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INFORMAL LEARNING IN PORTUGUESE COMPANIES:
THE MANAGERS' PERCEPTIONS

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Abstract

Regardless of the advances that technology and instructional design have brought, there is lack of information regarding an emergent topic of the 21stcentury business: informal learning. Academic research does not fully cover its state, and much less considers the Portuguese reality. Following this line of reasoning, the purpose of this dissertation is to address informal learning, withdrawing and clarify "How managers in companies operating in Portugal face informal learning".

The study follows a qualitative method, with a content analysis of eleven interviews to managers from companies of diverse industries. The main results are presented in the form of four streams of analysis: *concept, antecedents, organizational supporting methods and outcomes*.

The findings show that, more than a modality of training, informal learning is a journey which shapes knowledge, through a combination of diversified learning tools and experiences. Results highlight that managers are aware of its importance and are giving way to disruptive pedagogical events in their respective companies, to ensure that employees *reflect* on their own learning needs, access key *organizational resources* and rely on *peer-to-peer interaction* to expand their knowledge. The results suggest that informal learning boosts communication and increases motivation and engagement level, contributing to improved organizational performance.

The study finalizes with guidelines to reshape and complement traditional formal training programs, established in most organizations. These practical implications delineate a structure and advocate informal learning, delving into its design.

Resumo

Apesar dos avanços tecnológicos e da engenharia pedagógica tornaram possíveis, existe pouca informação relativamente a um tema emergente do contexto empresarial do século XXI: aprendizagem informal. A investigação académica não aborda por completo o seu estado de arte, e tampouco a realidade portuguesa. Assim, o propósito desta é abordar o tema da aprendizagem informal e clarificar «Como é que os gestores nas empresas a operar em Portugal encaram a aprendizagem informal».

Este estudo segue o método qualitativo, com a análise de conteúdo de onze entrevistas a gestores, de empresas a operar em indústrias diversas. Os resultados principais são apresentados na forma de quatro linhas de análise: *conceito, antecedentes, métodos organizacionais de apoio e consequências.*

Os resultados demonstram que, mais do que uma modalidade de formação, a aprendizagem informal é uma jornada que reconfigura a aprendizagem, através da combinação de diversas técnicas e experiências de aprendizagem. Os resultados destacam que os gestores estão cientes da importância desta vertente da aprendizagem e estão a abrir caminho a eventos pedagógicos disruptivos, que asseguram que os colaboradores *refletem* acerca das suas necessidades de aprendizagem, acedem a *recursos organizacionais* chave e contam com a *interação com os pares* para alargar o seu conhecimento. Os resultados sugerem que a aprendizagem informal acelera a comunicação, aumenta a motivação e o nível de comprometimento, contribuindo para a melhoria do desempenho organizacional.

O estudo conclui com linhas guia para moldar e complementar os programas tradicionais de aprendizagem formal, estabelecidos na maioria das empresas. Estas implicações práticas visam delinear uma estrutura e suportar a aprendizagem informal, investigando a sua conceção.

Palavras-chave: Formação, Desenvolvimento de recursos humanos, Aprendizagem informal, Formação em contexto de trabalho

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Workers learn more in the coffee room than in the classroom.
Jay Cross, 2007

Introduction

The work environment has drastically changed to a more complex and fast-paced change stage, in which organizational learning plays a major role. Several influence factors have contributed to this shift in the organizational landscape: workload demands, time, globalization and budget limitations, to name a few. For these reasons, learning means being able to adapt and to react faster to change, so that organizations can keep up with the new processes that surface in this ever-competitive marketplace. Hence, the work context has turned into an open-book test, accelerated by new technologies and connectivity. To meet the challenges inherent to the 21st-century, employees need to learn faster through various sources of information. Often, they do not discover how to perform their work in a classroom setting but rather on-the-job. Jay Cross (2007), as a major champion of the concept of informal learning, outlined learning as an iceberg, defending that formal courses were just its tip.

Back in 2008, a study conducted by the American Society for Training & Development estimated that informal learning accounts for up to 75% of the learning within organizations (Bear *et al*., 2008). Despite this fact, a huge amount of the training budget still goes to formal programs. Informal learning corresponds to a continuous type of learning, which includes cognitive activities and behaviours, drawn upon three main categories: learning through oneself, learning through others and from non-relational sources (Noe *et al*., 2014; Laat, 2014).

Informal learning, by its very nature, is difficult to comprehend and, likewise, hard to manage. Therefore, harnessing its potential and gaining insight on how to best design it is essential. Executives do not worry about learning but they ask for performance. Thus, it can be seen a key business element to enhance performance (Bear *et al*., 2008; Noe, 2015; Tannenbaum, 2009).

Informal learning highlights the urgency of enhancing professional development and delivering a refreshed strategy to training specialists. Researchers on the topic have uncovered some of its key constitutional components: learning from one self, learning through peers and supervisors and learning from no interpersonal sources (Noe *et al*., 2014; Laat, 2014).

Literature on the matter further highlights that studies are needed, so that companies become more aware of the informal learning benefits. It is evident that training departments provide inputs and programs, but once employees attain a certain level of expertise, they cannot

rely on that separate function to keep their skills up to date. The work standards are constantly being readjusted by employers, clients and the market, which leads employees to take control of and engage in self-learning, to respond to emergent demands.

This way, the purpose of this study is to gain insight on the managers' perception of informal learning. The study is divided in two main parts. Chapter one refers to the literature review regarding organizational training and development, the informal learning's state of the art and to the research question. The second chapter presents the investigation specific objectives, taking the form of four different streams of analysis and includes the methodological procedures and the results of the study. Finally, the results' theoretical and practical implications are discussed.

Chapter I: Informal learning in the field of human capital development

1.1. **Training and development**

Nowadays, training and development is an indisputable key lever for organizations striving to address the challenges of the environment and survive the fierce competition of the labour market. This market is characterized by economic challenges, such as uncertainty about growth and the need to address globalized customer needs as well as satisfy several stakeholders. Also, as technology is now easily accessible and leveraged, it challenges employees to decide the keenest way to use mobile computing and social media in the workplace, which deliver undeniable connectivity and immediate access to massive information. Moreover, organizations also face labour market challenges to their competitiveness, marked by shifts in the employees' expectations, increased workforce diversity and indecision about how to best manage these various skills and talent (Kozlowski and Salas, 2009; Noe et al., 2014).

As such, to face all these challenges inherent in 21st-century work, organizations effort to turn them into a competitive advantage through its business strategy. Human capital is considered, according to the resource-based view theory, as a valuable resource that potentially helps organizations build this sustainable competitive advantage. Thus, in order to support the human capital contribution to that goal, authors claim that it is essential to rely on employees' training and development, as recent careers are requiring employees to continually update their know-how, abilities and skills. Therefore, training and development is considered as a strategic human resource practice once it is horizontally aligned within the specific set of human resources policies and vertically aligned, which means it is consistent with the specific business goals (Chen and Klimoski, 2007; Noe et al., 2014).

Training and development is an area of substantial interest for different research fields, namely those of human resource management, organizational psychology, labour economics and industrial relations. Training and development is defined by these approaches as an ongoing acquisition of knowledge, skills and attitudes required by employees to perform a certain task or job effectively and, ultimately, leverage the learning of job-related behaviour. Over the years, investigations from all these four major approaches have been conducted concerning, at first, in the early 90s, simplistic theoretical research. More recently, research that aims to explain learning processes and understand individual differences, effects of training interventions and their interaction (Kozlowski and Salas, 2009).

The traditional instructional system design model proposes a systematic step by step approach for training and development, composed by a five-stage process, that should logically progress from needs assessment, to design or development of instructional objectives, to the delivery/implementation, transfer and then evaluation (Noe *et al.*, 2014; Salas *et al*, 2012; Tharenou, 2009). The events which take place before training shape the extent to which it is transferred to the job and, therefore, highly impacts on its effectiveness. On the other hand, after-training events, namely ensuring training transfer, are crucial to understand if training improves performance. Traditionally, research mainly focused on the training design and delivery's stage, but it is possible to notice a clear shift in research towards what happens after training, with a particular emphasis on training transfer (Tharenou, 2010). In fact, the effectiveness of training is only demonstrated when and if knowledge and skills acquired are used on the job.

Nevertheless, the prevalent instructional system design (ISD) model requires further adaptation to fit the recent importance given to person-focused, despite instructor-focused learning processes. Noe *et al.* (2014), underline that this has special relevance in technology-based types of learning. Also, this adaptation resulted in the evolution of learning design and strengthened the research spectrum over the years. Models such as the active-learning and third-generation learning models were established as a result. The blend of the implications of both active-learning (or second-generation) and third-generation models highlight that (a) knowledge is socially built centred on instructor-learner and learner-learner interactions, (b) learning design should allow learner to actively participate and be socially embedded with other learners and the instructor, (c) there is a need to give the learner the opportunity to decide what to learn, (d) implement instructional strategies to stimulate co-operative learning. These implications are of upmost significance, as they place emphasis on knowledge sharing and that is one way that literature strongly supports for effective human capital enhancement through informal learning (Wang and Noe, 2009; Noe *et al.*, 2014).

1.2. Knowledge sharing as a key feature of training

Knowledge is a critical resource and it is a key feature of training and development, that helps organizations achieve a sustainable competitive advantage. However, it is not enough to rely on training systems that merely emphasize selecting workers with a particular set of knowledge, skills, abilities and other characteristics (KSAO) or helping them to attain them. There is a need to

consider how to transfer expertise and knowledge from seniors who have it to apprentices who need it. Trained competences frequently do not transfer to the job, which appears to reveal a transfer problem (Salas *et al,* 2014). Knowledge sharing is one way of addressing this issue, as it incentives employees to collaborate, help others to solve problems, implement policies and develop ideas by facilitating task information and know-how (Wang and Noe, 2009; Noe *et al.*, 2014).

Knowledge sharing can occur either face-to-face or using technology. Moreover, it may also happen indirectly through documenting, planning activities or interacting with others. It allows the organization's utilization of existing knowledge resources and it ultimately contributes to cost reduction, boosting of new product development and innovation capabilities as well as enhancement of sales growth. Different levels of analysis of knowledge sharing can be considered, namely the role of the corporate culture, inter-unit knowledge flow or individual variables in knowledge sharing. Investigations on the topic aim to disrupt former traditional forms and designs of learning, give space to reconsider new workplace trends and rethink learning processes (Wang and Noe, 2009). Jobs are gradually becoming more complex and the technological advances are defying traditional classroom training (Noe *et al.*, 2014).

In this context of thinking differently about learning, when research seems to be pointing towards the need to broader its perspective after years of focus on formalized training programs alone, informal learning emerges as a relevant literature issue (Chen and Klimoski, 2007; Noe *et al.*, 2014; Salas *et al*., 2012).

