities integrated into daily work. The review aims to provide insights into how workplace learning occurs and how it can be supported in contemporary work environments.

Design/methodology/approach – This study uses a systematic review methodology, ensuring a comprehensive and transparent synthesis of research. The review focuses on identifying individual and contextual antecedents influencing workplace learning, based on studies published between 2012 and 2022. A total of 73 studies were included after a rigorous selection process, analysing factors that impact workplace learning in evolving work environments.

Findings – The review identifies key individual factors, such as motivation and self-efficacy, alongside contextual influences like learning climate and job demands, that significantly impact workplace learning. Emerging trends include the increasing role of digital tools and hybrid work models, which highlight the evolving nature of workplace learning in contemporary organisations.

Originality/value – This review reflects the evolving nature of work and learning, emphasising the need for a more immediate and embedded understanding of how learning occurs in today's workplaces. It aligns with the growing emphasis on learning "in the flow of work" and underscores the importance of organisations fostering adaptability and innovation through integrated learning practices. By focusing specifically on workplace learning, this review offers valuable insights for organisations aiming to support continuous learning in dynamic environments.

Keywords HRD, Bibliometric analysis, Workplace learning, Learning at work

Paper type Literature review

Introduction

In today's volatile and complex work environment, characterised by technological advancements, shifting job roles and increased global competition, organisations are under constant pressure to remain agile and innovative (LinkedIn Learning, 2024). Recent policy reports (e.g. OECD, 2021; World Economic Forum, 2023) and industry analyses (e.g. Deloitte, 2023) emphasise the growing demand for continuous learning in response to rapid technological advancement, the shift to hybrid work and increased job volatility. To meet

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these demands, employees must continuously develop and update their competencies to stay employable (CIPD, 2021). While formal learning, such as structured courses and certifications, remains a key component of competence development, the limitations of such programs have become increasingly apparent in the modern workplace. Education and training often fail to address employees' immediate and evolving needs, particularly as job roles and required competencies shift rapidly (Li et al, 2023; Lokhtina and Faller, 2024).

Consequently, workplace learning, characterised by the interweaving of learning and working activities, has gained attention as a vital alternative for fostering continuous learning and adaptability. Unlike formal education and training, which are planned and institutionalised, workplace learning encompasses a variety of experiences, including both structured and unstructured activities. It occurs through engagement with daily work tasks and interactions, integrating learning into the flow of work (Bersin, 2022). This integration makes workplace learning an adaptable and continuous process, enabling employees to develop skills and knowledge in real time as they face new challenges and opportunities (Billett, 2001; Cerasoli *et al*., 2018). As technological advancements and the emphasis on lifelong learning continue to grow, understanding how workplace learning occurs and how it can be supported has become an important area of interest for both researchers and practitioners (Noe, Clarke, and Klein, 2014).

For organisations, understanding the factors that influence workplace learning is essential for creating environments that encourage continuous development. Considering the growing emphasis on learning as a key component of organisational competitiveness, practitioners are increasingly looking for ways to facilitate and leverage workplace learning (Billett, 2004). Identifying the antecedents that foster or hinder workplace learning enables organisations to develop informed strategies to enhance employee learning and development (L&D), thereby improving performance and adaptability in dynamic environments (Noe *et al*., 2014).

Over a decade ago, Kyndt and Baert (2013) provided a foundational framework categorising the antecedents of work-related learning across individual, organisational and societal levels, encompassing all forms of work-related learning, including formal education and training. The substantial changes in the labour market such as talent shortages, rising job mobility, a stronger emphasis on employability and accelerated technological advancements, highlight the need to revisit their findings. Since Kyndt and Baert's (2013) study reviewed work published between 1990 and 2012, it may no longer fully reflect the realities of contemporary employee learning. These shifts in the nature of work also underscore the importance of focusing more specifically on workplace learning conceptualised as learning integrated with work activities and contexts. This narrower focus allows for a deeper understanding of how recent developments, such as hybrid work models, automation and the gig economy, shape the conditions and mechanisms of workplace learning.

By narrowing the focus to workplace learning, this systematic review reflects the evolving nature of work and learning and responds to the need for understanding a more immediate and embedded occurrence of learning in today's workplaces. As such, this systematic review aligns with the growing emphasis on learning "in the flow of work" and the need for organisations to foster adaptability and innovation through embedded learning practices. Addressing this gap is vital for understanding how recent developments uniquely shape the antecedents and mechanisms of workplace learning and for offering actionable insights to optimise L&D strategies in today's fast-paced and technology-driven environments.

Theoretical background

Defining workplace learning

To fully understand workplace learning, it is essential to situate it within the broader concept of work-related learning, the focus of the 2013 Kyndt and Baert review. Work-related learning encompasses all learning activities undertaken in relation to work or career development, spanning a wide range of formal, non-formal and informal contexts. This includes structured activities like external training programs, certifications and workshops, as well as informal, self-directed efforts outside the workplace. Work-related learning is a broad concept that reflects the many ways individuals enhance their competencies to remain employable and meet evolving job demands (Kyndt and Baert, 2013).

Within this broad framework, workplace learning represents a distinct subset, uniquely characterised by its integration with work activities and contexts. Unlike other forms of work-related learning, workplace learning occurs directly within the flow of work, making it immediate, practical and deeply connected to the employee's role and organisational environment. It involves a continuum of experiences, ranging from informal, incidental learning (e.g. observing colleagues or solving unexpected problems) to more structured, deliberate efforts embedded in daily tasks (Billett, 2001; Eraut, 2004).

Historically, workplace learning was defined based on its location distinguishing whether it occurred on or off the job (Streumer and Van der Klink, 2004). On-the-job learning referred to activities occurring directly at the physical workplace, while off-the-job learning occurred outside of it. However, as the boundaries between work and personal life continue to blur (e.g. flexible working hours and locations), the place of learning is no longer considered the defining characteristic of workplace learning. Instead, the key distinction lies in the intertwining of work and learning processes, regardless of location.

The defining characteristic of workplace learning is the intertwining of learning and working processes (Handley *et al.*, 2007; Kyndt, Endedijk, and Beausaert, 2021). It exists on a continuum of formality, ranging from structured and planned learning activities to informal, spontaneous learning embedded in everyday tasks (Colley, Hodkinson, and Malcolm, 2003). Intentionality is another critical dimension, reflecting the extent to which learning is deliberate and goal-oriented versus reactive or implicit. Deliberate learning involves conscious efforts to acquire knowledge or skills, while reactive learning is more intuitive and occurs in response to immediate challenges. Implicit learning, by contrast, occurs unconsciously during work processes, often becoming evident only in retrospect (Eraut, 2004). These dimensions highlight the varied and dynamic nature of workplace learning, illustrating how it spans different levels of planning and awareness.

