



Working paper series

No 7 / December 2021

WORKPLACE LEARNING: DETERMINANTS AND CONSEQUENCES

Insights from the 2019
European company survey

Miloš Kankaraš
expert

The **European Centre for the Development of Vocational Training** (Cedefop) is the European Union's reference centre for vocational education and training, skills and qualifications. We provide information, research, analyses and evidence on vocational education and training, skills and qualifications for policy-making in the EU Member States.

Cedefop was originally established in 1975 by Council Regulation (EEC) No 337/75. This decision was repealed in 2019 by Regulation (EU) 2019/128 establishing Cedefop as a Union Agency with a renewed mandate.

Europe 123, Thessaloniki (Pylea), GREECE
Postal: Cedefop service post, 570 01 Thermi, GREECE
Tel. +30 2310490111, Fax +30 2310490020
Email: info@cedefop.europa.eu
www.cedefop.europa.eu

Jürgen Siebel, *Executive Director*
Nadine Nerguisian, *Chair of the Management Board*

Please cite this publication as:
Kankaraš, M. (2021). *Workplace learning: determinants and consequences: insights from the 2019 European company survey*. Luxembourg: Publications Office of the European Union. Cedefop working paper; No 7.
<http://data.europa.eu/doi/10.2801/111971>

Luxembourg: Publications Office of the European Union, 2021

© Cedefop, 2021.
Creative Commons Attribution 4.0 International (CC BY 4.0).

This working paper should not be reported as representing the views of the European Centre for the Development of Vocational Training (Cedefop). The views expressed are those of the authors and do not necessarily reflect those of Cedefop.

PDF ISBN 978-92-896-3284-3
ISSN 1831-2403
doi:10.2801/111971
TI-BA-21-006-EN-N

Acknowledgements

The author would like to acknowledge the Eurofound and Cedefop research teams lead by Giovanni Russo and Gijs van Houten, who prepared and administered the fourth round of the European company survey (ECS 2019), data from which were used in this study. We are also thankful to Giovanni Russo, Cedefop expert, who peer-reviewed this paper, and Antonio Ranieri, Head of Cedefop's Department of VET and skills, for valuable guidance and feedback throughout the drafting process.

Contents

Contents.....	2
Executive summary.....	5
1. Introduction	9
1.1. Workplace learning – the concept and its types	9
1.1.1. Defining workplace learning	9
1.1.2. Types of workplace learning.....	10
1.2. The analytical framework of the study	11
1.2.1. Broader organisational context.....	12
1.2.2. Components of workplace learning environment...	13
1.2.3. Workplace learning.....	15
1.2.4. Outcomes: employee wellbeing and company performance	16
2. Study methodology	18
3. Results	20
3.1. Types of learning organisations in EU.....	20
3.1.1. Typical learning environment.....	21
3.1.2. Extensive learning environment.....	21
3.1.3. Traditional/lean learning environment	22
3.1.4. Restrictive learning environment	22
3.1.5. Encouraging learning environment.....	23
3.2. Prevalence of different types of learning organisations across institutional and socio-economic categories	23
3.2.1. Types of workplace learning environments and structural characteristics.....	23
3.2.2. Types of workplace learning environments and market characteristics.....	24
3.2.3. Type of workplace learning environment and innovativeness.....	25
3.2.4. Types of the workplace learning environment and employee and company outcomes.....	26
3.3. Relationship between aspects of learning environment and employee and company outcomes.....	27
3.3.1. Relationship with employee wellbeing.....	28
3.3.2. Relationship with company performance.....	32
3.3.3. Simultaneous analysis of relationships with both outcomes - General Linear Model	34
3.4. Relationship between aspects of the workplace environment and learning opportunities	35
3.4.1. Relationship with informal learning opportunities ..	36

3.4.2.	Relationship with formal and non-formal learning programs	37
3.4.3.	A general model with all learning opportunities	39
4.	Concluding discussion	41
4.1.	Prevalence of workplace learning conditions and practices in EU companies	41
4.2.	Relationship between aspects of the learning environment and employee and company outcomes	42
4.3.	Relationship between aspects of the workplace environment and learning opportunities	43
4.4.	Methodological considerations	44
4.5.	Conclusions	46
	References	47
	Annex	52

Tables and figures

Tables

1.	Characteristics of the five workplace learning types across EU establishments	21
2.	Characteristics of the five workplace learning types across EU establishments	31
3.	Characteristics of the five workplace learning types across EU establishments	33
4.	Results of hierarchical regression analysis on informal learning opportunities	36
5.	Results of hierarchical regression analysis on formal and non-formal learning opportunities	38

Figures

1.	Employee wellbeing and company performance by the type of establishment's workplace learning environment	6
2.	Characteristics of the formal, non-formal and informal forms of the workplace learning	11
3.	Workplace learning - analytical framework of the study	12

4.	Proportion of establishments with different types of workplace learning settings by establishment size, age, type and economic sector	24
5.	Proportion of establishments with different types of workplace learning settings by dominant business strategy, and market's competitiveness and predictability	25
6.	Level of company innovativeness across different types of workplace learning settings	26
7.	Employee wellbeing and company performance by the type of establishment's workplace learning environment	27
8.	Strengths of effects of different predictors on employee wellbeing and company performance in EU establishments	35
9.	Strengths of effects of different predictors on informal and formal/non-formal learning opportunities in EU companies	40

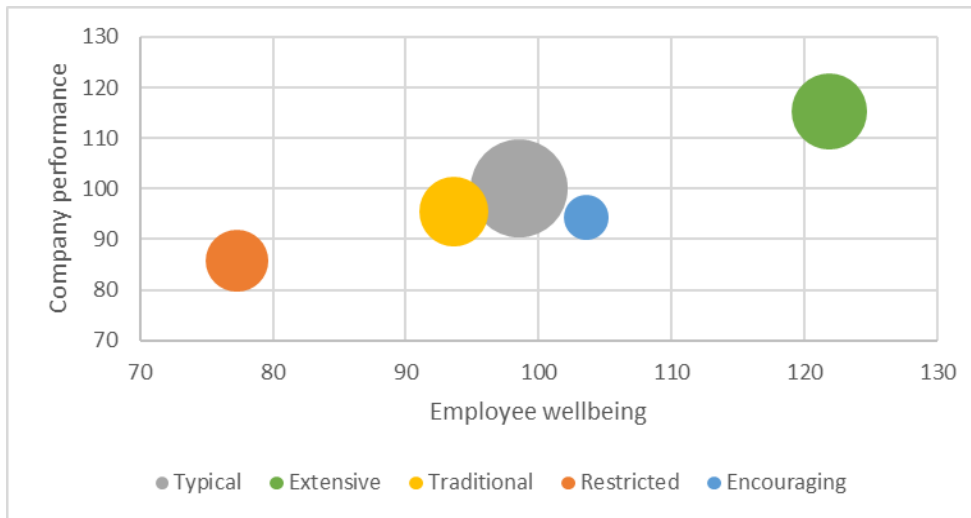
Executive summary

Prevalence of workplace learning conditions and practices in EU companies

Analysis of patterns of workplace learning characteristics or bundles of practices identified five distinct types of workplace learning environments in EU organisations: typical, extensive, traditional, restrictive and encouraging. 'Extensive' and 'restrictive' types of learning environments are at the opposite end, with those belonging to the 'typical' category falling neatly between the two. Companies that belong to 'traditional' category have much lower skill demand and slightly fewer learning practices and opportunities. Establishments from the 'encouraging' category have higher levels of informal learning opportunities and management encouragement for employee engagement.

The five types of workplace learning environments fall in linear fashion along the line of extensive-restrictive dimension. Findings show that larger, younger companies working in service sectors are more likely to offer conducive learning environments than smaller and older companies or establishments working in manufacturing sectors. Results also confirm the influence of market conditions on the propensity of various forms of learning opportunities and practices, indicating that more stable and predictable environments lead to better learning opportunities. However, types of learning environments do not differ markedly across companies' product market strategies or the reported levels of skill (mis)match. The extensive-restrictive dimension of the workplace learning opportunities also has a positive linear relationship with individual and organisational outcomes (Figure 1). Such results offer clear evidence of the beneficial potential of workplace learning to both employees and employers.

Figure 1. **Employee wellbeing and company performance by the type of establishment workplace learning environment**



Learning environment and employee and company outcomes

Analyses of the relationship between selected workplace learning practices, and their broader context, on employee wellbeing and company performance showed that different workplace aspects have markedly varied influence on employee and organisational outcomes.

Employee wellbeing had by far the strongest relationship with informal learning opportunities, though there is a lack of substantive effects from formal and non-formal learning opportunities on employee wellbeing. This could be because these programmes cover less relevant topics. In many cases participation in these programmes is compulsory, which can inhibit workers' intrinsic motivation and interest. Probably the main reason behind these results is the fact that formal and non-formal learning programmes are usually much less prevalent than informal learning opportunities.

Job autonomy and open and constructive communication are also strong determinants of employee wellbeing, along with the national context and establishment characteristics. Market conditions are not that important, after controlling for other aspects. Skill demand is found to have slight negative correlation with employee wellbeing and extrinsic motivation, measured through the presence of variable pay schemes as well as the level of skill (mis)match, does not seem to influence employee wellbeing much.

Company innovativeness is the strongest predictor of company performance, followed by organisational characteristics, especially organisations' age. National

context and market conditions and strategies are less important for this outcome. Informal learning opportunities and job autonomy are important predictors of company performance as well, while formal and non-formal learning opportunities do not have substantial influence.

Workplace environment and learning opportunities

The strongest predictor of the volume of informal learning opportunities is found to be managers' perception of its value and importance. Need for learning (skill demands) and the national context also have substantial influence on informal learning provisions. Market conditions are found to be much less related to workplace learning. Among organisational characteristics, the service sector is the category that has the highest effect on the prevalence of informal learning opportunities.

Skill demands are the strongest predictor of formal and non-formal learning. Structural conditions such as national context and organisational characteristics are the strongest predictors of the prevalence of formal and non-formal learning opportunities. Market conditions are not related to the frequency of training provisions in establishments but managers perceived value of training is found to be strong predictor of formal and non-formal learning opportunities.

Concluding remarks

Workplace learning is critical tool for both employees and organisations in their continuous adjustment to a growing number of global trends that are reshaping our workplaces, economies and societies. Workers learn most when engaging in new and challenging activities in which they are granted sufficient autonomy to solve issues themselves or in collaboration with their colleagues or mentors. Informal learning is shown to be the key aspect of workplaces in terms of company performance and employee wellbeing. Such findings call for more attention from policy-makers and organisations' management to various forms of informal learning at the workplace. This is particularly the case when considering apparent lack of beneficial effects of formal and non-formal learning on both employee wellbeing and company performance. These findings illustrate the overwhelming prominence of informal learning at the workplace in comparison to formal and non-formal learning forms, but they also indicate the learning potential that exists at workplaces. Analysis of the prevalence of various learning practices, as well as of different types of learning environment, show that most companies are still not offering optimal learning environments and opportunities to their workers. Such a

situation hurts both employees and companies but presents an opportunity for action, at organisational, national and international levels. Such an action will aim to create institutional conditions, legal frameworks, learning resources, and incentives for companies to start organising their workplaces in a way that will facilitate workplace learning, especially its various informal forms.

CHAPTER 1.

Introduction

Workplace learning is increasingly seen as one of the key determinants of a successful response by economies and societies to the increasing pace of societal, demographic and technological change. The COVID-19 pandemic has further exacerbated the critical role of skill development in adjusting to unpredictable and rapid changes across different aspects of work and personal lives. These trends place growing emphasis on individual, organisational and societal capacities to create conditions that will allow for lifelong learning, including learning at the workplace.

This study aims to address these concerns through insights into the topic of workplace learning, its determinants and consequences. The paper presents the results of an empirical analysis of the workplace learning characteristics and practices and their implications. We use data from the newly released fourth European company survey (2019), which collected responses from representative samples of EU companies in all EU-27 countries. We aim to answer several important questions regarding workplace learning EU companies. First, we identify and describe different types of EU companies in terms of their learning environments. We then explore the benefits of workplace learning practices, both for individuals and organisations. Finally, we investigate how these different aspects of workplace learning environments affect formal and informal workplace learning.

1.1. Workplace learning: concept and types

1.1.1. Defining workplace learning

Over recent decades, there has been an increasing realisation that the workplace is an environment not only where learning new knowledge and skills can happen but where learning should be happening (Hager 2004, Boud and Middleton, 2003). However, despite its ever-increasing importance, there is no broad consensus on what workplace learning is, with many definitions simply stating that it involves all learning that happens at the workplace (Tynjälä, 2008, 2013; Eraut, 2004; Billett, 2002).

In this paper, we define workplace learning as a process of acquiring knowledge, skills, and other mental capacities that occurs while employees complete their work tasks and roles, leading to improved individual and

organisational performance (Hicks et al., 2007). The process is not passive and cannot be investigated as an activity isolated from its broader social, economic and cultural context. If understood too narrowly, it risks not only missing out manifestations of various forms of informal learning but also ends up developing superficial knowledge and skills that are of little use either to employees or organisations (Cullen et al., 2000; Matthews, 1999; Winch and Ingram, 2002).