1.3. Informal learning definition and drive

It is becoming increasingly more evident that learning does not happen in formal training programs alone, but rather in the workplace context. Knowledge rooted in the work (i.e., tacit knowledge) can be best attained through employee's active participation in the workplace (Bear *et al*., 2008). This seems to be challenging the traditional top-down approach towards the competences development of employees, in which senior managers are responsible for determining the employee's learning needs (Bednall *et al.*, 2012). Along with the organizations' need for flexibility and creativity, the employees' active participation in the workplace has become a major drive for studies conducted on informal learning, as it mainly occurs through social interaction and peer-relations in the work place settings (Cross, 2007; Jeske and Roßnagel, 2016; Park and Choi, 2016).
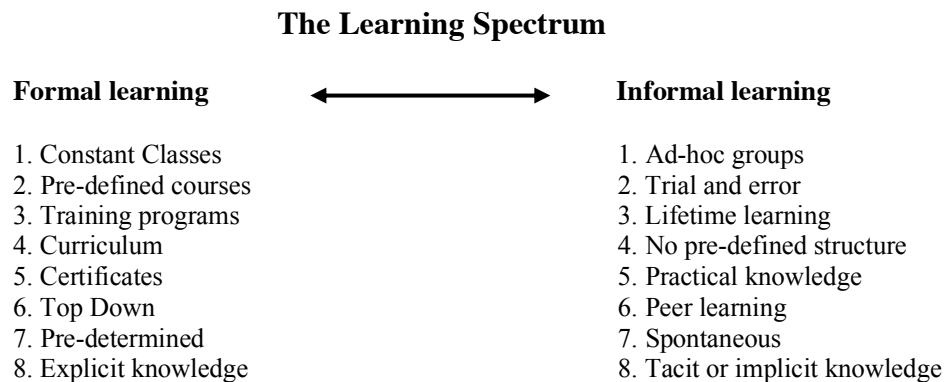
There is still no complete agreement regarding the definition of informal learning. The term's origins go back to the late 19ᵗʰ early 20ᵗʰ century, when the American John Dewey claimed that informal education was the foundation of all the formal education (Bancheva and Ivanova, 2015). Later, Coombs and Ahmed (1974:8) described informal education as "(…) the lifelong process by which every individual acquires and accumulates knowledge, skills, attitudes and insights from daily experiences and exposure to the environment – at home, at work, at play: from the example and attitude of families and friends; from travel, reading newspapers and books; or by listening to the radio or viewing films or television. Generally informal education is unorganized, unsystematic and even unintentional at times, yet accounts for the great bulk of any person's total lifetime learning – including that of a highly 'schooled' person". Years later, Marsick and Watkins (2001) have proposed that informal learning can be stimulated and intentionally encouraged by organizations.

Informal learning is used as term to describe a type of learning that is not formal nor non-formal, as it occurs somewhere other than the classroom and formal education systems (Noe *et al.*, 2014; Salas *et al.*, 2012; Schreurs and Laat, 2014). Informal learning is not systematized, yet many emergent studies support that it can surely be planned and structured in organizations. In fact, researchers who made a distinction between incidental and informal types of learning enlightened that the key difference lies on the structure (Jeon and Kim, 2012).

Informal learning is generally defined as on-the-job learning, often referring to a cooperative action, which is characterized by contextual reasoning. It was shown to happen when employees willingly participate in formal training programs and when they are part of a team (Lukosch and Vries, 2009; Tews *et al*, 2017). Despite lack of agreement on how to best describe informal learning, most authors include it as a part of continuous learning, knowledge sharing, feedback seeking and experimentation, classifying it as a volitional behaviour (i.e. self-regulated by the employee). It is learner-initiated and controlled, through individual's cognitive thinking. Moreover, informal learning can be organized according to three different clusters: learning from self-reflection (i.e., learning from oneself and by experimenting new ways of performing), learning from others at work (i.e., learning through the social context and relationships between co-workers) or learning from nonrelation resources, such as reading publications and searching useful information online (Cross, 2007; Noe *et al.*, 2017; Tannenbaum *et al*, 2009).

Over 50% of the training budget goes to formalized learning in organizations, but this may be an overinvestment, as estimations show that informal learning corresponds to 70% to 75% of the learning within organizations (Bear *et al.*, 2008; Noe *et al.*, 2014). This means that informal learning corresponds to most of the learning that happens in organizations. A study conducted by Tannenbaum in seven different organizations showed that employees attributed less than 10% of their personal development to formal training (Tannenbaum *et al*, 2009). A major factor contributing to the highest investment on formal learning is its reputation and extensive research backing. Therefore, there is a need to develop mechanisms and tools that support informal learning and foster more informal learning processes in organizations. These mechanisms should offer flexibility so that it is possible to measure the effects of trainings, create and reuse knowledge, thus overcoming the shortcomings of informal learning (Lukosch and Vries, 2009).

Nevertheless, it is important to note that learning is not strictly segregated between formal and informal as these activities are connected. Separating between informal and formal learning is not productive but rather finding the balance between formality and informality given a company's specific resources and learning requirements. Moreover, research supports that learning can be reinforced if employees use a continuum of learning opportunities, which will allow employees to overcome challenges they face at their work context (Jeske and Roßnagel, 2016; Noe *et al.*, 2014). According to Lukosch and Vries (2009), learning is a spectrum of opportunities, ranging from formal learning, taken place in a more traditional classroom oriented context, and informal learning, based on social activities, which include a bundle of actions that support continuous learning. The figure below illustrates the learning spectrum perspective defended by the authors.

The Learning Spectrum

Formal learning		Informal learning
1. Constant Classes	←———————→	1. Ad-hoc groups
2. Pre-defined courses		2. Trial and error
3. Training programs		3. Lifetime learning
4. Curriculum		4. No pre-defined structure
5. Certificates		5. Practical knowledge
6. Top Down		6. Peer learning
7. Pre-determined		7. Spontaneous
8. Explicit knowledge		8. Tacit or implicit knowledge

Figure 1 Learning spectrum (Lukosch & Vries, 2009)

1.4. **Constraints on informal learning**

Social interactions, namely relationships among co-workers, are one fundamental source of informal learning (Le Clus, 2017). Occasions for informal learning come from the social context, evidencing that employees who are willing to share knowledge and facilitate the learning of new co-workers, help creating productive and participatory opportunities (Noe *et al,* 2014). Still, the workplace is a complex system, evidencing constant learning co-regulations among workers. This said, social interactions and participation have both the power of creating opportunities for informal learning as well as the likelihood of constraining it. Employees need time to build trust and senior or more experienced employees are not always willing to give in too much information to new co-workers (Le Clus, 2017). One reason for this is the fear of losing their current position in the company, especially if the management's decision of hiring someone else to do a similar job is not clarified or understood by these senior workers. As such, the study provided a different perspective on informal learning and acknowledged that this practice can be misunderstood and even threaten senior workers' job security, if not clearly structured or strategically inserted in an organization's culture (Le Clus, 2017). Along with this, a Canadian case study on informal learning, also indicated that workers may resist sharing work-related informal learning if they foresee an unfavourable response from management and/or colleagues or anticipate a negative effect on labour relations (Wihak *et al*, 2010).

Studying informal learning may be difficult when compared to the formal one (Bear *et al*., 2008). On one hand, the concept itself is difficult to delineate and there is not a complete literature agreement regarding its definition. Yet, as previously mentioned, it is indisputably related to concepts such as continuous learning, self-directed learning, experiential learning and action learning. On the other hand, its study is constrained due to the essence and predictability of informal learning. This type of learning is generic and may not be perceived as learning itself by organizations. Another constraint factor for informal learning relates to its complete dependence on the learner's motivation and willingness. The learning experience is arranged individually, fully planned and managed by the learner. The trainer or coach, in this case, does not have responsibility for the learning outcomes. Thus, given that informal learning activities are driven by the employee, organizations face the challenge of finding the best way to support informal learning to enhance performance (Bednall *et al*., 2012). Moreover, informal learning might be regarded as a side effect of the work itself or as a way to do the job well and, therefore, it may simply be perceived as "part

of the job". All these factors make the study of informal learning rather challenging and seem to be pointing towards the need for further clarification (Lukosch and Vries, 2009; Tannenbaum *et al*, 2009).

Finally, considering the non-relational component of informal learning, it is clear the role that technology assumes in professional development. Informal learning via social networks has climbed the ladder of training and development, due to the increased information shared online. However, the introduction of collaborative applications, which allow spreading and centralizing information, also brings a financial challenge to the table. Learning technology solutions, which are a key method to boost informal learning, also represent a big investment for business leaders (Dennen and Myers, 2012).

Companies that have supported informal learning displayed its strategical role to research and development teams, composed of very well-educates professionals. Informal learning resources and fundamental practices include access to documentation, mechanism for information and support of participation in specialized external networks (Wihak *et al*, 2010). Aside from studies attempting to support informal learning implementation, as an important step, it is fundamental to understand its antecedents or triggering key factors and lastly, its actual effects and consequences for organizations.

1.5. **Dynamic model of informal learning**

Tannenbaum *et al* (2009) present the dynamic model of informal learning, giving a broad perspective on the antecedents of informal learning and the synergy among those different factors and components. It is a comprehensive overview and representation of informal learning, through means of a model.
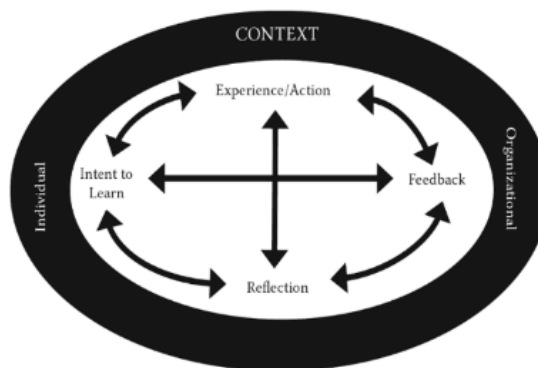
Figure 2 Dynamic model of informal learning (Tannenbaum et al., 2009)

As illustrated in figure 2, the model is composed by four key informal learning features that, when combined within a broader organizational and individual context, encourage or impede the informal learning process. Individuals can get involved in the informal learning process at any point and experience the components in a different order and/or more than once. Nevertheless, the authors defend that informal learning is most effective when all components are included and the lack of a specific component affects the informal learning dynamic differently. The synergy established among the components varies according to the employees' own work events and self-assessed needs, regarding the components of the model.

The authors underline that the workers' self-awareness of their learning needs and the development of the intent to learn must occur as to not compromise the effectiveness of the remaining components. This reinforces the importance of the worker's control of their own learning and is also in line with Marsick and Watkins (2001), as the model suggests that supervisors can help employees to identify their needs, namely through feedback.

This model is split between organizational and individual influence factors of informal learning. Organizational or situational factors considered influential for informal learning in this model are climate, learning opportunities, time, support and enablers, which are tools and processes (Tannenbaum *et al*., 2009). On the other hand, the individual factors that also take part in influencing the effectiveness of informal learning are learner motivation, personality characteristics, self-awareness, feedback orientation and self-efficacy. Taking the dichotomy influence factors presented by these authors, the next section will address the organizational and individual antecedents of informal learning, considering more specific studies om each antecedent of informal leaning.

1.6. **Antecedents of informal learning**

In line with Tannenbaum *et al* (2009), Jeon and Kim (2012) support that organizational practices and systems are a key fundamental antecedent of learning in the workplace. Particularly, a learning oriented leadership, combined with a learning culture, motivating an open-minded learning attitude, and sufficient financial resources, are crucial organizational factors to promote or discourage workplace learning. Moreover, the set of tasks, its routine and complexity are also significant enablers of learning opportunities. Jeon and Kim (2012) study depicted the relationship

between organizational and task factors and the effectiveness of informal learning[1]. The results suggested a positive relationship between open communication in an organization and top management leadership in human resource development and the effectiveness of informal learning. Moreover, it was shown that there is a positive relationship between three task forces with informal learning effectiveness: frequency of new task situations as task characteristics, satisfaction with the task itself and utility of knowledge and skills obtained from a task. Another main result of the study was that challenging and new tasks as opposed to routinized and repeated tasks, enhance the effectiveness of informal learning. Companies' challenges, particularly those related to job tasks, correspond to a key trigger and stimulant for informal learning to occur (Jeon and Kim, 2012; Noe *et al.*, 2014; Salas *et al.*, 2012; Wihak *et al.*, 2010).

Work context factors may act as moderators of informal learning, drawing upon the trait activation theory, which posits that certain situational cues lead individuals to express (i.e, activate) their traits. Specifically, job autonomy and training climate influence the effect of individuals' goal orientation on informal learning, which is highly supported in the informal learning literature (Noe *et al.*, 2017). As such, in the presence of a supportive organizational learning climate, *learning-goal oriented* managers[2] are more likely to engage in informal learning. In contrast, training climate does not act as a moderator of the relationship between *prove goal orientation[3]* and informal learning. Along with this, in the presence of a learning climate, managers with higher level of *avoid goal orientation[4]* engage in informal learning, as they prefer discrete cognitive learning contexts such as self-reflection, in spite of formalized learning contexts. Nevertheless, a positive learning climate was pointed as a crucial work context factor to foster both *learning" goal oriented* and *avoid goal-oriented* managers to engage in informal learning. This finding is in line with previous literature on the importance of knowledge sharing, learning through errors and experimentation for informal learning (Wang and Noe, 2009; Noe *et al.*, 2014; Noe *et al.*, 2017).