The interconnection between learning and work activities ensures that learning is not an isolated activity but rather an inherent aspect of performing work. For instance, employees collaborating on a project, reflecting on outcomes or experimenting with new technologies are simultaneously learning and contributing to their organisation. Such integration enables workplace learning to respond dynamically to the fast-paced and continuously changing demands of contemporary work environments (Marsick and Watkins, 2001; Cerasoli *et al.*, 2018).

By situating workplace learning as a specific subgroup of work-related learning, this systematic review aligns with the need to understand how learning occurs in the contexts where employees face real-time challenges and opportunities. Focusing on workplace learning provides a more precise lens for examining how individual, organisational and societal factors influence learning in today's workplaces. This perspective is particularly critical in addressing the evolving realities of work, such as hybrid models, automation and the gig economy, as highlighted in the introduction.

Antecedents to workplace learning

Understanding the factors that shape workplace learning is essential for creating environments that support continuous development. Antecedents, in this context, are defined as the factors or conditions that influence an individual's engagement with learning activities integrated into their work (Kyndt and Baert, 2013). These antecedents play a critical role in determining both the intention to participate in workplace learning and the actual extent of engagement (Tynjälä, 2008).

Research has consistently highlighted that antecedents can act as either facilitators or inhibitors. Facilitators are elements that enable or encourage participation in workplace learning, such as managerial support, a strong organisational learning culture and adequate resources. Conversely, inhibitors, such as time constraints or a lack of access to learning opportunities, restrict engagement. Notably, facilitators and inhibitors are often two sides of the same coin; for example, the presence of support acts as a facilitator, while its absence serves as an inhibitor (Ellström and Kock, 2011).

Given the multifaceted nature of workplace learning, a structured framework is essential to systematically examine the wide range of antecedents that shape participation. Such a framework allows for the identification, categorisation and analysis of these factors while providing a basis for understanding how they interact to influence workplace learning. This study builds on Kyndt and Baert's (2013) review, which categorised antecedents into individual, contextual and learning/training activity levels. However, given this study's focus on workplace learning, the level of individual learning activities are not considered. While distinctions at this level are critical for understanding formal training programs or structured courses, they are less relevant to the embedded and dynamic nature of learning integrated into daily work tasks. This study, therefore, focuses on two levels: individual and contextual antecedents. Individual antecedents include socio-demographic factors (e.g. age, education, financial resources), personal attributes (e.g. motivation, self-efficacy) and professional characteristics (e.g. job satisfaction, career aspirations). Contextual antecedents encompass job characteristics (e.g. task complexity, autonomy), organisational characteristics (e.g. learning culture, managerial support) and labour market conditions (e.g. technological advancements, labour market demands) (see Figure 1). Together, these factors shape participation in workplace learning and highlight opportunities to design supportive learning environments in dynamic work contexts.

Present study

Workplace learning has become increasingly vital as organisations and employees navigate the rapid technological advancements, evolving job roles and shifting labour market demands of the past decade. Since the last comprehensive review of work-related learning by Kyndt and Baert (2013), the nature of work has undergone significant changes. The rise of hybrid work models, automation and the gig economy has reshaped how employees engage with learning.

Workplace learning, characterised by the entwinement of learning and working, plays a crucial role in enabling employees to adapt to the evolving demands of contemporary work environments. While previous research has identified various antecedents influencing work-related learning, there remains a need to focus specifically on those factors shaping engagement in informal, embedded workplace learning.

This study responds to these developments by conducting a systematic review to identify the antecedents of workplace learning. Building on the conceptual distinction between individual and contextual factors, the study aims to answer the following research question:

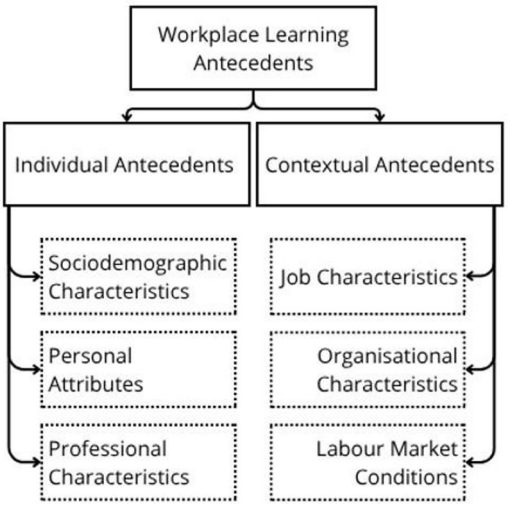

Figure 1. Framework categorising antecedents of workplace learning
Source: Authors' own work

RQ1. Which individual and contextual factors facilitate engagement in workplace learning?

By narrowing the scope to workplace learning, this review provides a targeted synthesis of recent literature, offering insights to support organisations in fostering learning embedded within daily work practices.

Method

This study adopts a systematic review methodology, following the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) guidelines to ensure a rigorous and transparent research process (Page *et al.*, 2021). A comprehensive search was conducted across multiple academic databases to identify peer-reviewed studies examining the antecedents of workplace learning. Inclusion and exclusion criteria were systematically applied to focus on individual and contextual factors relevant to workplace learning, while ensuring the quality and relevance of the selected studies. The synthesis integrates findings from the selected primary studies across disciplinary fields, providing a robust overview of the factors shaping workplace learning.

Literature search

A comprehensive literature search was conducted across four major academic databases that covered the relevant disciplines the topic of interest: ERIC (Education), APA PsycInfo, (Psychology) Business Source Premier (Business and Management) and Social Science Citation Index (Social Sciences). A combination of wide-ranging search terms was used to ensure the identification of all relevant literature.

The primary search terms included "Work-related learning," "Workplace learning," "Lifelong learning," "Informal learning," "Development activities," and "Learning and development." These terms were combined with terms referring to the target population:

"Employees," "Workers," "Job seekers," "Unemployed," and "Graduates.2 Each search term combination was applied systematically across all four databases. Given the recent trends in L&D (e.g. personalised and digital learning, agility, vitality and the important role of soft skills) we searched for publications between 2012 and 2022. This initial search yielded 3,137 records (see Table 1). After removing 1,073 duplicates, *2064 unique records* remained for screening.