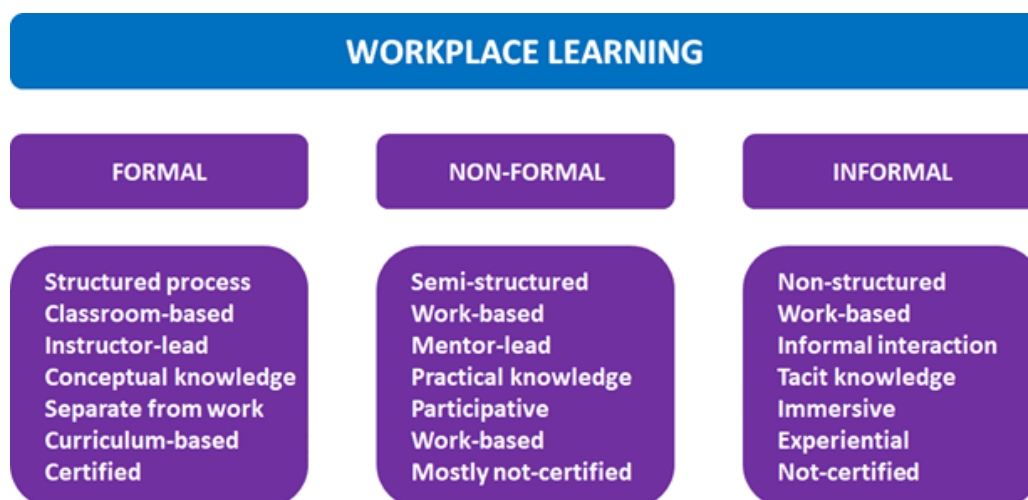
Although the concept of workplace learning is quite broad and encompasses a wide range of learning activities and situations, it still does not account for all work-related learning. In this sense, it could be understood as a subcategory of a broader concept of work-based learning. Cedefop (2014) defines work-based learning as the ‘acquisition of knowledge and skills through carrying out – and reflecting on – tasks in a vocational context, either at the workplace (such as alternance training) or in a VET institution’. Thus, work-based learning includes not only workplace learning, i.e. learning that happens at the workplace, but also work-related learning in VET institutions.

In this study, we focus on workplace learning for two reasons. First, our data source – the European company survey – does not include information on workers’ vocational learning in VET institutions. Second, our research focus in this study is learning in the workplace, where most work-related learning happens.

1.1.2. Types of workplace learning

In academic research, workplace learning is most often divided into formal and informal learning activities and practices (Manuti et al., 2015; Rintala et al., 2018). In policy settings and related research, the non-formal learning forms are also outlined as a separate learning type between these two more distinct categories (Cedefop, 2009; OECD, 2010; Marsick and Watkins, 2001; Hager and Halliday, 2007).

Figure 2. **Characteristics of the formal, non-formal and informal forms of the workplace learning**



Formal workplace learning is defined as ‘learning that occurs in an organised and structured environment (such as in an education or training institution or on the job) and is explicitly designated as learning (in terms of objectives, time or resources)’ (Cedefop, 2014). Formal learning is intentional from the learners’ point of view and typically leads to certification (Cedefop, 2014).

Non-formal learning is defined as ‘learning embedded in planned activities not explicitly designated as learning (in terms of learning objectives, learning time or learning support)’ (Cedefop, 2014). However, it refers to various structured and semi-structured learning activities and is understood to be intentional from the point of view of the learner; its outcomes may be validated and may lead to certification (Cedefop, 2014).

Informal learning is defined as ‘learning resulting from daily activities related to work, family or leisure’ (Cedefop, 2014). It is not organised or structured and, in most cases, it is unintentional from the learner’s perspective. This type of learning can also be validated and certified, although this is still rarely the case.

1.2. The analytical framework of the study

The study seeks to analyse the relationship between the broader institutional and economic context, aspects of the workplace learning environment, and social and organisational performance outcomes. In order to achieve these objectives, we need to answer several research questions that can be summarised as follows:

- (a) how can European companies be classified according to their workplace learning practices? Are companies more likely to implement specific bundles of learning practices together?

- (b) how do different types of workplace learning systems affect social and organisational performance? Are companies with better learning environments more profitable and is employee wellbeing improved?
- (c) which aspects of workplace learning systems are the most important promoters of positive employee and company outcomes?
- (d) what are the factors influencing the degree of informal, formal and non-formal learning opportunities in companies? For example, are establishments functioning in different institutional and market settings more or less likely to build stimulating workplace learning environments?

The analytical framework that will guide the empirical work of the study, with the workplace learning systems at the centre of the analysis, can be depicted as follows (Figure 3).

Figure 3. **Workplace learning - analytical framework of the study**



1.2.1. Broader organisational context

Box 1 reflects the organisational characteristics and broader institutional, market and socioeconomic context in which a workplace learning system is developed and engrained.

These contextual factors first refer to a country in which organisations are located. This information serves as an analytical proxy for the potential influence of the complex network of institutional, regulatory, legal, and financial systems but also of various cultural characteristics and social norms that differ across national contexts. From the workplace learning perspective, this national embeddedness is particularly exemplified through the type of training available and the level of employee skills (Estevez-Abe et al., 2001; Thelen, 2004; Bosch et al., 2017).

The economic sector in which a company is functioning is another broad contextual determinant that can influence work organisation and workplace learning environment in a company (Eurofound and Cedefop, 2020; Eurofound, 2015). Companies' structural characteristics, such as their size, type (single establishment, subsidiary branch or headquarters), and their age (year of establishment) are also found to be related with workplace learning settings (Eurofound and Cedefop, 2020; Eurofound, 2015). Market conditions and strategies are also important factors in management decisions regarding work organisation in general and workplace learning environment in particular. For example, it is considered that HPW systems can be used to increase efficiency and performance of companies functioning in highly competitive environments (usually exposed to foreign competition) (e.g. Appelbaum et al., 2001). Similarly, market predictability is thought to create more stable conditions, allow for longer-term planning, and motivate companies to invest more in the skill development of its workforce (Warhurst and Luchinskaya, 2018).

1.2.2. Components of workplace learning environment

In this study, we have divided workplace learning environments into four aspects: those describing skill demand in the workplace, motivational levers, job design and learning opportunities, each of which we describe in more detail below:

1.2.2.1. Skill demand and skill use

The degree of learning in a particular workplace activity will depend on the interplay between job's skill demand and workers' skill supply (Warhurst and Luchinskaya, 2018). Skill demand will generally depend on the complexity of work tasks and their pace of change, with the latter usually playing a greater role. The innovativeness of a company is, therefore, another driver of skill demands. Innovations in products, procedures or internal organisation lead to changes in job requirements, work tasks and workplace conditions that often necessitate the development of new competences and knowledge.

Skill demand and skill supply will determine skill utilisation. According to the skill (mis)match approach, effective skill utilisation occurs only when there is a match between skills required by a job and skills possessed by an employee (e.g. Cedefop, 2010; Eurofound and Cedefop, 2020, de Grip, 2015, Warhurst and Findlay, 2012). However, skills and knowledge include knowing how and when to use existing skills: for example, a novice employee might not utilise some of the required competences due to the lack of knowledge of job-specific information needed for performing certain tasks. In addition, the gap between skill demand and skill utilisation can be affected by the discretionary behaviour of individual

employees. This is why companies need to motivate employees to use their existing skills to fulfil their job tasks rather than simply mandate their completion.

1.2.2.2. *Motivational levers*

Workplace learning is a participative process involving social interaction and joint construction of knowledge, requiring an active role from all participants in deciding how they engage and participate (Billett, 2004). Research has shown that workers select learning activities in which they engage depending on their interests, preferences, perceived professional development needs, and perceived effort that such engagement requires (Billett, 2001; Illeris, 2003).

This is why worker motivation and workplace engagement is one of the strongest determinants of workplace learning. Human motivation is often divided into intrinsic and extrinsic (Deci and Ryan, 1985). Intrinsic motivation is defined as a behaviour that is driven by satisfying internal rewards: the activity itself is rewarding and is not dependent on external stimulations or incentives. Extrinsic motivation is driven by the goal of obtaining some external reward, which is separate from the activity itself.

Workers' intrinsic motivations and individual agency contribute not only to better use of existing learning opportunities; they can also ameliorate negative effects of poor workplace conditions (Smith, 2003). A range of workplace aspects and characteristics can affect worker motivation, including communication with management, involvement in decision-making, and management practices that foster autonomous, discretionary behaviours and employee engagement (Ryan and Deci, 2017; Harvard Business Review, 2019; Mishra, Boynton, and Mishra, 2014). In contrast, extrinsic motivation of employees will be promoted by remuneration, promotion opportunities, variable pay schemes and other performance-based rewards (Gerhart and Fang, 2014).

1.2.2.3. *Job design*

Job design and organisation of work is one of the most important factors influencing work learning (Tynjala, 2008; Eraut, 2004; Rintala et al., 2018). Job autonomy is consistently found as one of the key drivers of workplace learning (Rintala et al., 2018; Tynjala, 2008; 2013, Bakker and Demerouti, 2007). Autonomy nurtures workers' sense of agency, of their perception of themselves as decision-makers and independent actors in the social environment of the workplace (Billett, 2001, 2002, 2011). It develops their intrinsic motivation and their initiative and engagement (Deci and Ryan, 1985; Ryan and Deci, 2017). The level of difficulty or challenging work is another important job design factor found in workplace learning (Eraut, 2004).

Employees whose job tasks involve solving problems and dealing with different challenges will learn more and develop their skills faster than those working in jobs whose tasks are more monotonous and less difficult. Challenging work and engagement in problem-solving activities enable learning-by-doing forms of informal learning as well as learning by insight and learning through trial and error. Each new problem and issue prompts the creation of new knowledge or skills for its solving, representing a new learning opportunity.

The opportunity to work in teams is also beneficial to workplace learning as it creates ample opportunities for interactions with colleagues that can induce learning and skill development. Teams that enjoy a wider range of autonomy are especially beneficial for skill development and the creation of learning opportunities for their members (European Commission, 2015; Eurofound, 2015).

1.2.2.4. *Learning climate*

Management's own perception of the worth of learning is an important factor in creating a conducive workplace climate for learning. Employees in organisations in which management actively promotes learning, and demonstrates their regard for it and its perceived value by creating appropriate practices, will be more motivated to make use of any learning opportunities. The value of learning in management's eyes is not only perceived through their explicit statements but even more so through their learning policies.

1.2.3. **Workplace learning**

1.2.3.1. *Learning provisions*

The degree of direct learning opportunities and provisions directly determines the scope of workplace learning in an establishment. Companies with comprehensive learning provisions and opportunities provided to their employees ensure their skill development and positive learning outcomes. These learning provisions and opportunities can be divided into formal, non-formal, and informal, depending on how they are organised and conducted. Informal learning opportunities are more difficult to assess as they are hard to distinguish from various work tasks and wider workplace conditions: this is why the way work is organised and jobs are designed are important factors enabling workplace learning. We refer to these aspects as indirect (implicit) opportunities for informal learning. However, there are other aspects of workplaces that are specifically and intentionally designed to facilitate workplace learning. These are, for example, job rotation schemes, a pairing of less experienced with more experienced colleagues, or explicit encouragement for experiential (trial and error) learning.

1.2.3.2. *Learning activities*

The existence of formal learning programmes or non-formal training schemes is usually equated with workplace learning as it is assumed that learning takes place through the act of participation in these programmes. However, a number of other contextual and individual characteristics will affect the learning process and moderate its outcomes. This is even more the case for informal learning activities, where direct and indirect informal learning opportunities might not always lead to learning.

1.2.4. **Outcomes: employee wellbeing and company performance**

Some workplace practices are aimed at improving the productivity and profitability of companies, while others are set up to improve job satisfaction and the overall wellbeing of the company's employees. However, there are workplace practices and bundles of practices that are found to be mutually beneficial to both employees and companies (Eurofound, 2015; Eurofound and Cedefop, 2020). Workplace learning is one of the aspects of the workplace with clear 'mutual gains' potential, i.e. with the possibility to bring positive effects for both social outcomes (employee wellbeing) and organisational performance. The establishment of such 'win-win' situations for both employees and employers could be seen as one of the key policy goals in work organisation and employee relations.

However, social outcomes and organisational performance do not have to be aligned with one another. Depending on intentional or implicit organisation strategy, these two sets of outcomes can be conflicting goals, with some workplace practices benefiting employers that are not beneficial or even harmful to employees. Further, some workplace practices have potentially both positive and negative effects on different aspects of employee wellbeing and have induced controversy in the public debate (Appelbaum, 2013). In our analytical framework, employee wellbeing can be broadly described as the overall quality of the employee's experience at his or her workplace (Van der Voorde et al., 2012). Three main dimensions of employee wellbeing are distinguished:

- (a) job satisfaction (Appelbaum, 2013);
- (b) quality of relationships (Bartel 2004) and
- (c) employee health (Appelbaum, 2013; Orlitzky and Frenkel 2005).

Job satisfaction refers to subjective functioning and experiences at the workplace, as measured by job satisfaction scales (Grant et al., 2007). This dimension also includes an aspect of employee commitment. The relationships dimension reflects the interactions and quality of the relationships or dialogues between employees and between employees and their supervisors (the work climate). The health dimension covers the overall state of mental and physical

health, including the absence of both acute and chronic work-related illnesses and impairments and other detrimental health effects. It is most often assessed through administrative data on employee sick leave and absenteeism and the incidence of work-related medical conditions. This aspect of employee wellbeing has often been ignored in analyses of the outcomes of various workplace practices on employee wellbeing (Van der Voorde et al., 2012).