Another organizational antecedent of informal learning recently covered by literature is promotion of fun by Tews *et al* (2017). Fun delivery of instruction was positively related to learner

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[1] Effectiveness of informal learning refers, in this case, to the extent to which learning through peer interaction or self-learning through own tasks affect the job competencies development.
[2] Managers who are more predisposed to grow and develop their competences and acquire knowledge.
[3] Demonstration of one's competences.
[4] Avoidance of negative capability judgements from others at work and effort in not seeming incompetent (Noe et al, 2017).

engagement on informal learning. The authors identified fun activities and manager support for fun as being key antecedents of informal learning. Fun activities refer to group and social events organized by the company. In turn, manager support for fun encompasses the extent to which supervisors continuously allow and encourage workers to have fun on the job. Delving deeper into the analysis, fun activities displayed a stronger relationship with informal learning when compared to manager support, when the three sub components of informal learning were considered (Noe *et al*, 2014; Tews *et al*, 2017).

Furthermore, recent studies have clarified which human resources management practices and processes influence the employees' involvement in the informal learning activities (Bednall *et al*, 2012). The authors, Bednall *et al* (2012), focused on studying the extent to which performance appraisal quality, one important human resource management component, and the workers' perception of the entire set of human resources practices (i.e., HRM strength) lead to higher levels of participation in informal learning activities. Findings clarified that the effectiveness of the HRM system in signalling to the employees the accepted and expected behaviours and values of the organization constitutes an important trigger for their participation in informal learning activities, such as reflection, knowledge sharing and innovative behaviour.

The results further underline the importance of a high-quality performance appraisal delivery. Informal learning was identified as a component of the "black box". It evidences that "Voluntary participation in informal learning activities may enhance individual performance through knowledge acquisition and practice, ultimately leading to increased organizational performance." (Bednall *et al.*, 2012:56).

Finally, Noe *et al.* (2013) have examined the influence of individual differences, such as generalized self-efficacy, big five personality traits and zest, on informal learning Agreeableness was found to be positively associated informal learning and zest was proved to be the major individual predictor of informal learning, which may be considered as a criteria in recruitment and selection processes (Noe *et al.*, 2013). Drawing upon this conclusion, the authors also emphasise the impact of self-efficacy for the success of organizations that rely on informal learning activities (Noe *et al.*, 2013). In line with this, Jeske and Roßnagel's (2016) study also corroborated the weight of self-efficacy and proactive help seeking on the prediction of informal learning in organizations. Particularly, employees engage in informal learning when they wish to overcome obstacles encountered in their jobs (Jeske and Roßnagel, 2016). Additionally, another study on the

influence of individual differences has clarified that gender seems to influence engagement on informal learning. Women engage more frequently in activities such as social networking and learning from their own errors, whereas men are more likely to reflect on their knowledge and experience (Bancheva and Ivanova, 2015).

1.7. **Methods to support informal learning**

Studies on the antecedents of informal learning give way to practical and more general implications as well as the implementation of specific activities and methods to enable it in the workplace. For instance, in the light Noe *et al* research (2013), organizations should give importance to zest to ensure informal learning, as it is central for the workers' eagerness and motivation to seek information and engage in extra voluntary behaviour. This author has also suggested that the selection of managers who are more predisposed to grow and develop their competences and acquire more knowledge (i.e., higher *learning goal orientation*) to ensure involvement in and support of informal learning. More recently, in 2017, the results of Noe's study on the influence of fun in the informal learning signal the importance of creating fun workplaces and considering factors beyond the traditional manager support for learning to promote informal learning. In fact, informal learning might be constrained if fun is absent from the workplace. There is empirical evidence validating fun as a beneficial variable for individuals and organizations. Thus, many organizations are using it as a tool to promote employee wellbeing, engagement and retention (Noe, 2017).

Some authors take a step further, developing new approaches to support informal learning in the workplace. The microtraining method is one such example, built on the theory of social constructivism, which literature defends as being efficient to support informal, spontaneous and practical types of learning. Lukosch and Vries (2009) are the main authors supporting microtraining as a way to promote informal learning in the work settings, considering, in their research, the learning spectrum concept previously clarified.
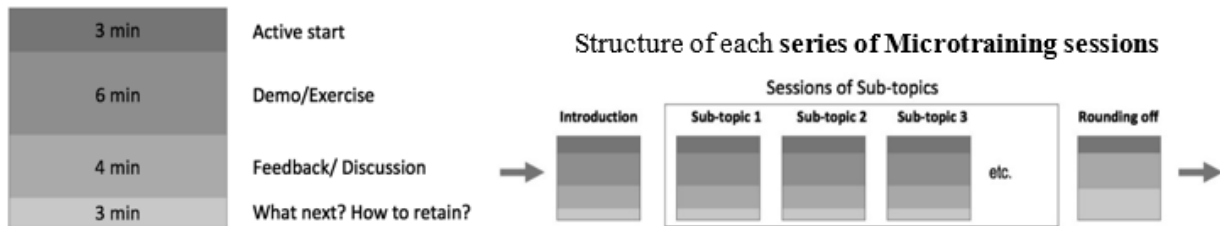
Figure 3 Microtraining workflow by Lukosch and Vries (2009)

As illustrated in figure 2, microtraining corresponds to a 15 to 20 minutes training arrangement, resulting in a bundle of several short learning events, which help fostering knowledge sharing. These learning occasions or series of microtraining sessions are always structured in the same way, beginning with an active start, followed by a demo or exercise and finishing with feedback and a discussion regarding the next sessions. The authors underline the importance of employees being the ones responsible for triggering the "active start", without any managerial instruction. This start can stem from the need of development of a new product, a question from a client or a technological issue, for instance.

This approach comes to show the increasing awareness of the advantages of informal learning by organizations, as it has been put into practice in the workplace by some organizations. It has been applied in a Dutch transport company, in which lorry drivers were the main target group for the learning activities. By integrating new learning processes into the business strategy, this company managed to provide lorry drivers with the professional information that was required and needed by them. An information online platform based on the microtraining method was developed, which included short training sessions split into distinct issues and related to different areas of the company. Specific workshops on microtraining were given to managers, to form staff specialized in this methodology. The core idea behind the implementation of this software system was to allow different workers to develop learning materials continuous and autonomously. This said, the platform, named "Digital Tachograph", allowed the exchange of ideas and continuous flow of information between lorry drivers and managers, through messages, links, video clips, pictures and reports for instance. In this case, it was demonstrated that Microtraining helped connect different types of information, which is highly spread in the new knowledge landscape of

nowadays. This approach considers the concept of learning as "connected knowledge", which does not happen inside a learner alone and is socially built.

Other studies have also supported the idea that learning in the workplace is a social rather than an individual phenomenon (Wihak *et al*, 2010). Three factors should then be considered, so that a good workplace learning environment is built. Firstly, a shared vision of the organization's goals and internal processes with common values should be created. Secondly, this vision should be reflected into practice. Lastly, continuous improvements should be made (Wihak *et al*, 2010). These are three criteria which contribute to the formation of learning organizations. Yet, literature seems to be mainly focusing on informal learning as an individual type of learning while studies regarding learning organizations emphasize analysis of the organization as a whole. Therefore, the microtraining approach is skilfully bridging the gap between these two areas of knowledge, dealing with organizational necessities as well as individual requirements (Lukosch and Vries, 2009; Wihak *et al*, 2010).

Many key enablers of informal learning rely on the use of technology with the intent to raise understanding of its importance, bring people together in organizations and gather "just in time" networked information on learning issues. The user-generated tool, named Network Awareness Tool (NAT) is one such example. This tool was developed focusing on informal networked learning for teaches, deriving from theories of social network analysis, social capital, networked learning and communities of practice. When brought up together, these orientations help visualize the bases for the development of this tool, providing a theoretical framework capable of raising awareness about informal networked learning. The main dimension of informal learning inherent with the development of this tool was learning from others at work (De Laat, 2011; Noe *et al.*, 2014; Schreurs & Laat, 2014).

The NAT supports informal learning in networks, helping workers to create new knowledge through collaboration and address problems related with their domain. The NAT allows to create a profile page, retrieve different types of information, tag others and triangulate data. Therefore, the tool itself helps to arrange and manage the current knowledge in the organization and, simultaneously, foster the worker's engagement in informal learning activities, by helping them find the needed expertise (or expert). Furthermore, it enables the workers to visualize their own researches and ideas, becoming more aware of their social contacts, share ideas and foster

new collaborations. The figure below provides a general impression of the NAT profile page (Schreurs & Laat, 2014).
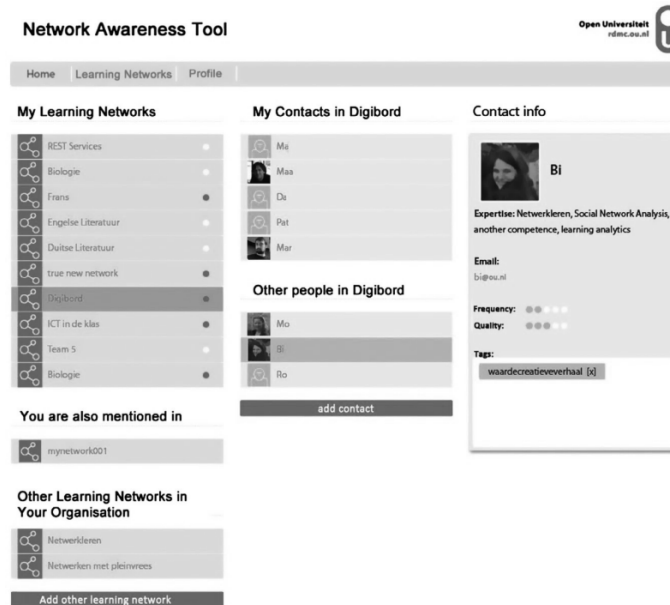
Figure 4 Network Awareness Tool Profile

Aligned with this, literature also mentions fresh Web 2.0 collaborative applications to support virtual professional development and, in turn, informal learning via social networks. Web 2.0 brings important considerations to the table. According to Pew Internet and American Life Project (2011) the percentage of American adults using Web 2.0 technologies to share thoughts, files and interact with others was of 44%. However, the same estimated number as of 2011 presented a significant spike, reaching the 78%. As such, it is undeniable that the wealth of available information online encourages learning and development (Dennen and Myers, 2012).

A germane method aiming to support informal learning in the workplace is the APOSDLE project, funded by different EU countries, which stands for Advanced Process Oriented Self-Directed Learning Environment. This tool offers workers who deal with numerous information the opportunity to contribute with new content and visualize structured data in their organization's knowledge pool. Important features distinguish this approach from (e) Learning. First, APOSDLE supports integrated ICT for the three roles assumed by knowledge workers: learner, expert and worker. Moreover, this support is specifically given in the workplace setting and environment, assuring knowledge transfer through contextualized communication and collaboration. Lastly, it

is based on pre-existent personal and digital knowledge sources in the organization (Kooken *et al.*, 2007). This was considered a rather disruptive project, since it constitutes a complex computer system, designed to support workers on a timely basis. The tool analysis the workers' actions, while work is being performed and automatically identifies to which phase it corresponds. It reminds the worker of all the important steps which need to be done and automatically keeps a user profile of the employee. The APOSDLE SDL Tool will help individuals to notice a number of very different available resources, neatly structured into categories, by opening at its offered window.