Literature selection

The selection of the articles for inclusion in the review study started from a set of inclusion and exclusion criteria. Studies had to focus on the active labour force, defined as individuals who have completed initial education and are not yet retired, including unemployed individuals. This excludes articles focusing on pupils, students, adolescents or educational levels not relevant to the active labour force. In addition, studies had to investigate antecedents of actual engagement in learning, excluding studies that measured motivation or intention to learn. As this study focuses on workplace learning, studies that exclusively address formal education and training were excluded. However, studies that examined both formal training and workplace learning as outcomes were included, provided that the results for each learning type were reported separately. In such cases, only the findings related to workplace learning were considered. Figure 2 provides a visual overview of the article selection process, based on the applied inclusion and exclusion criteria.

An initial screening of the titles of the 2,064 unique records based on the selection criteria led to the removal of 1,355 records. Subsequently, the abstracts of the remaining 709 articles were screened and assessed on agreement with the selection criteria. After this screening, 144 records were retained for which full-text articles were sought. A total of 128 articles were successfully retrieved and screened, resulting in the inclusion of 73 studies in the analysis. The screening of the full articles as part of the selection process focused primarily on distinguishing studies on formal training from those on workplace learning, with particular attention to studies capturing both, to ensure the results specifically reflected workplace learning.

Critical appraisal

The quality of the 73 primary studies included in this review was assessed using established critical appraisal tools. For quantitative studies ($n = 48$), criteria based on Aveyard (2010) and checklists from the National Institute for Health and Clinical Excellence (NICE, 2009) were applied. Qualitative studies ($n = 22$) and mixed-method studies ($n = 3$) were evaluated using the Critical Appraisal Skills Programme (CASP) guidelines (CASP, 2013). The appraisal focused on four key aspects: a well-focused research question, an appropriate research design, robust sampling and data collection methods and clear reporting of findings. Each research study was confronted with every question in the checklist and could be only answered with yes or no. Whenever there was no information available about a specific criterion, it was assumed that the researcher did explicitly not consider it. Each study was given a quality rating based on how they scored on the questions (0–3 times Yes = Low; 4–6 times Yes = Medium; 7–9 times Yes = High). If the study did not have a clear statement of research aims, a design appropriate for addressing these aims and a well-described recruitment strategy (e.g. the first three questions). The study was excluded due to it being identified as fatally flawed. This rigorous appraisal process ensured that the quality of the studies was appropriately considered during the synthesis, with lower-quality studies receiving less weight in the overall analysis and interpretation of results.

Table 1. Overview of literature (non-unique) search hits

Search terms	ERIC	PsycInfo	Business Source Premier	Social Science Citation Index	*Subtotal*
Work related learning and employees	5	12	7	9	*33*
Work related learning and workers	6	10	4	5	*25*
Work related learning and job seekers	0	0	0	0	*0*
Work related learning and unemployed	0	0	0	0	*0*
Work related learning and graduates	6	2	1	4	*13*
Workplace learning and employees	68	88	98	61	*315*
Workplace learning and workers	53	57	36	37	*183*
Workplace learning and job seekers	0	0	0	0	*0*
Workplace learning and unemployed	0	0	1	0	*1*
Workplace learning and graduates	18	13	8	17	*56*
Lifelong learning and employees	39	22	67	35	*163*
Lifelong learning and workers	64	40	38	60	*202*
Lifelong learning and job seekers	0	0	0	0	*0*
Lifelong learning and unemployed	11	2	8	6	*27*
Lifelong learning and graduates	104	70	21	73	*268*
Informal learning and employees	37	64	94	61	*256*
Informal learning and workers	29	30	29	33	*121*
Informal learning and job seekers	1	0	0	0	*1*
Informal learning and unemployed	1	1	0	2	*4*
Informal learning and graduates	36	23	6	25	*90*
Development activities and employees	10	44	79	41	*174*
Development activities and workers	8	18	15	22	*63*
Development activities and job seekers	2	0	0	0	*2*
Development activities and unemployed	0	2	0	1	*3*
Development activities and graduates	27	29	13	22	*91*
Learning and development and employees	27	104	528	53	*712*
Learning and development and workers	24	52	52	21	*149*
Learning and development and job seekers	0	0	0	0	*0*
Learning and development and unemployed	0	1	1	1	*3*
Learning and development and graduates	101	36	20	25	*182*
Subtotal	*677*	*720*	*1126*	*614*	*3137 (Total)*

Source(s): Authors' own work

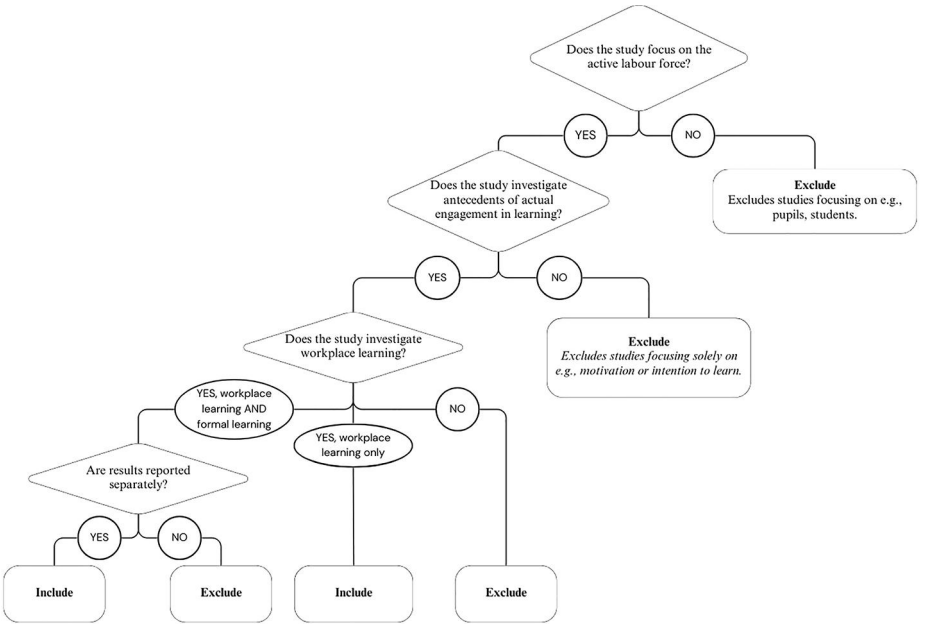

Figure 2. Article selection process
Source: Authors' own work

Analysis

Thematic analysis was selected as the methodological approach because it allows for a flexible yet structured process for identifying, analysing and reporting insights across a diverse body of literature (Braun and Clarke, 2006). This method is well suited for the current review, as it enables the combination of inductive coding, capturing emergent themes from the data, with deductive coding informed by our theoretical framework. This combination facilitates a systematic exploration of existing knowledge while remaining open to novel insights, aligning with the aim this study to update and refine existing conceptual insights. Following Braun and Clarke's (2006) six-phase process, we systematically familiarised ourselves with the data, generated initial codes, searched for and reviewed themes and defined and refined them through iterative cycles of discussion and interpretation within the research team (Anzul *et al.*, 2003).