The company performance outcomes are usually assessed through two dimensions or criteria (e.g. Paauwe, 2009): financial outcomes (profit, market share) and organisational outcomes (output, efficiency or productivity). In most cases the two dimensions correspond with each other but there are situations where an increase in production is not followed with positive financial statements or where profitability lags efficiency improvements. This is why it is important to take a comprehensive approach when assessing company performance, taking into account both of its dimensions.

CHAPTER 2.

Study methodology

In this study, we used data from the fourth round of the European company survey (ECS 2019), jointly conducted by the Eurofound and Cedefop EU agencies in the first half of 2019. ECS 2019 obtained data from HR managers and, where available, employee representatives. The survey investigated workplace practices on work organisation, human resource management, skills use and skills strategies, direct and indirect employee participation, and digitalisation, innovation and business marketing strategies.

The unit of inquiry for all ECS surveys is the establishment: the local unit or site with 10 or more employees in economic sectors engaged in 'market activities' in all EU-27 Member States and the United Kingdom. Sampling was conducted through a multistage random sampling approach, stratified by establishment or company size (10 to 49 employees, 50 to 249 employees, 250+ employees) and the broad sector of activity (production, construction, services).

The push-to-web methodology used in this survey achieved a relatively low response rate. In the EU27, 16% of establishments agreed to participate and only 35% of these actually completed the questionnaire, resulting in an overall yield rate of only 5%.

The resulting ECS 2019 dataset contains data from the 21 869 completed management interviews (ranging from 122 in Cyprus to 1 498 in Italy). It also includes data collected from 3 073 employee representatives (ranging from 3 in Cyprus to 467 in Finland). Because of the relatively small sample sizes and response rates of the employee representative sample, we only used data from the ECS 2019 management sample.

The analysis is conducted in three stages.

First, we examine how these individual practices are bundled together into different organisational learning settings using a latent class analysis. We also look at the distribution of identified types of learning settings across a set of background, contextual, and outcome characteristics. Before running latent class models, some variables are first grouped into indexes/latent variable indicators using principal component analysis (for details of the data preparation procedures, see annex).

Second, we then study the role and importance of each of the individual learning practices and learning opportunities in terms of their relationship with employee and company outcomes. For these purposes, we make use of hierarchical regression analysis and multivariate general linear model (GLM).

Third, we investigate the relationship between individual aspects of the learning environment on formal and informal learning opportunities. Hierarchical regression analysis and multivariate GLM models are used in these analyses as well.

CHAPTER 3.

Results

3.1. Types of learning organisation in the EU

In this section, we analyse the patterns of workplace learning characteristics that can be identified across EU establishments. These workplace patterns, or bundles of practices, can be seen as relatively distinct types of workplace learning environments for a given selection of workplace aspects that are used for their identification.

We used the latent class analysis approach to identify categories or types of workplace learning environments in EU establishments. In line with our theoretical framework, we used the following 11 workplace aspects:

- (a) demand for continuous learning;
- (b) skill (mis)match;
- (c) external motivators;
- (d) direct communication with employees;
- (e) employee influence on management decisions;
- (f) encouraging employee engagement;
- (g) job autonomy;
- (h) teamwork;
- (i) importance of training;
- (j) formal and non-formal learning opportunities;
- (k) informal learning opportunities.

As explained in the section on methodology, each of these aspects is represented by a separate composite index that denotes a summary indicator based on several relevant questions or scales from the ECS 2019 survey. In the latent class analysis, we used these indices to identify the categories of establishments that share similar patterns across these 11 indicators. This analysis enabled us to identify unobserved patterns of similarities and differences across establishments on these 11 dimensions.

Based on this, we identified five different types of workplace learning environments that differ in size (number of companies belonging to each type) and their patterns of values across various workplace learning aspects (Table 1).

Table 1. **Characteristics of the five workplace learning types across EU establishments**

		Types of workplace learning settings				
		Typical	Extensive	Traditional/lean	Restricted	Encouraging
Learning demand		110.2	142.6	59.3	71.3	100.0
Extrinsic motivation		110.6	125.2	92.8	69.1	64.1
Intrinsic motivation	Communication	105.0	135.1	97.8	72.3	90.9
	Influence on decisions	102.1	133.0	93.6	64.3	98.9
	Encouraging engagement	90.4	130.6	94.5	65.0	139.3
Job design	Job autonomy	106.3	132.8	86.8	74.2	93.7
	Teamwork	105.6	119.2	97.3	80.4	89.4
Importance of training		92.3	139.3	89.4	54.6	131.8
Learning opportunities	Formal learning	105.5	138.1	84.6	61.4	94.8
	Informal learning	99.1	151.7	84.7	50.2	116.0
Skill match		0.704	0.710	0.722	0.727	0.684
Overall proportion of EU establishments in the five workplace learning categories		36.5%	22.1%	18.9%	14.9%	7.6%

NB: All variables except skill match indicator are standardised and are placed on a scale with an EU average of 100 and standard deviation of 50; Skill match indicator represents a proportion of workers in an establishment who have matching skills with job requirements.

Source: European company survey, 2019.

3.1.1. Typical learning environment

Around a third of EU companies belong to the typical type of workplace learning environment. While most of the workplace aspects for this group are around the average of all EU-27 establishments, there are exceptions. Some tend to use variable pay schemes that encourage extrinsic motivation greater than the average. This use of performance-based remuneration practices is coupled with a somewhat reduced focus on promoting discretionary behaviours (encouraging engagement) and fewer perceived employee training benefits. Despite this, the proportion of employees with reported skills matching their job requirements is similar to the average (70.4% versus 71.1%, respectively).

3.1.2. Extensive learning environment

The highest values characterise the 'extensive' learning type of establishments on almost all selected workplace aspects. Almost a quarter of establishments

belonging to this category have much higher workplace learning demands and, perhaps consequently, promote both extrinsic and intrinsic motivation of their employees. Establishments belonging to this type created procedural and formal conditions for employee engagement through direct communication with employees and mechanisms that allow employees to influence management decisions. Employees have extensive autonomy in their work and ample opportunities to collaborate with their colleagues in teams. Companies in this type provide good contexts for learning. They also directly promote learning through a wide scope of training and informal learning opportunities that are more than one standard deviation higher than the average for all establishments. However, the proportion of employees with skills matching their job requirements is exactly the same as the overall average. Such a result may indicate that this workplace dimension is not aligned with the rest of the learning aspects: the skill (mis)match, at least as measured in this survey, does not relate to key workplace learning practices.

3.1.3. Traditional/lean learning environment

The 'traditional/lean' type of workplace learning setting represents those organisations – about one fifth of all EU companies – that have much lower learning demand and take a more traditional approach to learning. They are less prone to using variable pay schemes and generally allow employees fewer opportunities to influence decisions. Employees in these establishments also have fewer opportunities to work independently from their managers. Formal and informal learning opportunities are also constrained, although their managers are no more restrictive in comparison with other companies in terms of promoting discretionary behaviours of their employees and direct communication with employees. This may indicate that worse learning opportunities in these establishments are partly due to companies' circumstances, such as the lack of means to create a workplace learning environment and/or the lack of pressing need for the development of employee skills in their market niche. Despite this, the proportion of employees with skills matching their job requirements is somewhat higher than the average for EU-27 companies (X and Y).

3.1.4. Restrictive learning environment

The 'restrictive' learning type of establishments, with around 1 in 7 companies, has the worst workplace learning environment among the five groups. It has low demand for skill development coupled with very low levels of motivating practices, such as variable pay and direct communication with employees. It has especially low levels of employee influence on management decisions and encouraging discretionary behaviours of employees, allowing little room for the development of

employee intrinsic motivations. Job autonomy and teamwork are also constrained in comparison with other establishments. There are very few training opportunities and even less perceived benefit from the training of employees. The most striking feature of this type of establishment is the degree to which informal learning opportunities are restricted, with the informal learning indicator one standard deviation below the average for all companies. The proportion of employees with matching skills is relatively high, and even somewhat higher than the EU-27 average, in spite of an apparently constrained learning environment.

3.1.5. Encouraging learning environment

About 8% of all EU companies belong to the 'encouraging' type of workplace learning establishments. They tend to offer more opportunities for informal learning but less formal and non-formal learning opportunities than the average EU-27 company. They have an average level of learning demand and a somewhat lower level of direct communication with employees. Variable pay schemes are also used less often, and employees have slightly fewer autonomy and teamwork opportunities than in an average company. Where establishments belonging to this category excel is in their support for employees' discretionary behaviours and their views on the importance of training. Although they might not use as many motivational levers as companies in the 'extensive' learning group, they value learning and discretionary engagement of employees almost as strongly. Although they provide above-average learning opportunities, the proportion of employees with skills matching their job requirements is somewhat lower than the overall average and the corresponding proportion in other groups.

3.2. Learning organisations across institutional and socioeconomic categories

The different types of workplace learning organisations can now be analysed according to several attributes: their structural and market characteristics, innovativeness, and outcomes.

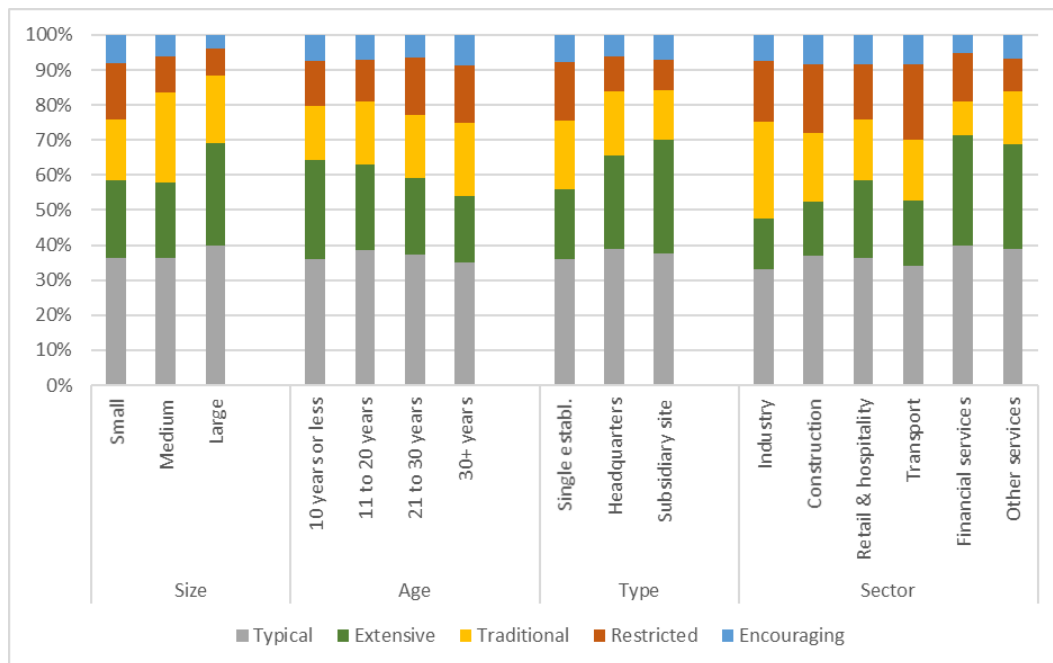
3.2.1. Types of workplace learning environment and structural characteristics

As shown in Figure 4, extensive learning types are most pronounced in the larger and younger companies and in subsidiary sites, while the opposite is true for establishments belonging to restricted learning types. The traditional learning type is much more frequent in older companies with a single establishment, while encouraging learning settings occur more often in smaller establishments. The

proportion of the typical learning type of establishments does not vary much across these three structural characteristics.

The findings presented indicate that the type of workplace learning environment is largely influenced by the economic sector a company belongs to. Establishments with extensive learning environments are more than two times more likely to belong to service sectors than to industry and construction sectors; a restricted learning environment is almost two times more likely to be found in companies in transport and construction industries than those in the service industries. Traditional learning environments are more prevalent in the manufacturing sectors (industry and construction) than in the service sectors. Traditional learning environments are more prevalent in the manufacturing sectors (industry and construction) than in the service sectors.

Figure 4. **The proportion of establishments with different types of workplace learning settings by establishment size, age, type and economic sector**



Source: European company survey, 2019.