1.8. **Outcomes of informal learning**

Lastly, regardless of the specific informal learning activity, literature recognises and associates informal learning with employee performance (Bednall *et al.*, 2012). Most workers engage in informal learning when it is related to the job, to develop their skill and career and acquire expertise in specific areas (e.g., computers, new job tasks, budgeting and financial management, health and safety and politics in the workplace). According to Wihak *et al* (2010), a major study conducted in the information technology industry showed that informal learning plays a special role for women working in this sector. Practices such as observation, trial-and-error, asking questions, use of technical materials and information-sharing sessions were essential for their continuing development. Not only did these women need to be adaptable to the fast-changing technical knowledge inherent in the job, they also needed to learn the best way to negotiate gender politics in a male dominated area. This clarifies that informal learning can be used to manage relationships with work-colleagues (Wihak *et al*., 2010).

Still, a variety of literature seems to focus on contextual factors and antecedents of informal learning, whereas very few empirical studies have analysed its outcomes. Only some studies have shown outcomes of formal and informal learning activities such as organizational commitment, job satisfaction, competencies development, employability and job performance. Yet, these studies have not focused on the effects of formal and informal learning together and did not examine the outcomes on individual job performance (Park and Choi, 2016). As such, there is a need to clarify how the employee's participation in informal learning reflects on job-performance. This has become increasingly more important in the last years, fostering researches on studying the effects of formalized learning together with informal learning activities. The phenomenon reflects the

recent necessity of addressing the turbulent economic context and acquire tacit knowledge, which is embedded in the job. Studies have demonstrated that informal learning has a greater contribution to the development of work-related competencies, affecting three job-related competences, whereas formal off-the-job training only impacts on one type of job-competencies: method competencies (Park and Choi, 2016).

Moreover, informal learning is connected to the individual's perceived value of learning at work, which is an important moderator of employees' job performance. Thus, employees who appreciate learning activities in performing their job will have an increased job performance. According to an empirical study conducted in South Korean SMEs (Park and Choi, 2016), informal learning was proved to be responsible for workers' constant competence development, enabling them to satisfy their current and future job requirements. Additionally, several previous investigations have supported that individual performance can be increased by a combination of formal training with informal learning. There is no need to restrict the employees' way of learning, as long as they perceive value towards learning at work. Furthermore, the results of the mentioned study revealed that informal learning can increase job performance in small and medium-size enterprises. In line with this, other authors have confirmed that informal learning is of especially relevance to small businesses (Bancheva and Ivanova, 2015).

These results should be taken into consideration for future practical implications, since organizational size lays as an important predictor for the proportion of learning given. Usually, SMEs are hesitating to invest their financial resources and time on their employees' learning. As such, human resources development strategies should include a combination of learning opportunities, both formal and informal.

1.9. Research question

Training programs alone have proved to be insufficient to face the complexity and challenges of todays' jobs. In times of rapid technological and socio-economic shifts, new ways of training and learning are emerging.

As a recent proactive learning behaviour construct and topic of investigation, informal learning has not been significantly approached by Portuguese researchers, concerning the specific Portuguese workplace context. Bearing in mind the referred motives, it becomes important to understand if organizations in Portugal are adopting strategies to improve learning opportunities

and relying on informal learning activities to manage, promote and capture what people learn in the organization. Thus, a main question arises to guide this study: *"How do managers in companies operating in Portugal face informal learning?"*. From this departure research question, four more specific research questions will be considered as research objectives.

Chapter II: Informal learning in Portugal

2.1. **Research objectives**

As mentioned in the previous chapter, there is a need to understand the managers' perceptions regarding informal learning. This is a crucial first step to shed light on the subject. Also, deriving from the main purpose of this thesis, four specific research questions arose, leading the current study.

A primary research question guiding the current dissertation is the following: "*How is informal learning being perceived by HR professionals of companies operating in Portugal?*". The formulation of this question aims firstly to elucidate the definition of "informal learning", which lacks literature consensus. Secondly, answering this question will help to understand if this approach towards learning is taken into consideration and perceived as significant to transfer learning to the workplace setting. It becomes important to know if informal learning is viewed as vital for Portuguese organizations to succeed in the market place, as pointed by literature. Likewise, it becomes imperative to understand the reason which led organizations to take advantage of informal learning activities as well as individuals' motives to engage in informal learning, as literature states that it is a specifically learner-driven occurrence. As such, a second research question, exploring key antecedents of informal learning, is formulated: "*What motivated organizations and individuals to engage in informal learning?*".

Thirdly, this thesis will focus on studying the existing informal learning activities, supported by companies operating in Portugal and attempt to analyse it taking the three subcomponents of informal learning: self-reflection, learning from others at work or learning from nonrelation resources).

Moreover, this research aims to focus on exploring the antecedents of informal learning as well as innovative initiatives currently put in practice by Portuguese companies, to help promoting employees' participation in informal learning activities. Specifically, there is a need to understand if fun activities are also being considered, since they represent a specific relevant antecedent of informal learning in the workplace (Tews and Noe, 2017). Therefore, the second guiding question is "*Which activities and methods are currently used to promote and/or support informal learning in the workplace?*".

Lastly, as pointed by researchers, there is a need for further examination of the effects of informal learning, which is a topic that lacks research backup, especially when compared to the amount of studies covering the antecedents of informal learning (Noe et al, 2013; Park and Choi,

2016). Several authors underline that these consequences should be considered, simultaneously with the effects of formalized training programs in the organization. This said, a fourth research question depicted by the literature review is *"What are the consequences of informal learning for individuals and organizations?"*. This study is founded in an analytical reference framework, represented below. As shown, figure 5 depicts the issues analysed in the literature review, which lead to the formulation of the previously discussed research questions.

Figure 5 Analytical reference framework

2.2. **Method**

A qualitative method was used which is justified by the need to understand a complex contemporary phenomenon, which takes place in a real context (i.e. organizations), involving compromise examination of complex real-world situations, which require inductive reasoning process (Wienclaw, 2015). Furthermore, the objective is to analyse informal learning, having into

consideration the perceptions and reflections of the interviewee on the matter. Besides, qualitative research will help to reveal how the informal learning scenario depicted in literature is being shaped in the real business environment, in Portugal. Lastly, the stated research questions formulation is also pointing towards a need to further clarify concepts and understand the "how", the "which" and the "what" of a phenomenon, which portraits a qualitative based approach.

2.2.1. Sample

The participants in this study include thirteen managers from eleven organizations of diverse sectors: financial, consulting, accounting, telecommunications, transportation, specialized retail, energy and paper industry (see Appendix II for companies' characterization). These interviews were conducted in person, within one and a half months, to Human Resources Managers with expertise on training and development. The interviewed managers showed interest on the present study and displayed a significant curiosity on its results.

The eleven interviews were recorded, had an average duration of twenty-five minutes and were subsequently transcribed. Moreover, the right to privacy and confidentiality was assured, thus the identities of the interviewees and respective companies are concealed, and the data collected is held anonymized.

2.2.2. Data collection: tools and procedures

Authors underline that interviews provide a rich set of information and are a useful tool to absorb in-depth knowledge from the world of others, as well as a powerful way to understand behaviours (Bryman, 2012; Fontana and Frey, 1994; Qu and Dumay, 2011; Wienclaw, 2015). Interviews can be individual, corresponding to in-depth interviews or focus group, in which a flexible exploratory discussion, moderated by the interviewer, occurs. Moreover, interviews can be classified according to three different methods: structured, semi-structured and unstructured. Structured interviews are more rigid, "standardized" and composed by a series of pre-established questions, whereas, at the opposite end, unstructured interviews are a flexible and informal method, in which the interviewer does not necessarily know in advance all the questions (Qu and Dumay, 2011).

For this study, an individual semi-structured interview-scrip was elaborated, which classification lies half way of structured and unstructured interviews. This common qualitative research method compromises the preparation of questions guided by certain themes with the aim

of obtaining elaborated responses. The wide-ranging themes have a guiding purpose, directing the conversation towards specific issues and offering flexibility to disclose important aspects of the organizational behaviour. Qu and Dumay (2011:246) discuss that "*semi-structured interviews help develop understanding of the ways in which managers make sense of, and create meanings about their jobs and their environment*". As such, the literature review provides a comprehensive insight on relevant topic areas of informal learning, constituting an important backcloth for the questions of the interview-script (Bryman, 2012).

The script of this in-depth investigation is composed by seventeen questions, structured in four main informal learning analytical dimensions: a) Perceptions; b) Antecedents, c) Supporting methods and d) Consequences (Appendix I, p.69).

In this research, the qualitative data set is, mainly, in the form of denaturalized transcriptions, focusing more on informational content, as praised by literature for content analysis. Yet, these transcriptions still consent capturing gaps or emphasis in discourse, which is characteristic of naturalized transcription (Neale, 2016).

The MAXQDA software was used to import the interview transcriptions' files and to index or code, serving the essential purpose of data reduction (Bryman, 2012). As suggested by Bryman (2012), data reduction implied grouping textual material into categories, which allowed to interpret the material. Coding involved reviewing the data, identifying key topics (codes) and then aggregate text segments to those codes, as shown in appendix II. In an initial phase, broader deductive codes were primarily defined, deriving from the semi-structured instrument used for data assembling, which, in turn, resulted from literature. This method is called iterative categorization (IC) which is corroborated by studies of qualitative data analysis. It is useful to ensure connection with the basis study research questions. This approach smooths de progression from the study objectives to the study conclusions (Bryman, 2012; Neale, 2016).

IC favours simple uncomplicated coding, including codes that resemble the prompts consistent with the interview script. Appendix IV represents the systematic order of coding conducted in this study. Then, sub codes were originated from collapsing and detailing each main code, to establish comparisons across the data. This supplemented the deductive codes previously established, bringing a more inductive "in vivo" consideration to the analysis. As coding requires a certain degree of conceptual thinking, the title attributed to each code may not straightforwardly

illustrate its purpose. Consequently, to support the data reduction and display, an analytical framework was built, as to clarify the purpose of each code (See Appendix V).

2.3. **Results**

The drawn results aim to answer the four research questions, hence there is a correspondence between each formulated question and subchapter presented subsequently. As shown in appendix VI, a coding map resulted from the method and procedures previously explained. The main topic under analysis - "Informal learning" - was split into four main codes and each of these was thenceforth branched into several sub codes or topics of analysis. Perceptions of informal learning

2.3.1.1.   How managers define informal learning

All interviewees positively identified informal learning as an occurrence in their respective companies, recognizing the term when questioned. Informal learning was consistently described as a continuous type of learning and "on the job training", by the companies under analysis, as shown in the figure below. In fact, it is possible to note that the term "on the job" was used by all eleven interviewed managers. Therefore, the definition uncovered by literature corresponds to the one empirically found in this study.

Another indisputable aspect of informal learning, mentioned by 9 of the 11 interviewed managers (companies A, B, C, D, G, H, I, J and L) was that it does not take place in a traditional classroom but rather in the workplace setting. It was described as a type of learning that happens "naturally", "unconsciously" or "spontaneously". Hence, informal learning was clearly distinguished from formal training, regarding the means through which knowledge is transferred. Managers in companies in Portugal are aware of its existence and clearly relate it with tacit or implicit knowledge and lifetime learning.

Informal learning definitions	Interview text segments
On the job training	"on-the-job training" [All companies]
Informal learning is distinguished from formal training in terms of means of knowledge transfer (does not happen in the classroom)	"This type of learning does not take place in the classroom setting, in other words, it is a lifelong learning experience (…) continuous." [Company B]
Learning through peer interaction or self-study	"(...) it is a fundamental learning experience, taken place in the workplace context, supervised and monitored by the managers (…)" [Company A]
Monitored type of learning	
Continuous learning	"(...) standing next to someone and understanding everything that the person is doing, so you can learn in the workplace context" [Company J]
Spontaneous learning	
Connected to the "knowing how to" part of learning	"Corresponds to the know-how part of the job" [Company F]
Personal type of learning	"People will ask questions to those they already trust or who they know that have the right experience (…). " [Company C]

Table 1 - Informal learning definitions modalities

2.3.1.2. Significance given to informal learning and formal training

To some managers, informal learning was not acknowledged as the most dominant form of knowledge transfer in the company, but it was evidently viewed as a fundamental complement of formal training programs already established. As such, it was found solid evidence regarding the importance of the coexistence of formal and informal learning, in a business environment. Consequently, effective training transfer involves a combination of formal and informal activities, in which the former includes availability of follow-up training and access to information and resources whereas the latter, involves opportunities to perform the skills in a real-world setting.