The selected studies were systematically analysed, capturing key information on study characteristics, participant demographics, the operationalisation of workplace learning and the specific antecedents of workplace learning. The identified antecedents were then categorised into individual and contextual antecedents in accordance with the theoretical background. The nature and significance of the relations between the antecedents and the involvement in work-related learning were established within each study. Finally, it was analysed if the results concerning the relations were consistent or contradictory across the different primary studies.

Results

Based on the structured framework introduced earlier (see Figure 1), the results are organised according to two overarching levels of antecedents: *individual* and *contextual*. Each level

comprises distinct categories and subcategories that emerged from the thematic analysis and are shown to shape participation in workplace learning.

Individual antecedents

Individual antecedents include socio-demographic characteristics, personal attributes and professional characteristics. These categories reflect individual differences in dispositions, capabilities and career experiences that influence learning engagement. Figure 3 shows an overview of the individual antecedents of workplace learning that resulted from the analysis. The following sections elaborate on the relationships between these factors and participation in workplace learning.

Sociodemographic characteristics. Educational level emerged as a consistent predictor of workplace learning participation. Workers with higher education consistently demonstrated greater engagement in reflective learning and information-seeking behaviours. This positive association is evident across multiple studies, which reported that individuals with advanced educational qualifications participated more frequently in workplace learning activities (Aspøy, 2020; De Grip and Pleijers, 2019; Gerards *et al.*, 2021; Livingstone and Raykov, 2017; Yang *et al.*, 2022). Conversely, lower educational levels were often linked to reduced engagement in activities such as feedback seeking, highlighting potential disparities in access to or utilisation of learning opportunities (Crans *et al.*, 2022; van Rijn *et al.*, 2013).

Age displayed complex relationships with workplace learning. While older employees generally participated less in feedback seeking, knowledge sharing, and other workplace learning activities compared to their younger counterparts (Crans *et al.*, 2021; Gerards *et al.*, 2021; Houben *et al.*, 2021; Van Hootegem and De Witte, 2019; Van Hootegem *et al.*, 2021; van Puijenbroek *et al.*, 2013; van Rijn *et al.*, 2013; Zia *et al.*, 2022a), some studies indicated a curvilinear trend. Specifically, participation in workplace learning activities appeared to peak during mid-career stages and decline as employees approached retirement (Ferreira *et al.*, 2018; Laible *et al.*, 2020). This suggests that career stage and associated professional goals may significantly influence learning behaviours.

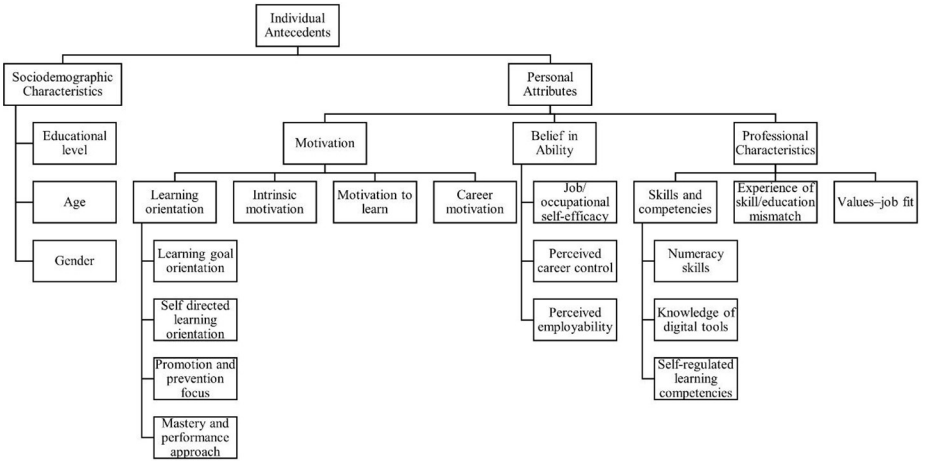

Figure 3. Individual antecedents of workplace learning
Source: Authors' own work

Gender differences were also observed in specific types of learning activities. Female employees were more likely to engage in learning from colleagues and feedback from supervisors. In contrast, male employees reported lower levels of participation in knowledge sharing and feedback seeking (Bednall *et al.*, 2014; De Grip and Smits, 2012; Doyle *et al.*, 2012; Froehlich *et al.*, 2019; Pineda-Herrero *et al.*, 2017; Van Hootegem and De Witte, 2019). Despite these distinctions, several studies concluded that gender did not have a significant impact on overall participation in workplace learning across broader contexts (De Grip and Pleijers, 2019; Gerards *et al.*, 2021; Hilkenmeier *et al.*, 2021; Lee *et al.*, 2022; Theis and Bipp, 2019; Zia *et al.*, 2022a; Zia *et al.*, 2022b). These findings highlight the importance of understanding nuanced gender-based preferences and addressing potential barriers to ensure equitable access to learning opportunities.

Personal attributes. In our analysis, personal characteristics emerged as an important category of antecedents, encompassing a wide range of factors from motivation and belief in one's ability to personal traits and values. This category is subcategorised into several distinct themes, each reflecting different dimensions of an individual's attributes.