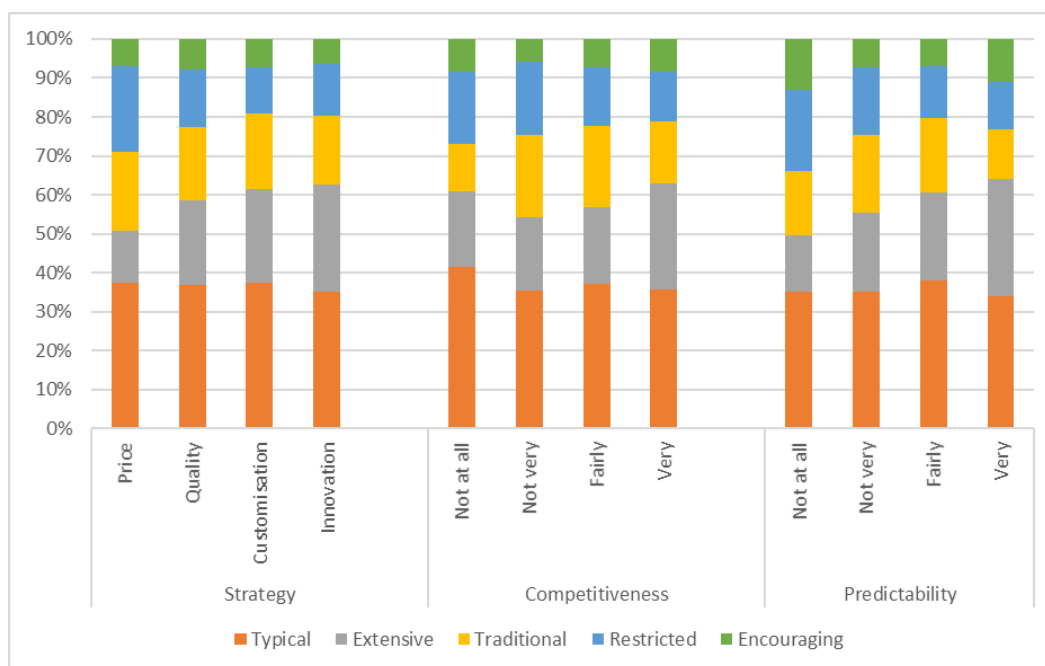
3.2.2. Types of workplace learning environments and market characteristics

Dominant business strategy also seems to influence the type of workplace learning environment the company will develop (Figure 5). Companies that focus on customisation, innovation, or use a combination of strategies are twice as likely to employ an extensive learning environment than companies that focus on product price as their dominant strategy. Those companies that prioritise prices are more likely to create a restricted learning environment than those focusing on customisation or innovation. The other three workplace learning types do not differ

much in their distribution across the establishments that implement these five market strategies.

Companies functioning in highly competitive and predictable market conditions are more likely to develop extensive learning environments and less likely to have restrictive learning settings. Conversely, traditional learning environments are more prevalent in companies with moderate market competition and predictability.

Figure 5. **The proportion of establishments with different types of workplace learning settings by dominant business strategy, and market competitiveness and predictability**



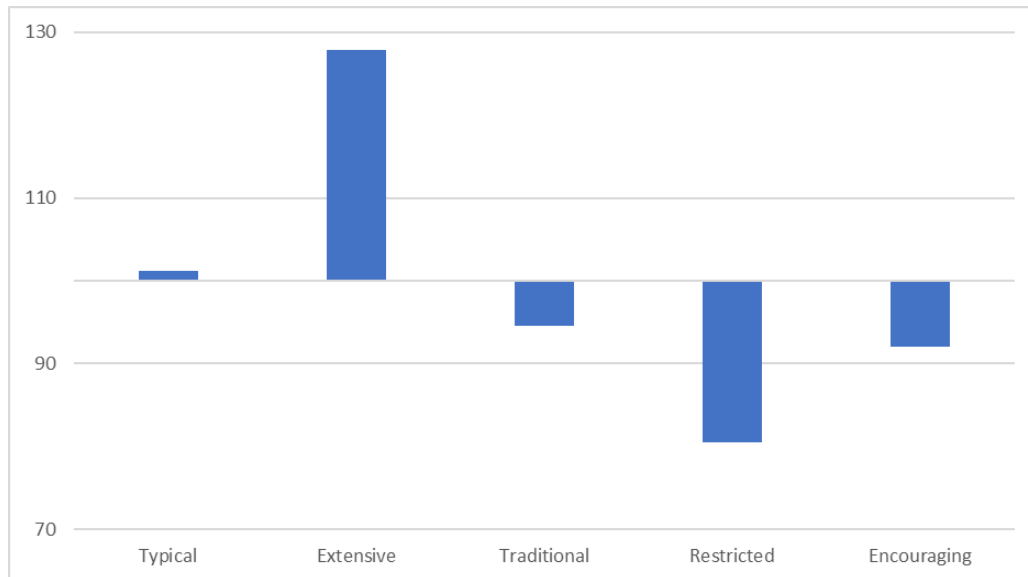
Source: European company survey, 2019.

3.2.3. Type of workplace learning environment and innovativeness

Recent changes in products, processes, and/or marketing activities in an establishment, which is marked as an indicator of establishment innovativeness, are strongly related to the type of company workplace learning environments (Figure 6). In particular, and as expected, the establishments that create extensive learning environments have a substantially higher degree of innovation than the average establishment. At the same time, innovativeness is much lower in establishments that employ restricted learning settings. Such results could be expected, given that any changes introduced in companies' production and processes necessitate some degree of employee learning. The relationship between company innovativeness and its learning environment can be assumed as mutually supportive, with higher innovativeness encouraging the creation of

more supportive learning environments. In return, this helps promote further innovation.

Figure 6. **Level of company innovativeness across different types of workplace learning settings**



Note: All innovation indicator is standardised and is placed on a scale with an EU average of 100 and standard deviation of 50.

Source: European company survey, 2019.

3.2.4. **Types of workplace learning environment and employee and company outcomes**

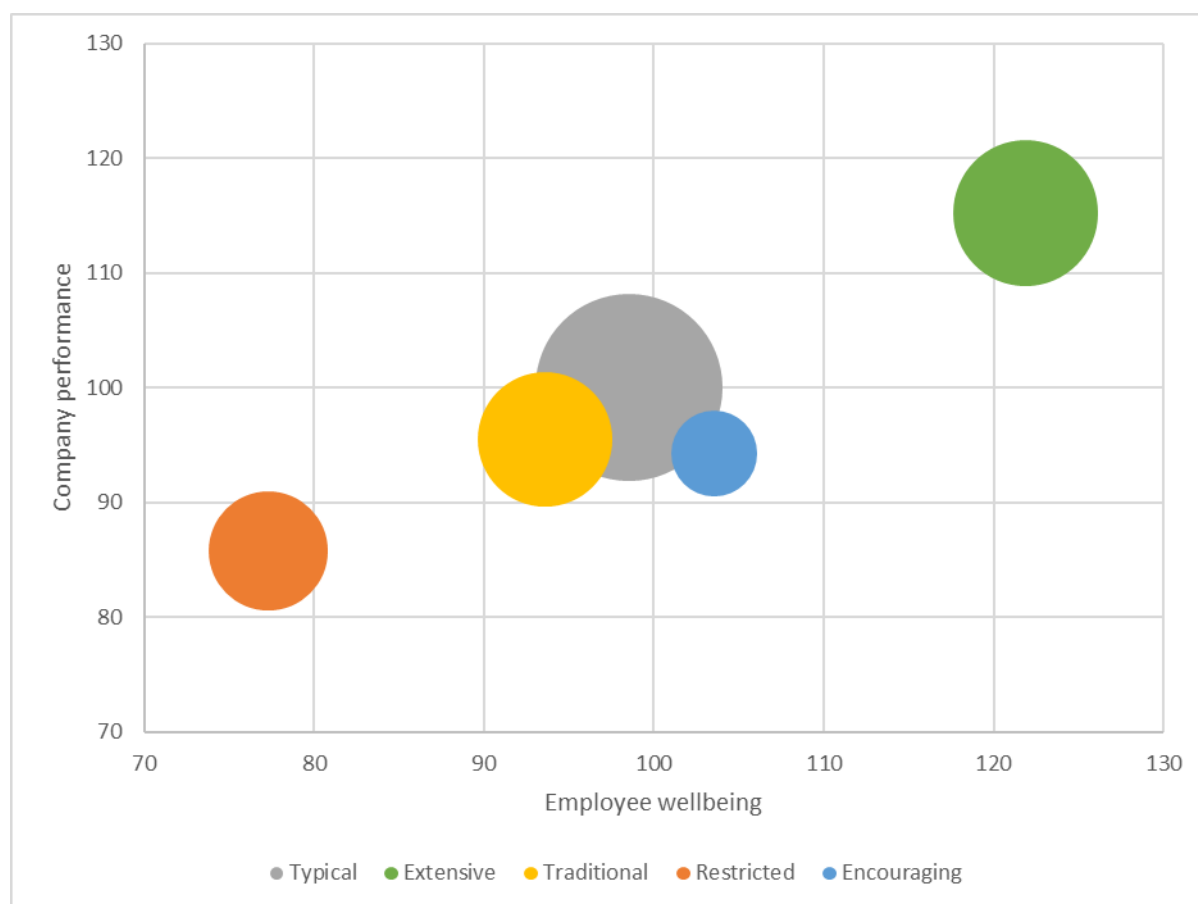
In order to investigate how the different types of workplace learning can potentially lead to positive or negative outcomes for the company and its workers, we have constructed two composite indices:

- (a) the employee wellbeing index is created using survey questions on the degree of employee absenteeism, their perceived high work motivation and good relations with management, and the degree to which management has difficulties in retaining employees in their company;
- (b) the company performance index is calculated using the information on the company's profit performance, employment and production growth, and planned increase in employment.

As presented in Figure 7, companies that employ extensive learning settings have much better employee wellbeing and company performance. Establishments that substantially restrict the learning opportunities of their employees are much more likely to have lower performance and even lower levels of employee wellbeing. Companies with encouraging learning settings achieve better levels of employee wellbeing but are still lagging in company performance. Traditional

learning environments seem to lead to somewhat depressed outcomes at both employee and company levels. Typical learning settings lead to average results in both outcome dimensions, as could be expected.

Figure 7. **Employee wellbeing and company performance by the type of establishment workplace learning environment**



Note: Size of the bubbles in the graph indicates the proportion of establishments that belong to a given type; employee wellbeing and company performance indices are standardised and are placed on a scale with an EU-27 average of 100 and standard deviation of 50.

Source: European company survey, 2019.

3.3. Aspects of learning environment and employee and company outcomes

In the previous section, we examined how these various workplace practices create types of learning environments with distinct characteristics and different employee and company outcomes. However, analysis of the relationships between various types of learning settings and social and company outcomes cannot inform us of the importance of each of the individual aspects of the learning environment.

This section will present results of analyses that aimed to examine the individual role and contribution of the selected workplace learning practices and their broader context on employee wellbeing and company performance. We start with the presentation of the results of hierarchical regression models of various predictors on employee wellbeing.

3.3.1. Relationship with employee wellbeing

We conducted a hierarchical regression analysis, adding groups of predictors over several steps. This analysis aimed not only to explore the relative contribution of each of the predictors in accounting for the observed variation in the composite index of employee wellbeing; it also allows for exploration of the added predictive power of the new group of predictors over and above the predictive power of the previously included group of predictors. This feature of the hierarchical regression models enables us to understand better the mutual relationships between predictors of interest and the dependent variable, employee wellbeing. However, unlike simultaneous regression models, hierarchical models require stronger causal inferences, as the order in which the blocks of predictors are added to the model depends on the assumed primacy of their causal effects on other predictors and the dependent variable. In the absence of such causal inferences, the order of blocks will be arbitrary. Therefore, the results will depend on the particular choice of the order of blocks and the variables belonging to each block. In such a situation, simultaneous regression analysis is a more fitting choice of the statistical model.

Table 2 presents the results of our hierarchical regression model on employee wellbeing. The model included nine hierarchical steps, each involving the inclusion of one or more additional predictors. Presented coefficients are related to the changes in accounted variation per each step (R-square statistics) as well as the individual regression coefficients of each of the predictors in the final model in which all predictors were included.

Taken together, the 20 predictors included account for 26% of the variation in the composite index of employee wellbeing. This can be considered a relatively large proportion, especially when considering that both predictors and dependent variables include unknown degree of measurement error that attenuates their relationship coefficients. However, there is large variation among the individual predictors regarding their sign and strength of relationship with the dependent variable. The country in which the company is located has an important influence on employee wellbeing, accounting for a little over 5% of its variation. This is not surprising given that country of location acts as a proxy variable for a wide set of potential employee wellbeing predictors, such as national institutional framework, culture, and economic situation. Establishment characteristics account for an additional 4% of the variation in the employee wellbeing index. Most of this

predictive power comes from the influence of company size (number of employees) on employee wellbeing, with smaller companies having higher employee wellbeing levels than those in larger companies. Employees in single establishment companies are also slightly better off than those in headquarters or subsidiary sites. The company's tenure does not seem to influence employee wellbeing when accounting for all other included predictors. The economic sector affects wellbeing, with employees in retail and service sectors better off than those in industry and construction sectors.

Market characteristics and company market approach only slightly improve employee wellbeing prediction (additional 1%), when taking all other characteristics into account. The degree of market competitiveness does not seem to influence employee wellbeing in a company, but market predictability has a small but statistically significant relationship, with companies functioning in more predictable markets tending to have higher levels of employee wellbeing. Employees in companies whose dominant business strategy focuses on quality tend to be slightly better off than those in companies that promote any of the other dominant strategies, with other conditions kept equal.

The level of company innovativeness, i.e. degree of introduced changes in their processes and products, does not seem to affect employee wellbeing in a company. However, the degree of changing skill requirements seems to be related to employee wellbeing, in an inverse way. Employees who work in companies that require constant training and have continuous changes in skills needed to do the tasks correctly are worse off than their colleagues who work in establishments with lower skill development demands. This is an especially important finding, considering that it considers differences among companies in other relevant characteristics, including those regarding learning opportunities. It indicates that a certain level of stability of skill requirements at the workplace is desirable from the point of view of employee wellbeing, independent of whether a company has provided for an adequate learning environment and ample learning opportunities.