Specifically, operational jobs require formal training, to convey specialized technical knowledge to individuals (e.g. regulated security policies). Nonetheless, as these same workers need to be constantly updated and informed, particularly in the case of computer and technology type of careers, informal learning presents itself as an essential counterpart. Yet, the right balance between formal and informal learning was recognized as being difficult to reach as stated by two managers:

> … I think that formal training should be articulated with the informal one, although, I have no doubts that it is difficult. It is not an easy job to accomplish that. The size of our company allows us to do it, but I am sure that in relatively less structured companies things may not be so easy. Nevertheless, merely relying on informal learning is not enough. [Company A]

… Most of the time, the connection between the two types is not perfect. It is difficult to achieve the right balance between the two. [Company D]

Additionally, interviewee from Company C declared that they intentionally motivate individuals to engage in informal learning before going to formal courses. Also, they have created exclusive units within the company, responsible for each type of knowledge transfer (i.e. formal and informal). This shows a clear attempt to enrich and complement formal training with informal learning.

… Therefore, we try to add a little bit of "fun" to these formal training programs, by including a more practical component, which encourages informal learning. We created the Knowledge Centre to manage all the informal learning activities and kept a training area to manage all the formal learning ones. [Company C]

Informal vs formal learning significance - Modalities	Interview text segments
Informal learning complements formal training programs Informal learning is a more enriching type of learning	"(...) it is a more enriching learning experience (…). We need this approach, namely in the operational areas, to provide the required formal training and to encourage a more informal training in turn (…) encourage workers to walk «on their own feet» to access different needs." [Company A]
Formal training is irreplaceable to acquire specific technical knowledge (e.g. security policies regulated in the company) Informal and formal learning should coexist in the company in a balanced way Informal learning is critical to acquire soft skills	"Yes, I think the secret of it is to attain different types of methodologies. (...) I know that structured formal training, in a classroom environment and eLearning, you name it, is not as effective as the learning that takes place on the job" [Company C] "I strongly believe in balancing both learning approaches." [Company G] "... One thing is having someone explaining us how something is supposed to be done, conceptually, but feeling it ourselves is yet another thing. When you sense it, it is much more effective" [Company H] "(...) if we supported career development on the basis of formal learning, we would not fully grasp the potential of our success, because the informal one, undoubtedly, is more significant. (...) If I were to point the biggest evolution in the field of skills management I would say that it is emphasis on behavioural skills, in soft skills, in the focus on these skills. Informal learning mainly occurs when such competences are more developed. "[Company F]

Table 2 - Informal vs formal learning significance modalities

2.3.1.3. *Factors influencing investment on learning*

The company's dimension was identified as one influence factors to invest on learning as a whole. Companies with a greater dimension (i.e. more employees and greater structural processes) require more formalized approaches to learning. In such companies, formal training programs ensure that employees engage in learning opportunities. At the same time, these companies are also more structured in terms of people management processes. Thus, they are more predisposed to invest and implement disruptive learning approaches such as informal learning.

The set of competencies inherent to the job function is also an influence factor to invest on learning as a whole. Companies A and F, in which manual labour was prevalent, (i.e. train drivers or manufacturers) expressed lesser need to invest on people development, compared to the remaining companies. Learning their expected behaviour (soft skills) was viewed as important, but managers indicated that there was no need or time to offer training to them.

Yet, for senior or managerial roles, investment on learning was higher, as these job functions require constant knowledge update. Additionally, eight of the eleven companies mentioned partnerships with foreign entities to provide training, such as universities or specific Harvard online courses. Moreover, informal learning was pointed as an inexpensive alternative to support learning and competencies development in addition to formal training. According to company C, it involved inexpensive low-cost activities, which will be presented and developed further.

Factors influencing investment on learning	Interview text segments
Size of the company (headcount)	"(...) I agree that in organizations of this size and similar ones, informal learning is relatively easier to occur and more feasible, compared to small and medium-sized enterprises." [Company A]
Type of job and hierarchical position	"For technical staff this is relatively easy, because we are creating them as "mushrooms ". That is, a set of themes, places and time for them to think and debate subjects that lead them to learning. For the more operational areas, there the majority of the technicians does not have time for that (...) for these workers, I do not think there are, in the short term, many alternatives to the minimum number of hours of formal training. "[Company A] "(...) depending on the investment level and the seniority and responsibility levels, we also allocate more or less internal and external resources (…) we have different approaches here, for different audiences." [Company C] "(...) note that a person who is working with a machine every day (...) there is no room for more improvement. Of course, the person may be faster or less rapid, it may work better with a certain colleague but, technically speaking, there is nothing else to know. We have more than 80% of our employees working in manufacturing (...) knowledge is always transferred informally, naturally. That is why we are relying on it more and more. "[Company F]
Administration's ambition to lead the market/ Learning culture	"(...) I think that having it as a part of our organizational DNA means a great deal (…) not to mention that the budget that we have for this area also matters a lot. (...) the sponsorship of our president, who believes that this is fundamental to continue leading the markets in which we operate is evident. "[Company C]

Factors influencing investment on learning	Interview text segments
	"(…) the new administration has brought some trustworthy members to the company (…) therefore, we have a mix of different mind-sets, originated from people who have always worked in the industry with people who come from the telecommunications field. Clearly, we are talking about two very distinct areas of expertise." [Company F] "(...) our board of directors gives us a significant sponsorship, which indicates that it is necessary to gather and pass along the knowledge to others, that we have" [Company I] "(…) we have to develop skills at such a fast pace that we do not always follow the same speed as the business." [Company L]
The strength of the link between senior executives and middle managers	"(...) leadership processes are fundamental, people are not spontaneously going to say things that may be important, it is necessary that the directors and business leaders encourage this process." [Company A] "(...) the employees themselves or the respective middle managers usually suggest us technical courses and ask us to carry out the training needs' analysis." [Company B]
Financial support given to learning	"(...) the investment required by informal training is much lower compared to formal training. It can have bigger impacts and is much cheaper. We have big budgets for this area. "[Company C]
Knowledge retention	"(...) we must guarantee that some of the knowledge is also kept within the firm and that the methods and processes of production are passed on to newcomers. We are concerned about the transmission of knowledge among generations as well, because there are some workers near retirement age. "[Company F] "(...) several things led to knowledge retention (...) about 40% of our population will retire, there are a lot of people going out, taking away a lot of knowledge with them. So we started thinking about this issue a few years ago (...) We began to wonder how to retain the knowledge of these people who are about to leave and how to train those who enter. One of the results was the creation of our corporate universities and, more recently, our new 70:20:10 methodology"[Company J]

Table 3 - Factors influencing investment on learning

2.3.2. Antecedents of informal learning

The content analysis helped define eight different foster factors of informal learning. In what concerns their nature, these can be split into individual and situational types of antecedents. On one hand, managers evidenced employees' willingness to develop their competencies or acquire

knowledge to face challenges inherent to their jobs and, on the other hand, they also referred triggering situations that may be rife with learning opportunities. As such, the results analysis will consider this categorization, to outline conclusions.

Individual antecedents of informal learning	Situational antecedents of informal learning
Intent to learn	New tasks situations and characteristics
Perceived value of work	Selection of candidates Promotion of fun Performance appraisal quality and HR system strength Learning climate and opportunities Market shifts

Table 4 - Antecedents of informal learning

2.3.2.1.   *Individual antecedents of informal learning*

As a first identified individual or personal antecedent of informal learning was "intent to learn". Six of the interviewed managers gave clear examples of the employees' desire to learn and to learn on demand, thus expressing occurrence of "intent to learn and develop" in the workplace. These managers linked the employees' readiness and predisposition to develop themselves to the engagement in formal and informal learning activities. On the other hand, specific areas of the organization are also responsible for developing the employees' own intent to learn, starting by conducting training needs analysis, close to the middle managers, or by promulgating learning opportunities throughout the company.

Secondly, another personal aspect motivating and driving individuals to rely on informal learning is their "perceived value of work", as identified by five managers. As shown in the corresponding text segments, managers identified the extent to which an employee perceives his own work as being valuable to the organization, as a driving factor to engage in informal learning. It is possible to conclude that the managers established a link between searching information and sharing it with others with self-efficacy.

Individual drivers	Interview text segments
Intent to learn	"(...) technical staff ask us to deliver training to solve learning gaps and we, corporate academy, also permanently reflect about the skills that are missing, anticipating investment plans (...) the middle managers are contacted by the Academy and they communicate the worker's needs." [Company A] "(...) the employees themselves or their respective middle managers propose technical courses and we conduct the training needs analysis." [Company B] "Sometimes, employees themselves show interest in developing themselves (...) they want to go to conferences, talk to a certain business partner, go to Silicon Valley or talk to Google. We feel that people here are eager to learn. (...) there are colleagues who ask me 'I am developing a project, can I be a speaker at a Tip Talk?' "[Company C] "(...) people are going to look for things and they will be able to find what they need. People are aware that they need to learn, they want it and they fight for it. " [Company D] "The employee also gives his input during briefings on performance (...)" [Company J] "It is the manager or the pivot of HR (...) the one telling us about our development needs. We facilitate this process. "[Company L] "(...) sometimes, it might happen that we find ourselves in an unfavourable position, then we want to improve, seek for information and learn to overcome a certain gap." [Company I]
Perceived value of work	"I do not have the slightest doubt that most of our workers are aware that they add value and that they are essential (...) Our professionals in these areas are deeply aware of the added value they represent in the process." [Company A] "(...) if the person feels that his/her work has an impact and that somehow leaves a mark, there is much more legitimacy to pass on information. (...) When people look for us and ask us for help it is because, somehow they are recognizing that we have some value to add. "[Company C] "Without a doubt, I notice that in this company employees feel that they are adding value to the organization and that they are more motivated to learn informally and share knowledge." [Company G] "To learn or to teach, many times you have to rely on informal learning (…) for the person to stay motivated, learning has to be stimulated, and if we are in a place or context in which we feel that we are no longer learning anything ... I no longer contribute much to our motivation ... so I think they are linked ... "[Company H] "... one of the biggest reasons is the fact that the person is satisfied with he/she own work and that, in turn, encourages them to learn more, to ensure that they keep their current level or even exceed expectations ..." [Company I]

Individual drivers	Interview text segments
	"(...) all of us workers feel accomplished when we see the result of our work and that encourages us to seek and learn even more. (...) Knowing that I have a certain goal established and then when I get to the end of the year I look back and see that I succeeded, or that I was able to deliver more than I was supposed to (…) It is very rewarding. "[Company J]

Table 5 - Individual antecedents of informal learning modalities

2.3.2.2.   Situational antecedents

The content analysis also made possible to delineate situational factors that stimulate or prevent informal learning to take place in the organization. Managers provided information regarding situations, organizational and industry-related, that offer informal learning opportunities.

Some of those situations have to do with "job or task characteristics". Three managers, from companies B, C and G, recognized that work related activities and job demands foster informal learning in their companies. According to them, these can include new scientific investigations, challenging projects, new assignments, international assignments, multi-team projects and specific events, established to support or promote brainstorm sessions.