Motivation was the most prominent subcategory. Within this subcategory, learning orientation stands out, encompassing factors such as learning goal orientation (Ali Abadi *et al.*, 2022; Decius *et al.*, 2021a; Froehlich, Aasma *et al.*, 2020; Theis and Bipp, 2019), self-directed learning orientation (Decius *et al.*, 2021a; Decius *et al.*, 2021b; Gijbels *et al.*, 2012; Raemdonck *et al.*, 2014), promotion and prevention focus (Federman, 2020) and mastery and performance approaches (Froehlich, Aasma *et al.*, 2020; Theis and Bipp, 2019). These orientations determine how individuals approach learning tasks, whether with a focus on mastery, self-improvement or performance. For instance, individuals with a strong learning goal orientation and self-directed learning orientation were consistently found to engage more in workplace learning activities, particularly those that involve self-regulated learning and seeking feedback (Decius *et al.*, 2021a; Decius *et al.*, 2021b; Gijbels *et al.*, 2012; Raemdonck *et al.*, 2014). In addition, intrinsic motivation, motivation to learn and more specific career motivation (Gerards *et al.*, 2021; Schürmann and Beausaert, 2016; van Rijn *et al.*, 2013; Zia *et al.*, 2022a) were found to be positively associated with engagement in workplace learning. For example, employees motivated by intrinsic factors or career aspirations were more likely to seek feedback, share knowledge and stay updated with the latest developments in their field (van Rijn *et al.*, 2013).

The *belief in ability* subcategory highlights the importance of (job and occupational) self-efficacy (Cho and Kim, 2016; Van Hootegem and De Witte, 2019; Zia *et al.*, 2022a; Zia *et al.*, 2022b). For example, job self-efficacy was positively correlated with workplace learning activities, particularly in environments that require regular information updates and skill enhancement (Cho and Kim, 2016), and occupational self-efficacy was found to be positively related to information-seeking, feedback-seeking from colleagues and feedback-seeking from supervisors (Van Hootegem and De Witte, 2019). However, it did not show a significant relationship with help-seeking behaviours, indicating that self-efficacy may influence specific types of learning activities differently (Van Hootegem and De Witte, 2019). In addition, perceived career control was positively associated with workplace learning, suggesting that individuals who feel they have control over their career paths are more likely to engage in learning activities that enhance their skills and employability (Preenen *et al.*, 2015), whereas perceived employability did not relate to workplace learning (Houben *et al.*, 2021).

Professional characteristics. Results show that professional characteristics such as individuals' existing skills, perceived gaps between competencies and job requirements and the alignment between personal values and job characteristics shape workplace learning

engagement. Professional *skills and competencies* reflect specific aspects such as numeracy skills (Ferreira *et al.*, 2018) and knowledge of digital tools (Sjöberg and Holmgren, 2021), as well as self-regulated learning competencies such as an individual's ability to use appropriate strategies and self-evaluate (Milligan *et al.*, 2015). In addition, it encompasses a set of antecedents investigating the effect of experiencing a gap between one's skills and job requirements. For instance, employees who perceive a skill gap are more likely to upgrade their skills through, for example, self-teaching and deliberately learning from colleagues (De Grip and Smits, 2012; Kohlström, 2021). This is also evident in cases where there is a mismatch between education and job fit, showing that undereducated employees tended to invest more in workplace learning, while overeducated employees invested less (Ferreira *et al.*, 2018; Grosemans *et al.*, 2021).

In addition to skills and competencies, the alignment between an individual's work values and job characteristics – known as *values-job fit* – plays a significant role in shaping learning behaviours. Values-job fit occurs when the characteristics of a job align with what an individual values most, such as autonomy, professional growth or opportunities to contribute meaningfully. This alignment often enhances both formal and workplace learning by fostering greater motivation and engagement. However, even in cases of misfit – where job characteristics fail to fully meet an individual's values – learning can still be stimulated, as workers strive to bridge the gap through skill development or adaptation. This highlights how both alignment and misalignment between values and job characteristics can serve as drivers of learning, reflecting the complex relationship between personal goals and professional environments (Van den Ouweland and Van den Bossche, 2017).

Contextual antecedents

While individual-level factors explain variations in learning behaviour between workers, contextual antecedents highlight the broader structural and organisational conditions that enable or hinder workplace learning. The analysis showed four main categories at this level, including job characteristics, organisational environment, human resource management (HRM) systems and labour market conditions. Figure 4 shows the overview of contextual antecedents of workplace learning identified, and the following sections detail their relationships with workplace learning participation.

Job characteristics. The first contextual category focuses on characteristics of the job itself, including employment conditions, task demands and autonomy, which define the immediate environment for learning at work. Job characteristics are pivotal in shaping workplace learning behaviours, with extensive research highlighting their varied influences on employee learning. These characteristics can be grouped into three overarching themes: Employment characteristics, job demands and job autonomy.

Employment characteristics. Employment characteristics, including tenure, contract type and role, play a distinct role in shaping workplace learning behaviours. The relationship between *tenure* and workplace learning behaviours was mixed. Some studies found that longer tenure positively correlated with keeping up to date with industry developments but negatively correlated with knowledge-sharing and feedback-seeking (Bednall and Sanders, 2017; Crans *et al.*, 2021; van Rijn *et al.*, 2013). Conversely, other research suggested that longer-tenured employees, particularly middle managers, exhibited higher overall participation in workplace learning (Zia *et al.*, 2022a).

Temporary employees were found to engage more in workplace learning than their permanently employed counterparts, potentially due to the need for continuous upskilling to remain competitive (De Grip and Pleijers, 2019; Ferreira *et al.*, 2018).