Various ways in which employee intrinsic and extrinsic motivation are improved lead to a considerable increase in the model's predictive power, accounting for an additional 6% of the variability in the index of employee wellbeing. Among the four motivational levers, direct and involving communication with employees is the most strongly related to employee wellbeing, followed by encouraging employee engagement through performance evaluation. Performance-based variable pay practices do not seem to influence employee wellbeing once other characteristics are considered. This result might be surprising to some managers and policy-makers, given that performance-based pay is usually considered an effective HR practice for increasing employee engagement and job satisfaction.

As expected, employees who enjoy higher job autonomy levels are much more likely to have higher degrees of wellbeing, even after controlling for all other 19 company characteristics. This finding is in line with a broad scope of evidence of beneficial effects of job autonomy on employee morale, engagement, productivity and job satisfaction. In contrast, teamwork does not seem to have much effect on employee wellbeing: the little effect that seems to exist is actually negative, with employees working in multiple teams seemingly worse than those working in one team or working individually.

Companies in which management perceive training as an important tool for improving company and employee outcomes tend to have slightly higher levels of employee wellbeing, all other things being equal. However, the provision of more formal and non-formal learning opportunities in a company does not seem to improve employee wellbeing when other characteristics are kept constant. This might be seen as surprising, given the usual focus on formal and non-formal learning opportunities when discussing workplace learning practices and their relations with employee wellbeing and company performance. However, most formal and non-formal learning opportunities are organised with the implicit and explicit objectives of improving employee productivity rather than their wellbeing. Such formal learning opportunities are usually of short and intermittent duration and do not offer enough of the opportunity for substantial influence on employee wellbeing.

The opposite is true of informal learning opportunities. This is the strongest predictor of employee wellbeing, accounting for almost 9% of the variation in its index after controlling for differences in other predictors. This result is especially striking when considering that it represents a relationship independent of the scope of formal and non-formal learning opportunities available to employees in a company. Opportunity to learn outside of formal learning programmes is critical, not just for employee skill development and productivity but also for general wellbeing.

The proportion of employees whose skills match their job requirements also have a small but positive relationship with employee wellbeing, after controlling for the differences in other predictors. Although in the expected direction, the influence of this aspect of the workplace learning environment might not be as strong as expected, especially from the perspective of the skill (mis)match literature.

Table 2. **Characteristics of the five workplace learning types across EU establishments**

Blocks of predictors	Individual predictors		Cumulative R-square	R-square change per block of var.	Regression coefficient
Country	Country	Country	.051***	.051***	.243***
Establishment characteristics	Size	Size	.091***	.040***	-.129***
	Type (reference: single establ.)	Headquarters			-.033***
		Subsidiary s.			-.039***
	Age	Age			-.007
	Sector (reference: industry)	Construction			.002
		Retail			.078***
		Transport			.018*
		Financial			.035***
Other services	.062***				
Market conditions	Competitiveness	Competitiveness	.101***	.010***	-.007
	Predictability	Predictability			.049***
	Business strategy (reference: Price)	Quality			.051***
		Customisation			.020
		Innovation			.002
		No dominant str.			-.003
Skill demand	Innovation	Innovation	.110***	.009***	-.011
	Need for learning	Need for learning			-.076***
Motivational levers	Extrinsic motivation	Extrinsic motivation	.170***	.060***	.016
	Direct communication	Direct communication			.058***
	Influence on decisions	Influence on decisions			.021*
	Encouraging engagement	Encouraging engagement			.036***
Job design	Job autonomy	Job autonomy	.190***	.020***	.136***
	Teamwork (reference: no teams)	One team			-.003
		Multiple teams			-.036***
Importance of training	Importance of training	Importance of training	.200***	.010***	.051***
Learning opportunities	Formal learning opportunities	Formal learning opportunities	.251***	.051***	.014
	Informal learning opportunities	Informal learning opportunities			.293***
Skill match	Skill match	Skill match	.260***	.009***	.095***

Note: All variables except skill match indicator are standardised and are placed on a scale with an EU average of 100 and standard deviation of 50; skill match indicator represents a proportion of workers in an establishment who have matching skills with job requirements.

Source: European company survey, 2019.

3.3.2. Relationship with company performance

The 20 predictors describing various external and internal contextual characteristics and organisational practices have less explanatory power in relation to company performance, where they account for 14.2% of the variation in the company performance index (Table 3). Although less than in the case of employee wellbeing, this is still a substantial proportion of accounted information, especially when taking into account measurement noise in the indicators.

The country in which companies are located is still a significant predictor of the company performance, accounting for 1.5% of the variation in its index. However, its effect is more than three times smaller than in the case of employee wellbeing. Establishment structural characteristics account for the same proportion of variance in company performance as they did in the case of employee wellbeing, at 4%, yet different characteristics are important for company performance in comparison with employee wellbeing. The number of years since a company was created is the strongest predictor of company performance among the four in this group, with younger companies being much more likely to perform well. Single establishment and larger companies also have slightly higher chances of better performance. Companies in the construction and transport sectors are also slightly better off than those in the industry sector.

As expected, predictable market conditions and lower competitiveness are beneficial for company performance. Companies whose dominant business strategy focuses on quality, customisation and innovation are more likely to function well than those who focus on the price of their product.

In line with previous research and theory, company innovativeness is strongly related to performance. Frequent changes in skill needs also have a small but positive relationship with company performance.

Variable pay schemes and employee influence on decisions are positively related to company functioning. At the same time, direct communication and encouraged engagement do not seem to have significant effects once other predictors are taken into account. Job autonomy and teamwork both have slight positive effects, while the degree to which management finds training important does not seem to influence the performance of companies.

Formal and non-formal learning opportunities do not have a significant effect on company performance, as was the case for employee wellbeing. In contrast, informal learning opportunities are one of the strongest predictors of company

performance in our model, even after accounting for differences in the other 19 predictors.

Table 3. **Characteristics of the five workplace learning types across EU establishments**

Blocks of predictors	Individual predictors		Cumulative R-square	R-square change per block of var.	Regression coefficient
Country	Country	Country	.015***	.015***	.123***
Establishment characteristics	Size	Size	.055***	.040***	.055***
	Type (reference: single establ.)	Headquarters			-.057***
		Subsidiary s.			-.013
	Age	Age			-.167***
	Sector (reference: industry)	Construction			.046***
		Retail			.001
		Transport			.030**
		Financial			-.029**
Other services		-.003			
Market characteristics	Competitiveness	Competitiveness	.072***	.017***	-.025*
	Predictability	Predictability			.087***
	Business strategy (reference: Price)	Quality			.103***
		Customization			.082**
		Innovation			.038***
		No dominant str.			.022*
Skill demand	Innovation	Innovation	.123***	.051***	.173**
	Need for learning	Need for learning			.041***
Motivational levers	Extrinsic motivation	Extrinsic motivation	.135***	.012***	.079***
	Direct communication	Direct communication			.000
	Influence on decisions	Influence on decisions			.025**
	Encouraging engagement	Encouraging engagement			.015
Job design	Job autonomy	Job autonomy	.137***	.002***	.041***
	Teamwork (reference: no teams)	One team			.021*
		Multiple teams			.020
Importance of training	Importance of training	Importance of training	.137***	.000	-.011
Learning opportunities	Formal learning opportunities	Formal learning opportunities	.141***	.004***	-.017
	Informal learning opportunities	Informal learning opportunities			.085***

Blocks of predictors	Individual predictors		Cumulative R-square	R-square change per block of var.	Regression coefficient
Skill match	Skill match	Skill match	.142***	.000	-.006

Note: All variables except skill match indicator are standardised and are placed on a scale with an EU average of 100 and standard deviation of 50; skill match indicator represents a proportion of workers in an establishment who have matching skills with job requirements.

Source: European company survey, 2019.

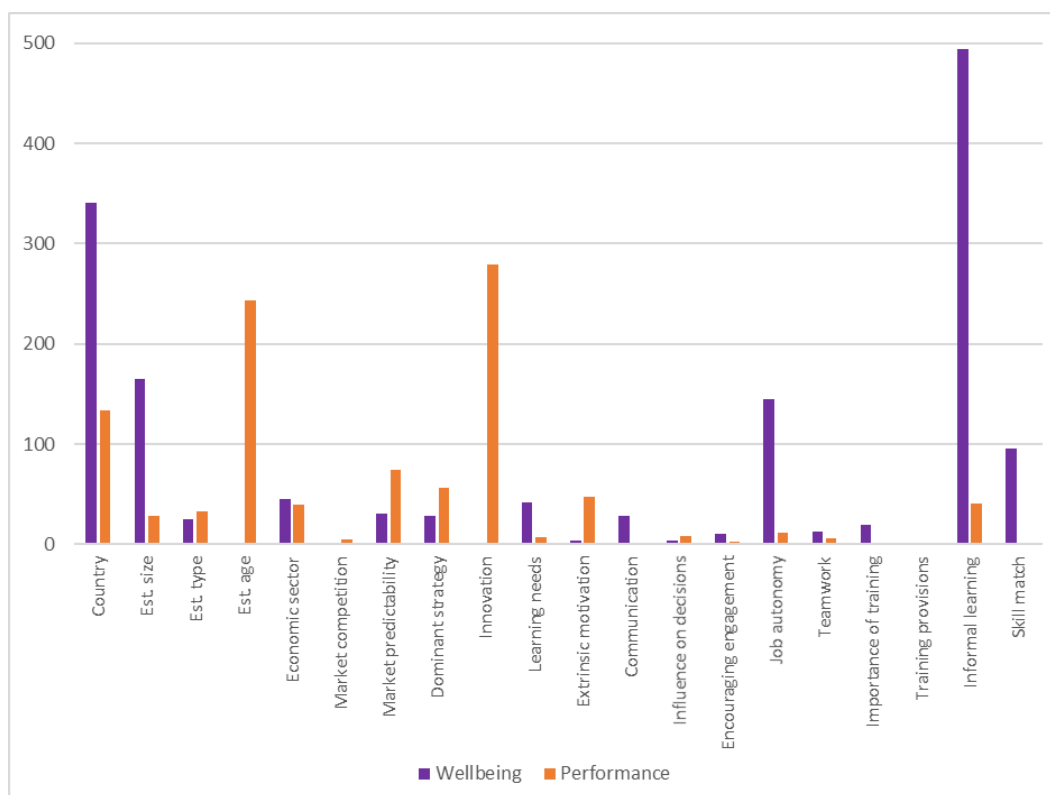
3.3.3. Simultaneous analysis of relationships with both outcomes: general linear model

The previous sections examine relationships between predictors and two main outcomes – employee wellbeing and company performance – in separate hierarchical regression models. However, the two outcomes are correlated with one another ($r=.20$), which means that the relationships between their predictors and outcomes might be somewhat different once taken into account.

In Figure 8, we present results of the multivariate general linear model, in which we regressed the same set of predictors on the two outcomes at the same time, thus accounting for the correlation between the dependent variables. As expected, the results are largely similar to those obtained in the previous two separate hierarchical regression models. However, there are still some differences worth noticing.

The influence of establishment size on both employee wellbeing and company performance is stronger than was the case when the two outcomes were analysed separately. Similarly, the influence of skill mismatch on employee wellbeing and company performance is somewhat stronger than seemed to be the case in the hierarchical regression model. In contrast, the influence of market strategy on company performance is reduced in these models, compared to the hierarchical regression model on company performance.

Figure 8. **Strengths of effects of different predictors on employee wellbeing and company performance in EU establishments**



NB: Strength of relationships is presented in terms of sum of squares.
Source: European company survey, 2019.

3.4. Workplace environment aspects and learning opportunities

This section examines learning opportunities in companies and the factors that determine the scope of such opportunities. We particularly want to study what broad contextual characteristics and internal workplace aspects influence the level of formal and non-formal learning opportunities and informal learning opportunities. As seen in Section 2, institutional theories consider wider national institutional and cultural contexts as the key determinant of learning opportunities. In contrast, business strategy theory considers market conditions as a critical factor in companies' decisions about providing learning to their employees. To address these questions, we used hierarchical regression models and a multivariable general linear model (GLM). Two hierarchical regression models explored how a set of 19 predictors can explain 'informal learning' and 'formal and non-formal learning' opportunities in a company.

3.4.1. Relationship with informal learning opportunities

The selected set of 19 predictors accounts for a relatively high proportion (33%) of the variation in informal learning opportunities across EU companies (Table 4). Management's perceived importance of training plays the most important role (12.4%), along with the indicators of skills demand (11%), national context (5%) and company characteristics and economic sector (3%). Market environment and business strategy are responsible for only 1.6% of the variation in informal learning opportunities, much less than what might be expected based on market condition theories. Various aspects of work organisation have very little or no influence on informal learning opportunities, such as the proportion of managers in the workforce, proportion of employees with permanent contracts and number of hierarchical levels. The proportion of employees whose pace is determined by machines has a slight negative influence, while teamwork has a slight positive effect on the number of informal learning opportunities. Skill (mis)match indicators have an only marginal influence on learning opportunities and in the unexpected direction of influence: higher proportions of underskilled employees are related with lower levels of informal learning opportunities.