> ... we deal with projects that are singular in the market and each new project leads to informal learning as it involves a lot of scientific research. All people are predisposed to learn, because there are no equal tasks. There is self-learning regarding tools and context. [Company B]

> ... when we spot greatly talented people, we put them in very different areas and we give them new tasks. We had an example of an employee who went out for three months to align our employer branding strategy. [Company C]

> We are always looking for new information, from more procedural information to things that help us to project the future. The employee has to resort to forms of learning that are not in the classroom. It is part of our way of doing business. [Company G]

Managers also specified that the selection of todays' candidates has changed. This change now incorporates certain criteria in terms of behavioural competences and work-related capabilities. At least four managers, from companies B, C, F and H, denoted that recruitment and selection criteria have changed, to adapt to the new market challenges. Companies C, F and H evidenced that selection criteria of today are much more demanding. Companies seek a set of transversal skills in candidates. These competencies include, according to all these managers, attitudinal types of skills, namely, positive general work attitudes. They explained that the reason for this is that companies

are demanding people to learn more and to learn fast. As such, selection of candidates has that into account, and HR managers define criteria that will ensure that businesses follow the industry tendencies. Furthermore, company G recognized that employees' ambition to acquire more knowledge is a fundamental characteristic to remain a market leader. They need to look for and select people with that determination.

> ... It has a lot to do with the integration of juniors, who have a desire to learn more, because we have a very specific know-how and we develop the work internal and externally. In other words, it is important that the skills are also developed here. [Company B]

> ... the retail industry is an industry that is very enthralling and we need people with very high levels of motivation (…) We choose people who are commitment and who regard their professional life as a great investment, because they are people who they spend many hours at work and need to learn a lot. [Company C]

> Todays' days I consider it to be more demanding. People are required to have computer science knowledge (...) they need to know how English, because they are going to speak to foreign clients (...) people who tend to be more receptive to knowledge and to their own change. [Company F]

> Any company that wants to lead the market and stay at the frontline has to see that ambition reflected and also on its collaborators. [Company G]

> Young people today have other work demands and we also have demands regarding what we expect of our candidates. We are changing the way we recruit to adapt to the new generation. [Company H]

In line with the selection of candidates, another identified antecedent was "market shifts". Managers from companies B, F and J stated that informal learning naturally occurs because of the changes and demands of the market in which they operate (i.e, technology). They recognized an increased need to adapt, transformation is leading workers to seek knowledge and to be constantly updated, in terms of business practices.

> ... are more aware of the need to stay updated, although we are a company a little out of the ordinary, because we work in the area of knowledge and technology. As it is a dynamic area, which is always changing, this need for continuous learning is prevalent even without being stimulated, because it exists by itself, it is part of the market in which we work. [Company B]

> If we do not keep ourselves updated and aware of the best practices, which are a very important thing to identify in other companies (…) also from studies, from what is being said at worldwide level, we stay behind we become outdated. [Company F]

> In what concerns the informal approach, today it is true that we can not be stagnated (...). I need to know how much time I have for training; I have to pay attention to the news and to what is happening (...). We work in a technology company, everything happens really fast, so we also receive inputs from the global level. [Company J]

Managers from companies B, D, F, G, I and L identified "promotion of fun" as a key trigger factor of informal learning, perceiving positive general work attitudes as critical drivers of performance. They connected engagement in optional training events and non-mandatory contextual behaviours

with informal learning. Particularly, teambuilding events were the most associated with learning, because they help build networking. This, in turn, was acknowledged as a way to make people stay more connected in the workplace, share information and discuss ideas with people from different areas of expertise.

> The informal relationship is a key moment. We foster some events but feel that this also happens in a naturally. There are groups of people who go to paddle, others to football. [Company B]

> We have some official festive events in our organization and also within the different groups and teams. We also organize teambuilding activities, so today the size of our organization sometimes does not allow us to get the bigger picture. [Company D]

> I also have no doubts that it is part of our way of working and there are some very important moments (...) We have key moments during the year, which lead to teambuilding, knowledge sharing and social gathering. [Company G]

> Undoubtedly yes, teambuilding encourages relationships and builds team spirit. [Company I]

Company L assertively added that they consider themselves as a "fun company", which relies on strategic fun events to bring people together. In line with this, company F mentioned that their new administration is also setting up a different culture within the organization, one that contains values that go with fun events and development of behavioural skills.

Companies B, C, D, G and I also underlined that people will willingly look for and embrace learning opportunities if "fun" events are planned, as these nurture organizational commitment and increase employees' engagement in their work. They emphasized that fun events have a positive effect when they are planned and well defined, in terms of objectives. These companies also alerted for the inefficacy of teambuilding or social events organized for no reason other than the "mainstream tendency" of organizing a teambuilding.

> On the other hand, I believe that this has to happen very naturally, that is, according to what I can perceived and noticed so far, it almost seems that there is an obligation" because now teambuilding have become trendy and are very modern. "Let's do things" and "we are always doing things" and this is not always productive. [Company B]

> What we usually try to ensure, while working with a manager on a teambuilding idea, is that these moments of fun and social gathering are associated with important messages that are crucial for the employees' development. [Company G]

> It has to be well thought out and not just a simple teambuilding idea (…) In the end, if it is just a teambuilding for fun let's say (…) It should include some content and it should also focus on the team's needs to reach some results. [Company I]

Company B related employees' extraversion level with the efficacy and effects of promotion of fun. The managers noted that teambuilding events can be counterproductive if forced into the culture, adding that employees who have a lower level of extraversion may dislike these activities.

Alternatively, they expect such events to be organized by the employees themselves and, if necessary, the company will support them.

> It has to be well thought out and not just a simple teambuilding idea (…) In the end, if it is just a teambuilding for fun let's say (…) It should include some content and it should also focus on the team's needs to reach some results. [Company I]

Next, another situational antecedent of informal learning was "performance appraisal quality and HR system strength". From all interviewed companies, nine indicated that they have a performance appraisal system in the company. In turn, this was recognized as a way of developing a sense of self-consciousness in terms of ones competencies and competencies' gaps. As such, the identification of learning needs leads employees to look for learning opportunities.

The existence of a performance evaluation system in these companies was recognized, by the managers, as a booster of training and development. Particularly, company G said that there is a direct link between performance appraisal, the identification of learning needs and informal learning.

> Training and development is connected to performance appraisal (...) we want to develop a set of skills, thus we have created an IDP (Individual Development Plan), in which we want to work three competences and take the 70:20:10 informal learning perspective. [Company L]

Lastly, a final antecedent of informal learning was "learning climate and opportunities". The development and creation of the appropriate working conditions was recognized as a key factor for learning to occur, by all companies.

> Anyone who considers human capital development directly associates it with lifelong learning and organizations that create the conditions to multiply knowledge. [Company A]

> The environment in our company is very informal, everyone feels at ease to contact their colleagues, who they might have even never spoken to before. They can write on Skype like: "Look, I need your help to solve something. I know you have worked on this before. " [Company J]

Despite recognizing it, only some managers illustrated specific HR management practices, developed with the intent of transferring knowledge and scattering it across the company. Companies A, F and H voiced that they were or recently went through a process of cultural transformation. This transformation had the objective of modernizing the company and learning was seen as core driver to update employees in terms of new business trends.

> ... for 15 years we made drastic transformations in the way of transferring knowledge. We had to do this to take advantage of our people's value [Company A]

> ... a different culture is building up in the company, rooted in our new administrator's view ... we aspire to be a micro-multinational enterprise, we want to be connected to the world, we want to be known internationally, but we do not require a massive and heavy structure, unlike multinationals. We need to bet

in a different scenario and ensure that the knowledge of the older generations is passed on to new people. [Company F]

However, the context of the world is always changing and, for us, it has changed (...) it becomes necessary to transform the whole concept, to culturally transform our "home" and the base projects, which we give priority to in 2017. In addition, sustaining the construction of a training offer at this level allows us to powerfully leverage the business ideas we want to translate, making it possible to continuing position ourselves as pioneers. [Company H]

Company C clearly expressed that "training and development" was already embed in the company's culture, guiding their HR practices. This, in turn, lead them to look for innovate ways to support knowledge transfer, such as informal learning.

We take learning and competences development very seriously and I can even add that perhaps of all the functional issues of HRM, it is the one that we are more committed to and the one we invest more on. We detain good investments and budgets for this area. We have a very self-improving type of organizational culture. (...) Therefore, we encourage our people a lot to always try harder, even when they already achieved the organizational objectives. We have a wide range of programs and projects to develop our employees. Our culture really encourages challenging people, to make them grow and to make them "run that extra mile". [Company C]

On the other hand, company B does not prioritize learning as a strategy, perceiving new learning events and trends, such as teambuilding, as "unnatural". Thus, the manager stated that informal learning was not induced by the company, through this type of activities.

We are not that kind of company that arranges teambuilding every month, given our type of people profile. We are not so open to events, which I recognize that can stimulate informal learning. However, I believe that forcing it would be unnatural. [Company B]

2.3.3. Processes and methods used to support informal learning in the workplace

Another important objective of the present investigation was to uncover methods and business processes, which are put into practice by companies in Portugal, to support and promote informal learning. The methods and activities were scrutinized and arranged as follows:

- 70:20:10 Model for learning and development
- Self-reflection
- Non-relation resources
- Peer interaction

Company F interviewee added that they are currently struggling to find methods to implement disruptive best practices and find ways to support informal learning. That is to pinpoint that whereas some businesses have already implemented such processes and methods, others are still trying to fit them in their strategy.

2.3.3.1. The 70:20:10 model for learning and development

As previously mentioned, from all interviewed companies, managers from companies D, G, I and J stated that they relied in a specific model for learning and development: "70:20:10". This model works as a reference for the set of learning and development practices developed and implemented in their companies. Managers mentioned it as an illustration of their companies' willingness to promote and support informal learning. Company I added that setting it up as guide for learning and development made employees gain more conscious of the learning process and the available ways to acquire knowledge that the company provides them. As a consequence of implementing this model and making it visible to all employees, these companies' performance appraisal system and competencies analyses model were readjusted, in order to ensure its alignment with the referred model. Managers believed that supporting this new "concept" within their company lead employees to become more "learning aware" and seek information on their own and through peers.

> … we send that message along and formalize the concept of informal learning in the 70:20:10 model (…) we let our people know that they should pay attention to everyday learning opportunities. [Company D]

> … we have a competences analysis model, revised in 2015 and implemented by the end of 2015, that we named as Amplify. This model is based on the 70:20:10 approach. [Company I]

2.3.3.2. Self-reflection

Companies E, F and L did not identify any specific strategies or activities to promote self-reflection in their respective companies. Managers from the remaining companies recognized that self-reflection was a practice that was either present in the organization or supported by it, through defined activities.

Company I also added that, despite occurring it naturally in the different areas of the company, there was no time for self-reflection. Managers from company I referred that fast-paced organizations do not have time to implement strategies to support or promote it, due to timings and market pressure.

> Only when we have the time for it. The briefings I mentioned end up leading to that (…) but it is not something that one has a lot of time for these days. There is a lot of pressure and tight schedules, so I think it is difficult. [Company I]

The table presented below contains the referred methods, used by the interviewed organizations, to foster employees' self- reflection.

Self-reflection modalities	Interview text segments
Regular debriefings	"(…) we arrange a briefing that leads to reflection, at the end of the day, on a monthly basis." [Company A] "(…) there are close meetings at the end of each project in which we take lessons learned for the future." [Company D] "(…) I very much agree with that (…) we save 2-3 key moments in a year (…) to spend time reflecting as team (…)." [Company J]
Supporting "trial and error" in the workplace	"(…) we encourage learning through errors, so when an error occurs we consider how things might have worked out better, taking notes of what was done as to ensure that future identical errors are avoided." [Company B] "(…) in here we learn a lot through things that did not work out for the better after being implemented. For each decision taken, there is always a moment spent on reflecting." [Company J] "Also, sometimes among companies, in which one can learn informally with what others are doing and through projects that went wrong (…) Sometimes we learn a lot through thing that did not go as expected." [Company I]
Activities to promote self-reflection	"We have been doing that since a few years ago. We deliberately include a self-awareness or self-learning component to all our development programs, such as soft-skills development, team management, conflict solving or «how to address difficult conversations». A few day ago we applied the DISC methodology. We notice that everyone values these initiatives. (…) We helped a manager understand and adapt to his colleague's working method." [Company C]

Table 6 – Self-reflection modalities

2.3.3.3. Non-relation resources

Another way of promoting informal learning is to rely on a variety of resources. Most managers mentioned that they provide access to a subset of resources, which allow workers to learn about certain topics. Knowledge platforms represent a core non-relational resource, which aggregate different materials. All interviewed managers mentioned a specific designation for this platform. In addition, the common assets included in it are: external courses, material related to the company's industry and internal information (e.g. company projects and specific developed researches). Seven of the analysed companies mentioned they relied on the referring platform to help share intellectual property within the organization. The table presented below demonstrates the different non-relational resources that these companies provide to their employees, which support informal learning.