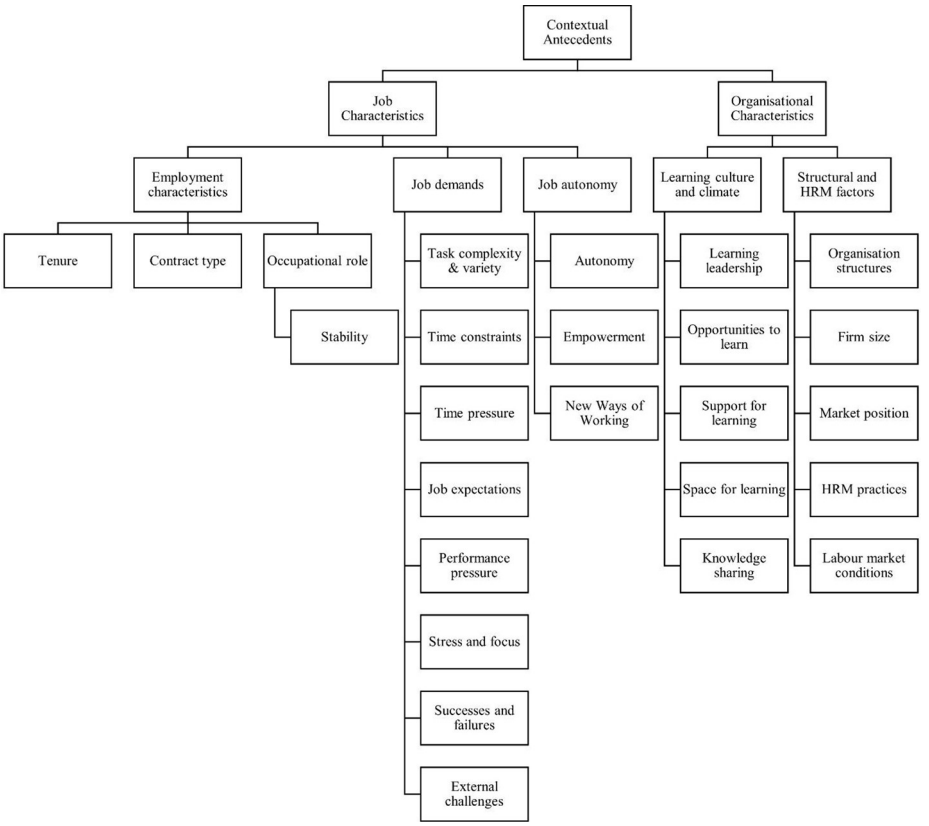

Figure 4. Contextual antecedents of workplace learning
Source: Authors' own work

Workplace learning behaviours also varied across *occupational roles*. Professionals and those in high-skilled roles participated more frequently in workplace learning activities (De Grip and Pleijers, 2019; Ferreira *et al.*, 2018). Roles requiring high levels of general, technical or managerial skills were associated with greater engagement in workplace learning, often through self-teaching and learning from tasks (De Grip and Smits, 2012; Olsson and Bernhard, 2021). In addition, the need to adapt to ongoing digitalisation emerged as a significant driver for continuous workplace learning (Olsson and Bernhard, 2021).

Findings o*n stability* and workplace learning showed mixed results. Role changes provided opportunities for employees to develop new skills and adapt to different responsibilities (Milligan *et al.*, 2013). However, security in roles also contributed positively to learning by providing a stable environment for skill development.

Job demands. This subcategory addresses how the nature and intensity of job tasks can either stimulate or hinder workplace learning. Jobs characterised by high *task complexity and variety*, for example, positively stimulate workplace learning. Task variety encourages feedback-seeking and information-sharing among colleagues, while task complexity makes jobs more engaging and motivates employees to acquire new knowledge and skills

(Froehlich *et al.*, 2019; Schürmann and Beausaert, 2016). Conversely, routine work was identified as an inhibitor of learning, representing the opposite end of the task complexity spectrum (Schei and Nerbø, 2015; Tanhua-Piiroinen and Sommers-Piiroinen, 2013). In addition, managing information overload was noted as a significant factor influencing an employee's ability to engage in learning (Tanhua-Piiroinen and Sommers-Piiroinen, 2013).

Time constraints and performance pressure showed mixed effects on workplace learning. In certain contexts, *time constraints* had a weak but significant positive relationship with workplace learning by pushing employees to learn more efficiently (Decius *et al.*, 2021a; Lawrie *et al.*, 2018; Raemdonck *et al.*, 2014). However, *time pressure* more commonly acted as a barrier, particularly when employees felt overwhelmed by their workload (Kohlström, 2021; Milligan *et al.*, 2013; Sjöberg and Holmgren, 2021; Tanhua-Piiroinen and Sommers-Piiroinen, 2013). Similarly, *high job expectations* stimulated learning by encouraging employees to seek information and collaborate with colleagues to meet demands (Schürmann and Beausaert, 2016), but *performance pressure* hindered learning in cases where employees were expected to adapt quickly to new roles without sufficient time for learning (Milligan *et al.*, 2013).

Stress was found to have a dual effect on workplace learning. For prevention-focused individuals, stress acted as a motivator, driving engagement in learning activities to mitigate potential risks. In contrast, for promotion-focused individuals, stress often served as a barrier, hindering their ability to learn effectively (Federman, 2020). Similarly, *successes and failures* influenced learning behaviours differently. Promotion-focused individuals were more motivated by success, while prevention-focused individuals were driven to learn from setbacks and criticism (Federman, 2020). In addition to personal responses to stress and outcomes, *external challenges* also shape learning. Critical incidents and problems, such as knowledge gaps or technical challenges, frequently prompted employees to seek solutions and engage in workplace learning (Sjöberg and Holmgren, 2021; Sutherland Olsen, 2016; Tjulin *et al.*, 2015; Grant Wofford *et al.*, 2013).

Job autonomy. *Autonomy* in various forms, such as job control, task autonomy and decision latitude, emerged as a key driver of workplace learning. Employees with greater autonomy were more likely to engage in problem-solving and information-seeking, which facilitated learning (Decius *et al.*, 2021b; Gijbels *et al.*, 2012; Lawrie *et al.*, 2018; Raemdonck *et al.*, 2014; Schürmann and Beausaert, 2016).

Mixed results were observed regarding perceived *empowerment*. While one study found no significant effect, another indicated that empowerment positively influenced learning by enabling employees to feel more in control of their work and learning processes (Cho and Kim, 2016; Khandakar and Pangil, 2019).

The concept of *New Ways of Working* (NWW) also influenced learning behaviours. Gerards *et al.* (2021) define NWW as a set of management and organisational practices aimed at enhancing flexibility, autonomy and access to resources, enabling organisations to remain competitive in dynamic work environments. Their results showed that access to organisational knowledge, a key component of NWW, had a strong positive effect on workplace learning. However, other aspects of NWW, such as time- and location-independent work, showed no significant direct effects (Gerards *et al.*, 2021).

Organisational characteristics

The second major contextual category concerns the organisational environment, including culture, support structures and leadership, which collectively shape learning climates and influence the engagement in workplace learning.