Table 4. **Results of hierarchical regression analysis on informal learning opportunities**

Blocks of predictors	Individual predictors	Predictors and their individual categories	Cumulative R-square	R-square change per block of var.	Regression coefficient
Country	Country	Country	.046***	.046***	.0214***
Establishment characteristics	Size	Size	.079***	.032***	.011
	Type (reference: single establ.)	Headquarters			.012
		Subsidiary s.			.003
	Age	Age			-.032***
	Sector (reference: industry)	Construction			.050***
		Retail			.027**
		Transport			.017*
		Financial			.024**
Other services		.101***			
Market characteristics	Competitiveness	Competitiveness	.94***	.016***	.013
	Predictability	Predictability			.029***
		Quality			.038***

Blocks of predictors	Individual predictors	Predictors and their individual categories	Cumulative R-square	R-square change per block of var.	Regression coefficient
	Business strategy (reference: Price)	Customization			.036***
		Innovation			.028**
		No dominant str.			.022*
Skill demand	Innovation	Innovation	.201***	.107***	.099***
	Need for learning	Need for learning			.204***
	Finding skilled empl.	Finding skilled empl.			.033***
Work organisation	% of managers	% of managers	.205***	.004***	.005
	Permanent employ.	Permanent employ.			-.002
	Hierarchical levels	Hierarchical levels			.005
	Pace determined by machines	Pace determined by machines			-.021**
	Teamwork	One team			.026**
Multiple teams		.057***			
Importance of training	Importance of training	Importance of training	.329***	.124***	.380***
Skill (mis)match	Skill match	Skill match	.332***	.003***	-.022*
	Underskilled	Underskilled			-.068***

Notes: Statistics marked with *, ** and *** have statistical significance at .05, .01 and .001 levels, respectively.

Predictor variables 'innovation', 'need for learning', 'importance of training' and dependent variable 'informal learning opportunities' are standardised; 'skill match' variable represents a proportion of workers in an establishment who have matching skills with job requirements. 'Underskilled' variable represents a proportion of workers who have skills that are insufficient for their jobs.

Source: European company survey, 2019.

3.4.2. Relationship with formal and non-formal learning programmes

Table 5 presents the results of the hierarchical regression model on formal and non-formal learning opportunities in an establishment, using the same set of 19 predictors. We can see that these predictors account for a much lower proportion of variation in training provision (21%) than was the case with informal learning opportunities. Strengths of effects of broader contextual variables and skill demand indicators are similar across the two models. Work organisation aspects have somewhat larger effects on the probability of having training opportunities. Companies with a higher proportion of managers, more hierarchical levels and, especially, higher proportion of employees on permanent contracts tend to offer their employees slightly more formal and non-formal learning opportunities.

The main difference compared with informal learning opportunities is in the effects of management’s perceived importance of training. This predictor accounts for more than 12% of variation in informal learning opportunities and only 2.5% of the variation in formal and non-formal learning opportunities. This is surprising, especially when considering that managers are asked about the importance of training (formal and non-formal learning programmes) rather than the importance of informal learning opportunities. Such results indicate that managers might not be thinking of training courses specifically but rather of workplace learning opportunities in general when answering this question. These results could also indicate that managers’ positive attitudes toward workplace learning more often translate into the creation of informal learning opportunities than in formal and non-formal learning programmes.

Table 5. **Results of hierarchical regression analysis on formal and non-formal learning opportunities**

Blocks of predictors	Individual predictors	Predictors and their individual categories	Cumulative R-square	R-square change per block of var.	Regression coefficient
Country	Country	Country	.050***	.050***	.224***
Establishment characteristics	Size	Size	.082***	.032***	-.006
	Type (reference: single establ.)	Headquarters			.060***
		Subsidiary s.			.016*
	Age	Age			-.016
	Sector (reference: industry)	Construction			.008
		Retail			.010
		Transport			-.002
		Financial			.066***
Other services	.059***				
Market characteristics	Competitiveness	Competitiveness	.088***	.006***	.002
	Predictability	Predictability			.018*
	Business strategy (reference: Price)	Quality			.044***
		Customisation			.030**
		Innovation			.025**
		No dominant str.			.013
Skill demand	Innovation	Innovation	.180***	.091***	.050
	Need for learning	Need for learning			.254
	Finding skilled empl.	Finding skilled empl.			.043

Blocks of predictors	Individual predictors	Predictors and their individual categories	Cumulative R-square	R-square change per block of var.	Regression coefficient
Work organisation	% of managers	% of managers	.185***	.005***	.024**
	Permanent employ.	Permanent employ.			.048***
	Hierarchical levels	Hierarchical levels			.024**
	Pace determined by machines	Pace determined by machines			-.016
	Teamwork	One team			.036***
		Multiple teams			.018
Importance of training	Importance of training	Importance of training	.210***	.025***	.172***
Skill (mis)match	Skill match	Skill match	.210***	.001*	-.005
	Underskilled	Underskilled			-.027**

NB: Statistics marked with *, ** and *** have statistical significance at .05, .01 and .001 levels, respectively.

Predictor variables 'innovation', 'need for learning', 'importance of training' and dependent variable 'informal learning opportunities' are standardised; 'skill match' variable represents a proportion of workers in an establishment who have matching skills with job requirements. 'Underskilled' variable represents a proportion of workers who have skills that are insufficient for their jobs.

Source: European company survey, 2019.

3.4.3. A general model with all learning opportunities

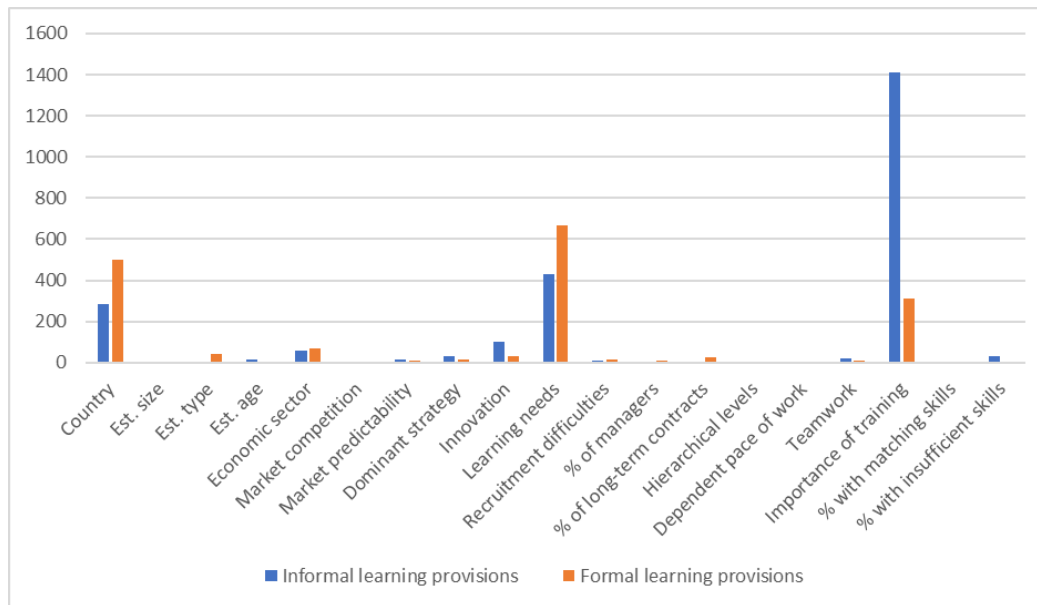
Considering the high inter-correlation ($r=.36$) between two dependent variables of 'informal' and 'formal and 'non-formal' learning opportunities, we conducted a multivariable general linear model (GLM) regressing the same set of 19 predictors simultaneously on the two learning outcomes.

Results of the multivariate GLM are presented in Figure 9 and allow for a clearer representation of the comparative strength of effects of different predictors on the two learning outcomes. Although generally in line with the results of the two hierarchical regression models, these findings also incorporate some important differences. For example, the influence of national context, which was largely the same in regression models, is now much stronger for formal than informal learning opportunities. Similarly, the influence of learning needs (changing skill requirements) is a stronger predictor of training provisions in this model while in individual regression models, the opposite was true. The absolute strength of coefficients has also changed in some cases. Characteristics of companies, such as age, size, type, and their economic sector, have less of an effect on either of the two dependent variables than they seemed to have in regression models.

The most striking takeaway from GLM results is the fact that only three company aspects overwhelmingly influence both types of learning opportunities in

companies: its national context, its level of changing skill needs, and its managements' perception of the importance of training. The relative importance of each of these three aspects differs across the two outcomes, with the perceived importance of training being much more important for informal learning opportunities and the other two factors being stronger predictors of formal and non-formal learning opportunities.

Figure 9. **Strengths of effects of different predictors on informal and formal/non-formal learning opportunities in EU companies**



NB: Strength of relationships is presented in terms of sum of squares (type IV).

Source: European company survey, 2019.

CHAPTER 4.

Concluding discussion

4.1. Workplace learning conditions and practices in EU companies

Analysis of patterns of workplace learning characteristics or bundles of practices identified five distinct types of workplace learning environments in EU organisations: typical, extensive, traditional, restrictive and encouraging. Around a third of companies belonging to the typical type of learning environment have average levels of workplace learning practices. Extensive and restrictive type of learning environments are largely opposites. Almost a quarter of companies that belong to the extensive type offer a higher prevalence of learning practices and learning opportunities, while 14% of companies that belong to the restrictive category have fewer learning opportunities and a generally less stimulating environment. About one fifth of companies that belong to the traditional or lean category have much lower skill demand and a slightly below-average frequency of learning practices and opportunities. The 8% of companies belonging to the encouraging category have higher levels of informal learning opportunities and much higher levels of management belief in the value of training and their encouragement for employee engagement.

The five types of workplace learning environments differ along the line of the extensive-restrictive dimension and are, as such, mostly in line with the expansive-restrictive continuum model promoted by Fuller and colleagues (Fuller and Unwin, 2003; Fuller et al., 2004; Fuller et al., 2005). These results again confirm that larger and younger companies, and those working in service sectors, are more likely to offer conducive learning environments than smaller and older companies or establishments working in manufacturing sectors. Results also confirm the assumed influence of market conditions on the propensity of various forms of learning opportunities and practices, indicating that more stable and predictable environments lead to better learning opportunities. Such results might be expected, as an investment in skill development is less likely in conditions of great market uncertainty. Market competitiveness is also found to be mainly conducive to workplace learning conditions, indicating that companies are incentivised to invest in the creation of learning opportunities and skill development when facing harsher competition.

Although some theories (e.g. Schuler and Jackson, 1987; Porter, 1980) assume product market strategies to be some of the most important determinants of workplace learning, this does not seem to be the case in our findings. Similarly,

our findings are not aligned with the skill (mis)match literature that higher levels of skill mismatch will be one of the key factors determining the type and quality of workplace learning environments. Such a result could be attributed to the lack of relevance of skill (mis)match on workplace learning opportunities but could also be attributed to the methodological limitations behind the skill (mis)match indicators (see discussion of these limitations in the section below). However, an almost linear alignment of the five identified types of workplace learning environment across the expansive-restrictive dimension indicates that the selected aspects of the workplace learning environment are aligned with one another and are capturing a distinct and relevant dimension. Further, their relationship with wider structural and organisational indicators is generally in line with theoretical expectations, further confirming the validity of the observed typology. Their similar relationship with the individual and organisational outcomes illustrates the potential of learning workplaces to lead to win-win situations for both employees and employers.

4.2. The learning environment and employee and company outcomes

Analyses of the relationship between selected workplace learning practices and their broader context on employee wellbeing and company performance showed that different workplace aspects have a markedly varied influence on employee and organisational outcomes.

Employee wellbeing had by far the strongest relationship with informal learning opportunities. This is a very important finding as it empirically verifies the positive effects of workplace learning on workers. However, results also show a lack of substantive effects of formal and non-formal learning opportunities on employee wellbeing. This might be because these programmes cover less relevant topics. In many cases, participation in these programmes is compulsory, inhibiting workers' intrinsic motivation and interest, but probably the strongest reason behind these results is that formal and non-formal learning programmes are usually much less prevalent than informal learning opportunities.

Job autonomy is another strong determinant of employee wellbeing, in line with previous research and theory (e.g. Eurofound, 2015; Eurofound and Cedefop, 2020). Both national context and establishment characteristics are found to influence employee wellbeing to a substantial degree. Market conditions are not that important after controlling for other aspects. Skill demand is found to have a slight negative correlation with employee wellbeing, in line with the discussion on the potential negative consequences of job intensification. Motivational levers, especially open and constructive communication and an encouraging

environment, strongly influence employee wellbeing. However, extrinsic motivation measured through variable pay schemes does not seem to influence employee wellbeing much. Skill (mis)match is not found to influence employee wellbeing once other aspects are considered.

Company innovativeness is the strongest predictor of company performance, followed by organisational characteristics, especially organisations' age. National context and market conditions and strategies are less important for this outcome. Job autonomy is an important predictor of company performance as well, along with informal learning opportunities. Formal and non-formal learning opportunities do not have substantial influence once other workplace aspects are taken into account.