Non-relation resources modalities	Interview text segments
Newsletters	"(…) that is a way of learning informally, besides our newsletters and our ideas' portal which makes people look for information." [Company A] "(…) we also have an internal newsletter of our corporate university, in which everyone can share tips and know-how, to help develop others." [Company I]
Intranet	Managers from all companies stated that theirs have it.
Online courses / eLearning	"We have an eLearning platform and knowledge sharing programs (…) We even had our own platform and we are currently externalizing it (…) also Moodle (…) we are converting these internal courses into eLearning." [Company B] "Therefore, all I need to do is type the topic I want to learn about like «logic management», «digital» there is a bunch of courses available." [Company J]
Knowledge platforms	"We are currently working in a knowledge platform. (…) We are going to launch that knowledge platform, named «Knowledge Share», in September. It contains books, videos, articles, case studies, webinars, Moocs (massive open online courses), reports and both internal and external knowledge." [Company C] "I think that, regarding the knowledge platform, there has been a reasonable investment. It allows to access and deposit informational, in a global scale." [Company D] "(…) we have an internal portal, which includes all the company's information, split according to different segments and employees can access that information." [Company G]

Non-relation resources modalities	Interview text segments
	"(…) besides the corporate academy, the knowledge management project has also been created. It is not as developed as the university because it happened later (…) the project's information was collected and inserted in an appropriate software (…) anyone can search it and have access to that documentation." [Company I] "(…) feeling the need to gather the information of each area in a single platform and, more recently, it has been launched (…)." [Company J] "(…) it ends up working as a substitute for our intranet. Basically, it means that it is a platform that contains all processes, best practices (…). We have the opportunity to create and access communities of practice (…)." [Company L]
Communities of practice (e.g., yammer)	"(…) Within the platform, there is yammer, you can access communities of practice (…) there is the whole social collaboration part of it as well (…)" [Company C] "(…) in our internal resources we provide access to yammer, structured by areas. We also have the "ask me about" function, which encourages our internal network." [Company D] "(…) we have an internal Facebook, it is called «My communities», corresponding to each employees' profile, knowledge sharing groups (…)." [Company L]
Documentation centre / Library	"(…) information and documentation data base, containing anything from books to regulations, e-books (…) if a certain book is not available online, workers can ask for it and we will send it (…)." [Company D] "(…) another way of knowledge management is our library and training and documentation centre (…) many of the documents we produce, such as master thesis, projects that we develop and which had international recognition, such as public speeches. We also retain that knowledge here and make it accessible by anyone in our company." [Company I]

Table 7 - Non-relation resources modalities

2.3.3.4. Peer interaction

Managers also provided examples of specific methods and activities implemented by the company, which support peers interaction in the workplace, thus contributing to the development of collaborative learning. Some of these are linked to knowledge platforms, corresponding to online communities of practice, through which workers collaborate and interact. Others correspond to specific activities that promote "fun" and social interactivity, leveraging learning and development.

Additionally, managers recognized that informal learning was determined by external forces such as market pressure and shifts on the company. Following this line of reasoning, managers from three distinct companies underlined that analysing their market was an implemented activity which involved coordination between people and between people and other resources. The table below presents the modalities of "peer interaction" defined in this thesis.

Peer interaction modalities	Interview text segments
Online social networking	"(…) experts in a certain area can then be contacted. (…) employees may access data bases and contact by emails or call people from totally different areas of expertise, even without having previous contact with that person (e.g. CSharp)." [Company B] "(…) we have a series of other different things such as yammer, in terms of our organization. We have our own network tool (…) employees are identified, download their CVs (…) basically, we can make ourselves noticeable and available to be contacted, regarding various topics." [Company D] "(…) there is a link containing all our employees worldwide. (…) we must know how to take advantage and benefit from our formal training moments(…) in these events, we end up knowing different people, who have similar job functions to ours. That, in turn, clearly supports information sharing among the different countries, providing an informal way of connectivity. That is why, I believe that everything is more connected. We really strive to and recognize that formal training moments boost informal learning." [Company G] "(…) we have a strong networking (…) in each team, each business area has document share to upload information." [Company I] "We have an internal networked named «Unity», which is basically like a yammer, just like in other organizations. It can include communities of practice, types of blogs, in which people can share best practices." [Company J]
Job rotation/ Cross training	"Last year, we implemented a cross training model, which we used in our merging process. We mixed people from different technical areas of our company, for them to explain how their work is like (…) these events involved 700 people." [Company A] "(…) we promote internal mobility (…) every 3 years, people change their job function. (…) we challenge people to work in different areas, so that in 20 to 25 years they can become directors, who have detain knowledge from all the business areas. That process is established in all of the three companies of our group. (…) There is the possibility for workers to tell us where they would like to attain knowledge, according to their areas of interest." [Company C]

Peer interaction modalities	Interview text segments
	"We have our trainees' program (…) having the opportunity to experience different areas, to learn in a specific project, as such, no one is providing them training but these people are learning informally." [Company H] "(…) basically, it is an informal learning initiative, named "You-here Me-there" (…) allowing any professional to switch jobs with another colleague and learn their function. I tis a totally informal learning program, in which I decide the area of the company I want to go to (…)." [Company H] "(…) spending a season with a colleague from a different team, to learn together with that team, helps to develop a different set of competences." [Company I]
Job shadowing	"(…) we have many job shadowing initiatives (…) people spend a day next to someone who just entered the company, and gains know-how by participating in business and negotiation meetings (…)." [Company C] "(…) learns their function with the operator. At first, it will just start by helping people out, certainly as an apprentice or more like an "observer". The challenge, for that employee, is to be able to operate the machine autonomously, in the long term. That is, to be motivated and develop competencies to operate the machine." [Company F] "(…) train new recruits who come from commercial areas and placing them side by side with more experience colleagues (…) they will learn how to proper answer to clients' needs, for instance." [Company H]
Mentoring	"(…) mentoring we usually set with senior employees and newcomers. Their role is just like the one of a tutor, taking the university students as an analogy." [Company C] "Every employee has a counsellor, a manager who assumes the role of tutor and fosters reflection. Basically, it is someone who has more experience and with whom employees can discuss ideas, bringing a more formal side of things to the table." [Company D] "(…) mentoring in our company is another program we have." [Company J] "Logically, on the job training can be developed in different ways. In our company we usually identify a tutor to escort and welcome newcomers." [Company L]
Social gatherings to promote peer-interaction: -"share talks" -"tip talks" -"brief talks" -"business talks" -"leadership talks"	"(…) we organized an activity in which we invited professor, opinion makers and OECD members, to give a one or two hour's speech. Obviously, that generates a lot of debate and people interact a lot (…)." [Company A] "We organize specific programs concerning that topic (…) «share-talks» is a kind of meeting arranged at the end of a day, taking place four times a year. We manage to put 90 people interacting with each other and making questions. Also, we organize another social gathering called «tip-talks», in which a colleague provides another with tips during lunch time. We usually provide them lunch in such gatherings. (…) we have another one called «brief-talks», which includes someone from

Peer interaction modalities	Interview text segments
	our board member (…) taking breakfast with someone with whom they do not normally get in touch with, usually junior managers. This one takes places every two months. Also, we organize «business-talks», which are meant for people working in the operational and commercial areas, happening once per semester. Finally, we arrange «leadership-talks», that happens with an international guest speaker. Last year, we invited a professor from Colombia and another one from New York to make a speck to the 250 top-managers of our group. We gather employees from all over the globe to listen to «leadership gurus». Therefore, we can say we have different formats of informal learning programs according to different audiences." [Company C]
Market analysis	"(…) we organized a debate, a big session, in which we discussed future goals (…) some of our technicians, both managers and engineers, analysed the top changes and business transformations which took place in our society and in our market (…) it was an interesting activity, which lead our employees to search information and discuss different ways of working, different jobs (…)." [Company A] "(…) we have arranged many visits to different companies, we visited «IndieTech», now we are going to Silicon Valley (…) we take employees to highly innovative environments, in which there are many competitive players (…) analysing the market allowed us to debate about competition and the that threat these players represent, because they are more flexible and adaptable (…)." [Company C] "(...) recently, we debated a highly strategic topic. We split in two different stages: the first one with top and middle management. Afterwards, we broadened the scope of our analysis and involved all the employees. We created an innovative concept, taking a more fun kind of approach, to understand where we would see our company ten years down the road. Specifically, we made our employees think about how "the house of the future" would look like" so it was an informal learning activity." [Company L]

Table 8 – Peer interaction modalities

2.3.4. **Outcomes of informal learning**

Concerning this topic, it is important to note that most managers recognized that measuring the effects of informal learning was an enormous challenge. None of the organizations had established specific objectives to measure its effects. The outcomes of this type of learning were found to be difficult to isolate. Nevertheless, the activities and programs settled within the different companies, with the final intent of solving work-related problems, helped to reach specific results. Managers evidenced a series of outcomes that resulted from supporting learning in the organization and

informal learning in particular. To answer the last research question, the consequences of informal

learning were analysed and presented in the table below.

It is not easy to measure its outcomes. The efficiency of training is not easy to quantify (…) To be honest, we do not usually measure that (…). [Company B]

(…) it is difficult to isolate the impacts of many events and programs that take place (…). We do not have the ability to isolate the effects of informal learning. [Company G]

We are not able to measure the effects of informal learning in terms of performance yet. It is «a bit too much» I would say. [Company L]

Outcomes of informal learning – modalities	Interview text segment
Transmits the company's set of values and the way "things are done" to newcomers	"(…) a trainee's program, of people who just left top local universities and join a specific program (…) when they enter the company they receive a huge amount of information, but then, afterwards, they have the opportunity to pass through different areas and learn various information by engaging in certain projects. As such, no one –provides them a formal training but they effectively learn the company's mission and culture through informal learning activities." [Company H]
Increases motivation and engagement levels with the organization's mission	"In the case of top responsibility roles, almost all of our programs include a self-reflection dimension. We feel that people value that a lot." [Company C] "In terms of job quality, it is easy to notice that people become more motivated and committed to their job after informal learning events. In particular, those that include social gatherings and «fun». Employees understand better the impact that their work has in our clients and become more interested in getting things done." [Company F] "(…) a satisfaction questioner applied to all our employees. So, with that tool we can measure their satisfaction and engagement levels after such activities. The online platform allows to check how many learning credits and training courses people complete on their own." [Company J] "(…) this fun initiative made our employees become more «solid» and ready to give future inputs. It was, undoubtedly, an enriching experience. After that, many internal communities reacted to the fun event we organized, and the ideas generated were extremely enriching." [Company L]
Accelerates learning, information flow and communication	"(…) this digital side of learning allowed us to know in the morning what was done in the day before, for instance. People working in that area of our business can now post information in the platform on demand, about what happened and critical notes (…)." [Company A] "(…) people can now access experts of a totally different area and learn faster in this way." [Company B]

Outcomes of informal learning – modalities	Interview text segment
	"(…) everyone learns faster, because people use a stronger network to make their lives easier." [Company C] "In my perspective, training new recruits from the commercial area is putting them side by side with senior colleagues (…) Making them learn faster by watching how to welcome and answer clients". [Company H]
Breaks down organizational silos	"People value these activities and more than the technical concepts that they learn, they value the time they had to build their network and know other colleagues, who were doing things they did not imagine." [Company A] "(…) it is up to us to help support this learning process. So yes, in that sense these initiatives promote organizational knowledge. One of the things that we notice is that people become eager to learn things out of their comfort zone and communicate with other areas with greater confidence." [Company H]
Helps to connect employees and generate business chemistry in teams	"(…) in fact, promoting that introspective diagnose about and making employees reflect on how they see themselves at work has helped a lot. In particular, I what concerns teamwork. It helps people understand why they don't get along with some people that well and why they do with others. It helps find complementarity among the team members. Just the other day, through one of these initiatives, we helped a really «macro» type of manager understand why his subordinate was always asking him for small details. He understood how to take advantage of their complementarity. (…) we also have struggled to find a network of experts, which includes people who are more introverted but who are in the know of things and help out other colleagues. We know that these employees are self-learners and our job here is «taking them out of the shadow», through some of our social gatherings activities, such as «tip talks»." [Company C] "(…) so now through technology, I can let others know that I am available to help with a certain topic, which favours our internal network." [Company D]

Table 9 - Outcomes of informal learning

Discussion and Conclusions

The current investigation illustrates and reinforces the idea that learning and development is a topic of increasing importance for organizations operating in Portugal. Along with the well-developed and complex science of training the market place also reflects the important role that the development of human capital plays in achieving competitive advantage.