Learning culture and climate. In addition to job characteristics, more and more attention is being devoted to the concepts of *learning culture* and *learning climate* as critical organisational factors influencing workplace learning. While these terms are often applied inconsistently in research, they provide valuable frameworks for understanding how organisational environments shape employees' engagement in learning. Broadly, a learning culture refers to the overall organisational atmosphere that supports learning, encompassing values, norms and shared attitudes about development. In contrast, a learning climate focuses on specific elements, such as supervisor support, appreciation for learning and the availability of learning opportunities (e.g. Nikolova *et al.*, 2014). Following the framework of Crans *et al.* (2021), the following section examines key antecedents under the themes of learning leadership, opportunities to learn, support for learning, space and time to learn and knowledge sharing.

Learning leadership. Leadership plays a pivotal role in fostering workplace learning. Supportive and participative leaders create an environment that encourages learning through timely feedback, and encouragement of skill development (Coetzer *et al.*, 2022; Hussein *et al.*, 2019). Leaders who actively support their teams by providing guidance, celebrating achievements and modelling a commitment to learning inspire employees to engage more in workplace learning. Conversely, unsupportive leadership is a significant barrier, leaving employees without the necessary direction to pursue learning (Hussein *et al.*, 2019).

Opportunities to learn. A workplace that prioritises continuous development and provides formal learning opportunities significantly enhances workplace learning. For example, access to coaching programmes and structured skill-development initiatives strengthens employees' engagement in workplace learning by building their confidence and competence (Dawber, 2019; Sutherland Olsen, 2016). Moreover, an organisational emphasis on feedback-seeking behaviours encourages employees to actively identify and address their development needs, contributing to a culture of ongoing learning (Crans *et al.*, 2022).

Support for learning. Support for learning, both from peers and supervisors, is a critical enabler of workplace learning. Positive social dynamics, such as workplace friendships and manager encouragement of socialising, are linked to higher levels of learning engagement. These interactions provide employees with opportunities to exchange information and offer mutual support (Lee *et al.*, 2022; Schürmann and Beausaert, 2016). Furthermore, workplace fun activities, which foster collaboration and deeper connections, have been shown to enhance workplace learning (Lee *et al.*, 2022). In contrast, a lack of managerial or peer support can impede learning by creating feelings of isolation or disengagement.

Space for learning. The availability of time and psychological safety for learning activities is essential for fostering workplace learning. Employees feel more comfortable engaging in development when they are not afraid of making mistakes, and breaches in psychological safety inhibit learning by creating an environment of fear and avoidance (Lawrie *et al.*, 2018; Schürmann and Beausaert, 2016; Van Hootegem and De Witte, 2019). Respect and trust in the workplace further promotes an open and collaborative learning environment where employees can share ideas and experiment without fear of judgment.

Knowledge sharing. Knowledge sharing is a cornerstone of workplace learning, emphasising the importance of open communication and collaboration. Collegial consultations, such as casual interactions and open-door policies, facilitate informal knowledge exchange and learning (Avby, 2015). Feedback, both positive and critical, is another essential driver, as it encourages employees to refine their skills and improve their performance (Schürmann and Beausaert, 2016). However, limited access to information – such as insufficient knowledge storage systems – hinders learning by restricting employees'

ability to obtain the resources they need for development (Tanhua-Piiroinen and Sommers-Piiroinen, 2013).

Structural and human resource management factors. Structural and HRM factors refer to organisational elements that influence how work is organised, managed and supported, shaping employees' experiences and opportunities for development within the workplace. Structural factors include the organisation's size, design and market position, which affect the degree of autonomy, resources and learning opportunities available to employees. HRM factors, on the other hand, encompass systems and practices like performance appraisals, development planning and career management, which can either enable or hinder workplace learning. Despite their potential significance, all of these factors have been investigated in very limited number of studies, leaving gaps in understanding their broader impact.

Research suggests that decentralised *organisation structures* support workplace learning by granting employees greater autonomy, whereas rigid or unclear structures constrain learning by limiting access to opportunities (Coetzer *et al.*, 2022; Tanhua-Piiroinen and Sommers-Piiroinen, 2013). The effect of *firm size* was mixed: smaller firms often relied on informal self-teaching to compensate for limited formal training opportunities, while larger firms tended to provide more structured learning environments (De Grip and Smits, 2012). *Market position* also played a role, particularly in organisations prioritising innovation, which fostered learning through hands-on experiences (De Grip and Smits, 2012). In contrast, organisations in the UK and Ireland were noted to offer more limited learning opportunities (Aspøy, 2020).

HRM practices have also emerged as significant enablers of workplace learning. High-quality performance appraisal systems and effective development planning contributed to increased knowledge sharing and innovation (Bednall *et al.*, 2014; Khandakar and Pangil, 2019). However, a lack of transparency in HRM systems posed barriers, making it more challenging for employees to navigate career development opportunities (Dawber, 2019).

Labour market conditions. The final subcategory addresses how national labour market structures and employment systems shape the engagement in workplace learning on a broader level. The sole antecedent in the *labour market conditions* category highlighted the role of national employment systems. Employees in Scandinavian countries, particularly Norway, had greater access to workplace learning opportunities compared to those in the UK and Ireland, where learning opportunities were more limited (Aspøy, 2020).

Discussion

This systematic review analysed 73 studies on the antecedents of workplace learning, yielding several key insights into the factors that drive or inhibit engagement in such learning activities. The increasing research interest in workplace learning is a natural response to the evolving nature of work, as organisations face continuous skill demands and traditional formal learning methods are often insufficient (Cerasoli *et al.*, 2018; Lokhtina and Faller, 2024; Noe *et al.*, 2014).

Conclusions

This study builds on the foundational framework by Kyndt and Baert (2013), narrowing the focus to workplace learning and integrating recent insights from a decade marked by significant labour market transformations. In line with Kyndt and Baert (2013), the current review highlights the importance of both individual and organisational factors in shaping workplace learning, but also reveals new insights, particularly in the growing role of digital tools and technology.

Our findings reaffirm those of Kyndt and Baert (2013), highlighting the importance of a learning climate in shaping workplace learning. Open communication, knowledge-sharing opportunities and supportive leadership were identified as crucial enablers of learning, while limited access to information and unsupportive leadership acted as significant barriers (Avby, 2015; Coetzer *et al.*, 2022; Hussein *et al.*, 2019; Schürmann and Beausaert, 2016; Tanhua-Piiroinen and Sommers-Piiroinen, 2013). Cerasoli *et al.* (2018), for example, emphasise that leadership and organisational support play a central role in creating an environment conducive to workplace learning. Similarly, Noe *et al.* (2014) highlighted the importance of leadership in fostering a learning-oriented culture.