Taken together, these results offer striking empirical confirmation of the value and importance of informal learning opportunities and, in general, stimulating learning environments. They are especially valuable given the comprehensive set of workplace aspects that we could include and simultaneously control for in these regression models. Such strong predictive relationships of informal learning opportunities with company performance, and even more so with employee wellbeing, are especially important in comparison with small or statistically insignificant relationships of most of the other examined aspects of workplaces. In this sense, the only other aspect that has shown a substantial and consistent positive relationship with both outcomes is job autonomy.

4.3. Aspects of the workplace environment and learning opportunities

Analysis of the workplace conditions most strongly related to formal and informal learning opportunities showed that the strongest predictor of the number of informal learning opportunities turned out to be managers' perceptions of the value and importance of workplace learning. This shows the importance of managerial attitudes on work organisation and workplace learning opportunities. It also illustrates how much discretionary power managers have in terms of improving the workplace learning environment.

Need for learning (skill demands) and the national context also substantially influence informal learning provisions. Market conditions are found to be much less related to workplace learning. Among organisational characteristics, the service sector is the category that has the highest effect on the prevalence of informal learning opportunities.

As expected, skill demands are the strongest predictor of formal and non-formal learning. Structural conditions such as national context and organisational

characteristics are the strongest predictors of the prevalence of formal and non-formal learning opportunities. Market conditions are not related to the frequency of training provisions in establishments, offering further refutation to the theories arguing their importance for workplace learning. Here again, managers' perceived value of training is found to be a strong predictor of formal and non-formal learning opportunities.

In summary, these results illustrate the importance of managers as key factors in the organisation of work processes and structures, in allocating necessary learning resources and conditions, and in creating formal and, especially, informal learning opportunities. The findings obtained in the case of informal learning are particularly important as they challenge some of the preconceptions in the area of workplace learning. For example, it is usually assumed that managers and their discretionary powers are much more important in the case of formal and non-formal learning and that their hands are more tied in the case of informal learning opportunities. The results suggest such assumptions are in contradiction with these empirical findings.

4.4. Methodological considerations

Before final remarks on the findings, a word of caution is due. As with any empirical data, ECS 2019 has its own set of methodological limitations representing potential measurement error sources. First, although the ECS aimed to draw representative samples of EU establishments in private sectors employing 10 or more workers, its overall response rate through its 'push-to-web' sampling strategy was only 5%. Second, although several statistical corrections through stratification variables and weighting procedures were implemented to account for observed non-response, potential non-response bias could have affected results in unpredictable ways.

Further, the ECS data were obtained from the establishment's human resource managers or other establishment representatives, meaning that the reports represent one perspective that could entail numerous biases and constraints. One potential limitation of such reports is the possible lack of information that a reporting HR representative has on various aspects of workplace organisation, processes and practices. For example, the question on the degree of skill (mis)match requires in-depth insight into the skillset of the establishment workforce and, simultaneously, skill requirements of the entire set of job positions in an establishment. Such detailed and comprehensive knowledge of these issues on the part of the reporting representative might be unlikely, especially in cases of middle to large establishments.

Another even more serious validity threat is possible biased reporting on the situation at the workplace. For example, establishment reporting representatives might be influenced by social desirability tendency or by acquiescence response style (tendency to choose the 'agree' answer option irrespective of the actual situation regarding the topic in question). Each of these response biases would lead to the common method bias in the resulting statistical analyses (Kankaraš et al., 2019). Such common method biases could spuriously inflate some intercorrelations in statistical analyses, leading to erroneous conclusions. We have tried to control for these methodological threats by careful data examination and building analytic models based on the well-tested theoretical frameworks. Through the comprehensive approach of including a variety of the most relevant variables from the dataset, we have tried to minimise the possibility of spurious effects of unaccounted factors. Large differences in intercorrelations across variables indicate that common method bias, even if present, is not the overwhelming presence, since otherwise, these intercorrelations would be of similar strength across variables of related constructs. However, the ultimate test of the validity of the ECS 2019 and presented findings will be shown in the results of further empirical research in this area. This will be particularly true for those results obtained from employees themselves but also in those rare, but analytically very important, cases where both employee and employer reports are obtained, and a composite representation of the workplace learning situation is created.

The cross-sectional nature of ECS 2019 is another methodological constraint as it does not allow for straightforward examination of causal relationships between these variables. In several instances in our regression models it might be assumed that it would be possible, and sometimes even plausible, that some predictor and outcome variables could exchange their places in the model. For example, although the degree of company innovativeness and general level of change in the production processes and products is usually assumed to be one of the key determinants of the need for skill developments, it could also be the case that good workplace learning practices act as one of the key enablers of company innovativeness. Similarly, the relationship between workplace learning opportunities and a company's performance is usually, as in this paper, analysed from the perspective of learning activities as factors that positively influence company performance, it is also possible that company performance determines the frequency and type of learning opportunities. Such reversible and circular relationships cannot be fully investigated with cross-sectional ECS 2019: they would instead need longitudinal studies that would track down the dynamics and causal relationships between different factors.

It should also be noted that ECS 2019 does not capture more detailed forms of workplace learning, their intensity, and prevalence. This is especially true for the

various types of informal learning, such as learning by doing, collaborative learning, learning from more experienced colleagues or mentors, and incidental learning. Lack of such information constrained our ability to explore potential differences in drivers and consequences of different learning forms. Finally, the fact that ECS 2019 data are obtained from establishment representatives, and that its questions were referring to establishments as a whole, means that the proper unit of analyses of such data is establishments rather than individual workers. This limits the applicability of our findings to this group level. It means that observed relationships between variables, some of which refer to individual-level characteristics (e.g. employee wellbeing), are valid at establishment level but do not necessarily hold at the level of individual workers. Whether or not these observed relationships at the establishment level mimic those at the individual level would need to be investigated through data obtained from employees themselves.

4.5. Conclusions

Workplace learning is a critical tool for both employees and organisations in their adjustment to a growing number of global trends reshaping our workplaces, economies, and societies. Workers learn most when engaging in new and challenging activities in which they are granted a sufficient amount of autonomy to solve issues themselves or in collaboration with their colleagues or mentors. Informal learning is the key aspect of workplaces in terms of company performance, especially employee wellbeing. Such findings call for more attention from policy-makers and organisation management to various forms of informal learning at the workplace. This is especially true when considering the apparent lack of beneficial effects of formal and non-formal learning on employee wellbeing and company performance. These findings again illustrate the overwhelming prominence of informal learning at the workplace compared to formal and non-formal learning forms. But they also indicate the learning potential that exists at workplaces. As seen through the analysis of the prevalence of various learning practices and of different types of learning environments, most companies are still not offering optimal learning environments and opportunities to their workers. Such a situation hurts both employees and companies. It also presents an incredible opportunity for action, at organisational, national and international levels. Such action must will aim to create institutional conditions, legal frameworks, learning resources, and the right incentives for companies to start organising their workplaces in a way that will facilitate workplace learning, especially its various informal forms.

References

[URLs accessed 4.10.2021]

- Appelbaum, E. (2002). The impact of new forms of work organization on workers. In Murray, G et al (eds). *Work employment relations in the high-performance workplace*, pp. 120-148. London: Continuum.
<https://doi.org/10.4324/9781315058931>
- Appelbaum, E. et al. (2001). Do high performance work systems pay off? *Research in the Sociology of Work*, Vol. 10, pp. 85-107.
[https://doi.org/10.1016/s0277-2833\(01\)80022-4](https://doi.org/10.1016/s0277-2833(01)80022-4)
- Bakker, A. B. and Demerouti, E. (2007). The job demands-resources model: state of the art. *Journal of Managerial Psychology*, Vol. 22, No 3, pp. 309-328.
<https://doi.org/10.1108/02683940710733115>
- Bartel, A. P. (2004). Human resource management and organizational performance: Evidence from retail banking. *Industrial and Labor Relations Review*, Vol. 57, No 2, pp. 181-203.
<https://doi.org/10.1177/001979390405700202>
- Billett, S. (2001). Learning through work: Workplace affordances and individual engagement. *Journal of Workplace Learning*, Vol. 13, No 5, pp. 209-214.
<https://doi.org/10.1108/EUM0000000005548>
- Billett, S. (2002). Toward a workplace pedagogy: Guidance, participation, and engagement. *Adult Education Quarterly*, Vol. 53, No 1, pp. 27-43.
<https://doi.org/10.1177/074171302237202>
- Billett, S. (2004). Workplace participatory practices: conceptualising workplaces as learning environments. *Journal of Workplace Learning*, Vol. 16, No 6, pp. 312-324. <https://doi.org/10.1108/13665620410550295>
- Billett, S. (2011). Learning in the circumstances of work: the didactics of practice. *Éducation Et Didactique*, Vol. 5, No 2, pp. 125-146.
<https://doi.org/10.4000/educationdidactique.1251>
- Bosch, G. (2017). *Different national skill systems*. In: Buchanan et al (eds). *The Oxford handbook of skills and training*, pp. 1-21. Oxford handbook online.
<https://doi.org/10.1093/oxfordhb/9780199655366.013.20>
- Boud, D. and Middleton, H. (2003). Learning from others at work: communities of practice and informal learning. *Journal of Workplace Learning*, Vol. 15, No 5, pp. 194-202. <https://doi.org/10.1108/13665620310483895>
- Cedefop (2009). *European guidelines for validating non-formal and informal learning*. Luxembourg: Publications Office.
https://www.cedefop.europa.eu/files/4054_en.pdf
- Cedefop (2010). *The skill matching challenge: analysing skill mismatch and policy implications*. Luxembourg: Publications Office.
https://www.cedefop.europa.eu/files/3056_en.pdf

- Cedefop (2014). *Terminology of European education and training policy. Second edition: a selection of 130 key terms*. Luxembourg: Publications Office.
<https://www.cedefop.europa.eu/en/publications-and-resources/publications/4117>
- Cullen, J. et al. (2000). *Informal learning and widening participation*. Young, DfEE Research Report, No 191, pp. 2-16.
- Deci, E. L., and Ryan, R. M. (1985). *Intrinsic motivation and self-determination in human behavior*. New York, NY: Plenum.
- de Grip, A. (2015). *The importance of informal learning at work*. IZA World of Labor.
<https://doi.org/10.15185/izawol.162>
- Eraut, M. (2004). *Informal learning in the workplace. Studies in continuing education*, Vol. 26, No 2, pp. 247-273.
<https://doi.org/10.1080/158037042000225245>
- Estevez-Abe, M.; Iversen, T. and Soskice, D. (2001). *Social protection and the formation of skills. varieties of capitalism: the institutional foundations of comparative advantage*, pp. 145-183. <http://eprints.lse.ac.uk/9055/>
- Eurofound (2015). *Third European company survey - Overview report: workplace practices: patterns, performance and well-being*. Luxembourg: Publications Office.
https://www.eurofound.europa.eu/sites/default/files/ef_publication/field_ef_document/ef1502en_0.pdf
- Eurofound and Cedefop (2020). *European company survey 2019: workplace practices unlocking employee potential*. Luxembourg: Publications Office. European company survey 2019 series.
https://www.eurofound.europa.eu/sites/default/files/ef_publication/field_ef_document/ef20001en.pdf
- European Commission (2015). *Employment and social developments in Europe 2014*. Directorate-General for Employment, Social Affairs and Inclusion (Employment and Social Developments in Europe. Luxembourg: Publications Office of the European Union. <https://doi.org/10.2767/33738>
- Felstead, A.; Jewson, N. and Walters, S. (2003). *The changing place of work. ESRC Future of work programme*, Vol. 28, No 28, pp. 44-44.
- Fuller, A. et al. (2005). Learning as peripheral participation in communities of practice: A reassessment of key concepts in workplace learning. *British Educational Research Journal*, Vol. 31, No 1, pp. 49-68.
<https://doi.org/10.1080/0141192052000310029>
- Fuller, A.; Munro, A. and Rainbird, H. (2004). *Workplace learning in context*. pp. 1-314. <https://doi.org/10.4324/9780203571644>
- Fuller, A. and Unwin, L. (2003). Fostering workplace learning: looking through the lens of apprenticeship. *European Educational Research Journal*, Vol. 2, No 1, pp. 41-55. <https://doi.org/10.2304/eeerj.2003.2.1.9>
- Gerhart, B. and Fang, M. (2014). Pay, intrinsic motivation, extrinsic motivation, performance, and creativity in the workplace: revisiting long-held beliefs.

- Annual Review of Organizational Psychology and Organizational Behavior*. Vol. 2, pp. 489-521.
<https://www.annualreviews.org/doi/10.1146/annurev-orgpsych-032414-111418>
- Grant, A. M.; Christianson, M. K. and Price, R. H. (2007). Happiness, health, or relationships? Managerial practices and employee well-being trade-offs. *Academy of Management Perspectives*, Vol. 21, No 3, pp. 51-63.
<https://doi.org/10.5465/AMP.2007.26421238>
- Hager, P. and Halliday, J. (2007). *Recovering Informal Learning: Wisdom, Judgement and Community*. Vol. 7, Springer Netherlands.
<https://doi.org/10.1007/1-4020-5346-0>
- Harvard Business Review (2019). *HBR guide to motivating people*. Harvard Business Review.
- Henson, K. D.; Felstead, A. and Jewson, N. (2002). In work, at home: towards an understanding of homeworking. *Contemporary Sociology*, Vol. 31, No 1, pp. 34-34. <https://doi.org/10.2307/3089407>
- Hicks, E. et al. (2007). Canadian accountants: examining workplace learning. *Journal of Workplace Learning*, Vol. 19, No 2, pp. 61-77.
<https://doi.org/10.1108/13665620710728457>
- Illeris, K. (2003). Workplace learning and learning theory. *Journal of Workplace Learning*, Vol. 15, No 4, pp. 167-178.
<https://doi.org/10.1108/13665620310474615>
- Kankaraš, M.; Feron, E. and Renbarger, R. (2019). *Assessing students' social and emotional skills through triangulation of assessment methods*. Paris: OECD Publishing. OECD Education working papers, No 208.
<https://doi.org/10.1787/717ad7f2-en>
- Manuti, A. et al. (2015). Formal and informal learning in the workplace: a research review. *International Journal of Training and Development*, Vol. 19, No 1, pp. 1-17. <https://doi.org/10.1111/ijtd.12044>
- Marsick, V. J. and Watkins, K. E. (2001). Informal and incidental learning. *New directions for adult and continuing education*, Vol. 2001, No 89, pp. 25-34.
<https://doi.org/10.1002/ace.5>
- Matthews, P. (1999). Workplace learning: developing an holistic model. *The Learning Organization*, Vol. 6, No 1, pp. 18-29.
<https://doi.org/10.1108/09696479910255684>
- Mishra, K.; Boynton, L. and Mishra, A. (2014). Driving employee engagement: the expanded role of internal communications. *International Journal of Business Communication*. Vol. 51, pp. 183-202.
<https://doi.org/10.1177/2329488414525399>
- OECD (2010). *Recognising non-formal and informal learning: pointers for policy development*.
<https://www.oecd.org/education/skills-beyond-school/45138863.pdf>

- Orlitzky, M. and Frenkel, S. J. (2005). Alternative pathways to high-performance workplaces. *International Journal of Human Resource Management*, Vol. 16, No 8, pp. 1325-1348. <https://doi.org/10.1080/09585190500220176>
- Paauwe, J. (2009). HRM and performance: achievements, methodological issues and prospects. *Journal of Management Studies*, Vol. 46, No 1, pp. 129-142. <https://doi.org/10.1111/j.1467-6486.2008.00809.x>
- Porter, M. E. (1980). *Competitive strategy: techniques for analyzing industries and competitors*. New York: Free Press.
- Rintala, H.; Nokelainen, P. and Pylväs, L. (2018). Informal workplace learning: turning the workplace into a learning site. In McGrath, S. et al (eds). *Handbook of Vocational education and training*, pp. 1-4. Springer. <https://dialnet.unirioja.es/servlet/articulo?codigo=7100664>
- Ryan, R. M. and Deci, E. L. (2017). *Self-determination theory: basic psychological needs in motivation, development, and wellness*. Guilford Press.
- Schuler, R. S. and Jackson, S. E. (2011). Linking Competitive Strategies with Human Resource Management Practices. *Academy of Management Executive*, Vol. 1, No, pp. 207-219. <https://doi.org/10.5465/ame.1987.4275740>
- Smith, P. J. (2003). Workplace learning and flexible delivery. *Review of educational research*, Vol. 73, No 1, pp. 53-88. <https://doi.org/10.3102/00346543073001053>
- Thelen, K. (2004). *How institutions evolve: the political economy of skills in Germany, Britain, the United States and Japan*. Cambridge University Press. <https://doi.org/10.1017/CBO9780511790997>
- Tynjälä, P. (2008). Perspectives into learning at the workplace. *Educational research review*. Vol. 3, No 2, pp. 130-154. <https://doi.org/10.1016/j.edurev.2007.12.001>
- Tynjälä, P. (2013). Toward a 3-P model of workplace learning: a literature review. *Vocations and Learning*, Vol. 6, No 1, pp. 11-36. <https://doi.org/10.1007/s12186-012-9091-z>
- Usher, R. and Solomon, N. (1999). Experiential learning and the shaping of subjectivity in the workplace. *Studies in the Education of Adults*, Vol. 31, No 2, pp. 155-163. <https://doi.org/10.1080/02660830.1999.11661409>
- Van De Voorde, K.; Paauwe, J. and Van Veldhoven, M. (2012). Employee well-being and the HRM-organizational performance relationship: a review of quantitative studies. *International Journal of Management Reviews*, Vol. 14, No 4, pp. 391-407. <https://doi.org/10.1111/j.1468-2370.2011.00322.x>
- Warhurst, C. and Findlay, P. (2012). *More effective skills utilisation: shifting the terrain of skills policy in Scotland*. SKOPE Research Paper No 107, pp. 1-30. https://www.researchgate.net/publication/267381449_More_Effective_Skills_Utilisation_Shifting_the_Terrain_of_Skills_Policy_in_Scotland

- Warhurst, C. and Luchinskaya, D. (2018). *Skills utilisation: definition, theories, approaches and measures*. Working Paper. Dublin: Eurofound. <http://wrap.warwick.ac.uk/112554>
- Winch, A. and Ingram, H. (2002). Re-defining the focus of workplace learning. International. *Journal of Contemporary Hospitality Management*, Vol. 14, No 7, pp. 361-367. <https://doi.org/10.1108/09596110210440666>

Annex

Data preparation process

ECS 2019 contains hundreds of variables describing various aspects of establishments. We made use of factor analysis to identify groups of variables that were measuring the same latent construct, which was then used in subsequent analyses as independent variables.

In many cases, these were sets of questions about the same topic. For example, three questions on company innovativeness asked managers to report if their company has recently introduced new products, processes, or marketing methods. Factor analysis of these three questions revealed one distinct common factor that accounts for almost two-thirds of the variation found in responses in these three questions. Given the content of these questions, we assumed that this new composite index represented the degree of company innovativeness and used it in subsequent analyses. In some other cases, questions about slightly different workplace practices are found to correspond with one another. Theoretical expectations drove our initial grouping of variables in these composite indices: by knowledge of what aspect of organisational practices a given question was trying to measure and with what other questions it should correspond. However, once groups of aligned questions are analysed, those questions that were not found to be related to other variables through relationship with a common latent factor were excluded from the resulting composite index.

Apart from using principal component analyses to create several composite indices, we have also derived a number of variables from original variables in the ECS 2019 dataset. This is because respondents could either give the exact number of employees or a percentage category for some questions. These questions were then compiled into one composite variable by converting numbers to percentage categories. These composite variables were denoted with suffix “_d”

Employee wellbeing

We derived a standardised continuous variable for employee well-being, representing a composite index of various aspects of this construct. We used variables assessing issues with employee absenteeism (SICKLEAVE), perceived low motivation of employees (LOWMOT), difficulties with retention of employees (RETAINEMP) and the perceived quality of relationships between management and employees (QWPREL). The composite index was calculated using exploratory factor analysis. The resulting index of employee wellbeing is a standardised

variable with a mean zero and standard deviation of 1 when weighted across the EU-27 countries.

Company performance

The composite index indicating company performance was extracted through factor analysis using information from the following four variables:

- (a) financial results for 2018 (PROFIT_r; derived from PROFIT by excluding not-for-profit organisations);
- (b) change in employment since 2016 (CHEMP);
- (c) change in the volume of production or service provision since 2016 (PRODVOL);
- (d) the expected changes in employment levels in the 3 years after the survey (CHEMPFUT).

Product market strategy

Responding managers were asked to rank four product market strategies in order of importance for their establishment. Their answers were collapsed into a single variable with five categories, indicating which one of the four strategies were ranked as most important or, when the respondent had put two or more strategies at the top of the ranking, that there was no dominant strategy.

Learning demand

We constructed a composite index using results of the factor analysis of following variables:

- (a) frequency of change in skill demands at work (SKILLCH);
- (b) number of employees at jobs that require continuous training (CONTR_d);
- (c) number of new recruits that need further training (HIRREADY_d).

These three indicators were inter-correlated and have thus led to extraction of one common factor, which we interpreted as overall indication of learning or skill development demand.

Skill mismatch

Variables SKILLMATCH, UNDERSKILL, and OVERSKILL are used as indices of skill (mis)match, after all cases for which the sum of the three proportions was smaller than 90% and larger than 110% are excluded.

Innovation

The variable summarising innovative activity of the establishments was derived through factor analysis of the three variables that were asking managers if the establishment recently introduced a new product (INNOPROD), process

(INNOPROC) or marketing (INNOMARK). The resulting composite index was thus used as a general indicator of the establishment's innovativeness.

Extrinsic motivation

We used factor analysis to calculate an overall index of extrinsic motivation using the following four variables indicating percentage of employees using variable pay schemes based on:

- (a) payment by results (VBPRES_d);
- (b) payment by individual performance (VPINPER_d);
- (c) payment by team performance (VPGRPE_d);
- (d) payment by company performance (VPPRSH_d).

We also used the variable providing the information on the frequency of use of monetary rewards to motivate and retain employees (MOTIMON).

Direct communication with management

We used factor analysis to construct a composite index of communication quality using the respondent answers to questions on whether following communication practices were used at the establishment:

- (a) meetings with immediate managers (REGMEE);
- (b) meetings open to all employees (STAFFME);
- (c) dissemination through newsletters, notice boards, etc. (DISSINF);
- (d) discussion in social media (SOMEDI);
- (e) use of suggestion schemes (SUGGS).

Employee influence on decisions

Using factor analysis, a composite index is created to indicate the degree of influence employees have on management decisions. Managers were asked to what extent employees directly influenced management decisions with regard to the organisation and efficiency of work processes (MMEPINORG), dismissals (MMEPINDISM), training and skills development (MMEPINTRAIN), working time arrangements (MMEPINTIME) and payment schemes (MMEPINPAY). Due to the relatively high volume of missing data in some of the five variables (in several establishments, no decisions had been taken in some areas), we used the technique of multiple imputation.

Encouraging employee engagement

A set of questions in the management questionnaire of the ECS 2019 was asking respondents if the management was taking certain discretionary behaviours of employees into account in the process of their performance evaluations. In

particular, managers were reporting if the following behaviours were considered in order for employees to be evaluated positively:

- (a) helping colleagues without being asked (DISCHELP);
- (b) staying longer hours when needed (DISCHOURS);
- (c) making suggestions for improvement (DISCSUGG).

Factor analysis of these items resulted in one composite index summarising the degree to which management is encouraging employee engagement and discretionary effort.

Importance of training

Managers in establishments that provided some type of training were asked about the importance of four reasons to provide training: ensuring that employees have the skills they need for their current job (TRSKI); allowing employees to acquire skills they need to do a job other than their current job, for instance, to allow for job rotation or career advancement (TRFLEX); increasing the capacity of employees to articulate ideas about improvements to the establishment (TRINN); and improving employee morale (TRMOT). Using factor analysis, we constructed a composite index of these four variables as an indicator of the perceived importance of employee training by the establishment's management.

Job autonomy

We constructed an index of job autonomy by factor analysing the following four variables:

- (a) percentage of employees who have the possibility to work independently organising their time and task schedule [COMORG_d];
- (b) managers allow employees to carry out their tasks autonomously [SUPCHECK];
- (c) employees work in teams where team members (and not supervisors) decide on the distribution of tasks within the team [TAUTON];
- (d) percentage of employees who have the possibility to solve problems on their own [COMPPROB_d].

Formal and non-formal learning opportunities

We compiled information on training programmes and used factor analysis to create a composite index indicating the extent of the presence of formal learning opportunities. The index was created using the following variables:

- (a) percentage of employees participating in the paid training programmes [PAIDTRAIN_d];
- (b) percentage of employees who received on-the-job training [ONJOB_d];

- (c) whether workload and work schedule are adjusted to accommodate the employee's participation in formal training programmes [WPSUPP].

Informal learning opportunities/stimulating learning environment

We also constructed an index that captures a stimulating learning environment and informal learning opportunities available to the employees. This index was constructed from the following variables:

- (a) how often are employees provided interesting and stimulating work [MOTICHAL];
- (b) how often are employees provided opportunities for learning and development [MOTILEARN];
- (c) how often are employees communicated a strong mission, providing meaning to their work [MOTIMIS];
- (d) percentage of employees with limited opportunities to learn new things [LEARNNONEED_d].

WORKPLACE LEARNING: DETERMINANTS AND CONSEQUENCES

Insights from the 2019 European company survey

6207 EN - TI-BA-21-006-EN-N - doi:10.2801/111971

Workplace learning is a critical tool for both employees and organisations in their continuing adjustment to several global trends reshaping our workplaces, economies, and societies. This study uses the newly published data from the fourth round of the European company survey (ECS 2019) to examine key drivers and consequences of workplace learning. It shows that EU companies have several distinct workplace learning environments that differ greatly in their conduciveness to workplace learning. Findings also show that managers' perceptions of the value of workplace learning and the level of skill demand are some of the key determinants of the scope of learning opportunities. Workplace learning is found to be the most important predictor of employee wellbeing and one of the strongest correlates of company performance. Results also show that most EU companies are still not offering optimal learning environments and opportunities to their workers, a situation that hurts both employees and companies.



CEDEFOP

European Centre for the Development
of Vocational Training

Europe 123, Thessaloniki (Pylea), GREECE
Postal: Cedefop service post, 570 01 Themi, GREECE
Tel. +30 2310490111, Fax +30 2310490020
Email: info@cedefop.europa.eu

www.cedefop.europa.eu



Publications Office
of the European Union