Similarly, individual factors such as motivation, self-efficacy and learning orientation remain central drivers of engagement in workplace learning (Cerasoli *et al.*, 2018). Education level emerged as a particularly strong predictor, with employees holding higher education levels more likely to engage in reflective learning, feedback-seeking and information-sharing behaviours (Aspøy, 2020; De Grip and Pleijers, 2019; Gerards *et al.*, 2021; Livingstone and Raykov, 2017; Yang *et al.*, 2022).

However, our results also shed light on more nuanced relationships, particularly regarding the career stage. While employees at the start of their career tend to participate more in workplace learning, several studies suggest a curvilinear relationship, with mid-career employees exhibiting the highest levels of engagement before, this declines as they near retirement (Ferreira et al, Laible et al, 2020). These findings suggest that interventions to promote workplace learning might need to be tailored to different career stages, aligning with Noe *et al.*'s (2014) assertion that personalised learning strategies are critical to fostering continuous development.

Regarding job characteristics, we found that task variety and complexity were key drivers of workplace learning, stimulating employees to acquire new skills and engage in problem-solving (Froehlich *et al.*, 2019; Schürmann and Beausaert, 2016; Tanhua-Piiroinen and Sommers-Piiroinen, 2013). Conversely, routine work and information overload hindered learning engagement (Schei and Nerbø, 2015; Tanhua-Piiroinen and Sommers-Piiroinen, 2013), reinforcing the findings of Noe *et al.* (2014) that job complexity fosters continuous learning, while repetitive tasks limit opportunities for knowledge acquisition. These results highlight the dual nature of job demands, where task variety can motivate learning, but excessive demands may overwhelm employees, reducing their capacity to engage in workplace learning (Cerasoli *et al.*, 2018).

Finally, the role of digital tools in workplace learning is becoming increasingly relevant (Cerasoli *et al.*, 2018). This review identified several studies examining if and how virtual environments and communication tools facilitate learning and knowledge-sharing (Bosch-Sijtsema and Haapamäki, 2014; Pejoska *et al.*, 2016). As workplaces become more digitised, particularly in remote and hybrid work environments, the integration of technology is expected to further shape workplace learning processes.

Limitations

This systematic review provides a comprehensive synthesis of antecedents influencing workplace learning but has several limitations. Excluding studies that focus on formal training or education restricts the generalisability of findings to all forms of work-related learning. In addition, the reliance on primary studies with varying methodological rigour may affect the robustness of synthesised findings, despite the application of critical appraisal tools. Variations in how workplace learning and its antecedents are operationalised across studies complicate the ability to draw definitive conclusions. Workplace learning encompasses a wide range of behaviours and processes, making its measurement inherently challenging (Marsick and Watkins, 2001; Eraut, 2004). Standardising conceptualisation and measurement would enhance the coherence of future research.

Sector and occupation-specific variations in job characteristics further complicate the generalisability of findings. Learning outcomes are often context-specific, with distinct sectors imposing unique demands on employees (Billett, 2001; Eraut, 2004; Noe *et al.*, 2014). These variations highlight the need for sector-specific studies to improve the applicability of findings.

Future research

This study highlights critical gaps in research on structural and HRM factors, emphasising the need for further exploration of how organisational design, firm size and HR practices interact with workplace learning. For example, the results regarding the role of HRM practices such as performance appraisals increasing knowledge sharing and innovation (Bednall *et al.*, 2014; Khandakar and Pangil, 2019), albeit very little studied, tentatively underscore their potential to create structured pathways that support continuous development. However, the long-term impact of these HRM practices on sustaining workplace learning engagement remains underexplored. At the same time, our findings suggest that barriers, such as a lack of transparency, can hinder sustained participation (Dawber, 2019). Future research could investigate how consistent HRM support might cultivate a culture of learning over time offering organisations a framework for creating a lasting impact on workplace learning.

This study contributes to a better understanding of the antecedents of work-related learning, shedding light on which factors are most influential in shaping these processes. Key individual factors such as motivation, self-efficacy and education level, along with organisational factors like leadership support, knowledge-sharing opportunities and a positive learning climate, have been identified as critical enablers. However, despite advances in identifying these components, a significant gap remains in understanding how these factors interact. Learning is not merely the sum of its parts but emerges from the dynamic interplay between individual attributes and the surrounding context (Billett, 2001; Tynjälä, 2008). Understanding the mechanisms behind these interactions is essential for translating theoretical insights into practical strategies that effectively support workplace learning.

To address this gap, longitudinal research is essential for uncovering how individual and contextual factors influence each other over time. Broadly, two types of longitudinal studies are particularly valuable. Short-term intensive studies, such as diary studies and the experience sampling method, are gaining traction in the field of workplace learning for their ability to capture in-depth, dynamic insights into how workplace learning processes unfold. In contrast, long-term, large-scale studies enable the examination of broader societal influences, including cultural and policy factors and their evolution over time. Both approaches are crucial for achieving a comprehensive understanding necessary to design equitable, evidence-based initiatives that not only foster workplace learning but also help mitigate persistent inequalities in the labour market.

Practical implications

The findings highlight the importance of cultivating a supportive learning climate as a foundational condition for workplace learning. Organisational practices that facilitate open communication, knowledge sharing and psychologically safe environments are essential for enabling employee learning. Leadership emerges as a pivotal factor, both by modelling learning-oriented behaviours and by shaping the socio-cultural context in which learning takes place. Given the demonstrated influence of personal attributes such as learning motivation and self-efficacy, as well as background characteristics like education level and

career stage, it is crucial that L&D interventions are differentiated and personalised. Tailoring learning strategies to align with employees' career trajectories, for instance, may enhance engagement, particularly for mid-career professionals who appear most receptive to learning opportunities. Next, the nature of the job significantly impacts learning engagement: task variety and complexity are shown to stimulate reflective and exploratory learning, while routinisation and information overload function as inhibiting factors. These findings call for a balanced approach to job demands, with sufficient cognitive challenge but without compromising employees' capacity to engage in learning. Finally, the integration of digital technologies in workplace learning, especially in increasingly remote and hybrid work contexts, offers both opportunities and challenges. When effectively implemented, digital tools can support knowledge sharing, foster interaction among employees and enhance learning across organisational boundaries. A nuanced understanding of these dynamics is crucial for designing evidence-informed and context-sensitive L&D strategies that support lifelong learning and organisational adaptability.

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