The study allows to answer its main research question: "How do managers in companies operating in Portugal face informal learning?". It shed light on the concept of informal learning, its antecedents, supporting activities and outcomes, considering the Portuguese labour market. Besides, addressing the objectives of the study was an important step to draw a framework of recommendations and suggestions to be put in practice, for companies wishing to design and develop informal learning.

This study evidenced that the training and development focus of research has shifted to a broader concept, which places emphasis not only on formal training and development but also on informal learning. This conclusion is aligned with literature and the recent studies conducted by Le Clus (2017), Noe (2017) and Tannenbaum *et al* (2009). Along with this, human resources professionals who participated in the study recognized that todays' market requires organizations to constantly adapt in terms of business practices, taking advantage of the social aspect of learning. Informal learning, as a proved relevant topic in this area, evidently expresses the relationship between training transfer and social networks. Moreover, besides the social aspect that informal learning takes into account, it is becoming more evident that employees want to be on charge and have ownership of their development, using various resources to accomplish that.

In what concerns the *managers' perceptions* of informal learning, it was consistently described as a type of learning that happens "naturally", "unconsciously" or "spontaneously". This description, particularly the usage of the word "spontaneously" goes with Lukisch & Vries's (2017) proposed "learning spectrum". Also, the three key clusters of informal learning presented by Noe *et al* (2014), which were learning from oneself, learning from nonrelation resources and learning from others, were not explicitly mentioned. To some managers, its definition was not promptly given, which demonstrates that it is not an everyday-used concept with an undisputable meaning. This seems to point to the need of spreading the concept of informal learning in businesses that wish to take advantage of it, as to assure that employees from all business units are aware of it and share a common meaning for informal learning.

Nevertheless, informal learning has obviously been present since start. Managers acknowledged that individuals learn from each other, on the phone, through meetings and rely on different resources to look for information. However, related tactics to develop informal learning have only recently been incorporated in companies' learning and development plans, along with the traditional formal training ones, to emphasize its importance.

This research made possible to identify eight *key antecedents* of informal learning, split into two different levels of analysis: individual and situational antecedents. Individual antecedents of informal learning are related to employees' specific individualities, which influence their willingness to engage in informal learning. In this study, these correspond to individuals' "intent to learn" and "perceived value of work". On the other hand, situational antecedents refer to organizational context factors, which work as drivers for informal learning to take place in the organization. The situational antecedents identified were "new tasks situations and characteristics", "selection of candidates", "promotion of fun", "performance appraisal quality and HR system strength", "learning climate and opportunities" and "market shifts".

The coding map, as one of the MAXQDA outputs, illustrated that "learning climate and opportunities" was the most frequently discussed subject, by all managers, followed by individuals' "intent to learn". This leads to two main conclusions. Firstly, that managers strongly connected engagement in informal learning to the existence of a supportive learning climate. Therefore, it indicates that organizations should provide the best environment for employees to engage in learning activities and, specifically, in informal learning. As suggested by literature, nurturing the right climate is vital and placing emphasis on learning through errors as well. Secondly, it also proposes that managers recognized "intent to learn" as an important individual factor, for informal learning to take place. This underlines the importance of placing more emphasis and attention on this type of trace in recruitment and selection processes. Job candidates who demonstrate motivation to learn more and a higher commitment to their careers will most likely engage in informal learning activities, as they represent self-driven workers.

Informal learning is perceived as a key ingredient of training and development by most companies operating in Portugal even if indirectly. From all interviewed managers, eight referred that they are currently applying *specific practices* to leverage informal learning (companies A, C, D, F, G, I, J and L). What was curious to note was that most managers recognized that such methods were not implemented with the intention of developing informal learning. In other words,

the activities had a clear and strong informal learning but they were not designed with that intention.

Four managers referred that they have implemented the 70:20:10 approach, aligning HR practices, such as performance appraisal, to this model. All these factors point towards the need to recognize that informal learning is not simply a side effect of work or merely a "part of the job". All the companies participating in this study are aware of its existence. Yet, as suggested by literature, some purposely induce employees' to engage in informal learning, through the design and implementation of specific activities that support it (Bancheva and Ivanova, 2015). Companies that demonstrated greater focus and investment on their employee's development, even by means of formalized training programs, corresponded to the ones demonstrating informal learning methods implemented. This shows that some organizations have deliberately developed tactics to support and stimulate informal learning, despite its employee-driven nature.

This said, the informal learning *supporting activities* identified in this study were arranged in three different clusters, matching the key informal learning components proposed by Noe (2014): self-reflection, non-relational resources and external resources. The content analysis conducted evidenced which types of initiatives can meaningfully and deliberately be established within the company, to encourage the engagement in informal learning. For once, companies A, B, C, D J and I deliberately encourage employees to reflect on their job and performance, through three different ways: "regular debriefings", "trial and error approaches" as well as "self-awareness activities".

Moreover, companies A, B, C, D, G, I, J and L have implemented or provided different types of tools, to promote informal learning through non-relational resources. A set of four non-relational resources was identified in this study. Three of these are technology-based ones: "newsletters", "online courses" and "knowledge platforms". The fourth one corresponding to "documentation centres/library". Lastly, regarding the components, learning through peers' interaction was proved to be sustained by business practices, as in the case of companies A, B, C, D, G, I, J, L. Managers from these companies specified activities that promote collaboration and/or interactivity among the employees, which they related with engaging in informal learning. Concerning this dimension, a set of six practices was identified, five of which occur through face-to-face interaction: "job rotation/cross training", "job shadowing", "mentoring/ coaching", "social gatherings/events". However, technology-based types of interaction, such as "online networking

and communities of practice", represent the most common practice to boost social interaction and foster learning through specific platforms (e.g. yammer), referred by the managers.

The last aim of this study was attained and five main types of informal learning *outcomes* were delineated. As pointed by literature, the study corroborates that informal learning outcomes can hardly be excluded from the formalized training ones. Likewise, all the interviewed managers considered measuring the effectiveness of informal learning a big challenge. As shown, an undisputable outcome relates to the reinforcement of formal learning, as these strategies are complementary, proving the same efficiency, in terms of learning strategy, of the Canadian study conducted by Wihak *et al* (2010).

Engaging in informal learning opportunities helps individuals to learn on demand, converting companies into learning organizations. The five outcomes outlined were that informal learning helps the following: "Transmitting the company's set of values and the way «things are done» to newcomers", "Increase motivation and engagement levels with the organization's mission", "Accelerates learning, information flow and communication", "Breaks down organizational silos" and "Helps to connect employees by generating business chemistry in teams".

Secondly, if informal learning is viewed as an indispensable piece of the training and development HR mosaic, it will lead organizations to offer a variety of tools and methods that employees can choose from to meet their learning needs on demand. This conclusion suggests that there should be professionals dedicated to the development of these methods, either in the training and department or within the different business areas.

A final consideration on the outcomes of informal learning leads to the conclusion that informal learning is a cost efficient alternative to deliver training, since formalized programs take a higher price tag. Managers from companies C and G denoted that it costs much less than formal training, enlightening that it leverages existing materials and relationships. As authors studying organizational behaviour and information systems have already clarified, it allows the utilization of existing knowledge resources. This way, it was proven that informal learning is particularly beneficial to businesses that struggle with training budgets.

Nevertheless, managers from all companies underlined that one form of training will not replace the other, even in the long term. In line with Wang and Noe (2009), only the precise balance between formal and informal learning can ensure efficient training transfer. In turn, this points to

the need of readapting existent training programs, which are fundamentally based on Goldstein's instructional system design model (ISD), not taking informal learning into account.

Following this line of reasoning, it seems clear that informal learning expresses the role that a broader perspective in the study of learning plays in the human resources development area. It reflects, as defended by literature, not only the social aspect of learning but also the complexity of today's organizations, when it comes to systems and technology. The study of the human resources professionals' perceptions on this issue helped to clarify if companies operating in Portugal are aware of this proactive learning behaviour and whether or not their learning management strategies and systems incorporate informal learning. This idea constitutes the major conclusion of this study. Emphasising informal learning tools and putting learning in easy reach is increasingly more significant to organizations. Therefore, organizations can or rather should deliberately include informal learning in the organization's strategy. The rapid pace of learning and the increased market demand is asking for people to constantly develop themselves and attain more knowledge, regardless of the industry sector. Companies that have identified the need to innovate training and development practices are determined to understand how to best apply informal learning and integrate it into a structured training and development program.

Suggestions and Recommendations

This study results consent a suggestion of a systematic informal learning framework and the presentation of a set of recommendations, for forward-thinking organizations that wish to add an extra element and "at-your-fingertips" tools to their training and development plans. Based on the managers' perceptions, on the informal learning activities mentioned and on the literature review conducted, it is possible to compile information regarding informal learning tools and build an «infoline» to effectively transfer information.

The results of the study combined with the literature review strongly propose that informal learning accounts for the major part of the learning, so it is urgent that organizations address and plan for that by integrating it in their people development strategy. Learning culture and opportunities should be regarded as a major driver of the HR policies. Just as formal training, informal learning should be strategically connected with other HR practices, namely performance appraisal. There needs to be an internal communication of the available and new-developed informal learning tools and employees need to be compensated for using them. Final proposed

implications for practice, are that organizations should empower managers to support informal learning in the workplace. The managerial support is a vital resource to predict work-related learning. A specific HR practice to promote this could be counting the time spent participating in informal learning toward the managers' working hours.

Turning informal learning into a systematic instructional design model does not mean that it will seize to be "informal". The processes and system models to support informal learning must be structured, yet its main characteristics will remain the same:

- Continuous type of learning;
- Contextual, happening in the workplace context or on-the-job;
- Individualized in that it meets specific needs;
- Personal, as you contact people who are in the know of a certain topic;
- Just-in-time, occurring right when the learner needs to apply knowledge or skills;
- Chunked, as learning events are completed in a matter of minutes in most cases.

A first recommendation, before implementing any informal learning tool is to analyse which types of formal training objectives and programs can be transferred to an informal learning model. It is important to define a strategy that will allow the organization to make a clear transition from formal training to informal learning. Next, an informal learning framework is presented taking the ISD model as a key base.

Designing Informal Learning throughout the ISD process		
ISD Traditional Steps	Recommendations	
1st Step – Learning needs analysis	1st Step – Learning needs analysis	1) Examine learners current knowledge and capabilities (consider their comfort working with technology and social media); 2) Identify the technology resources available; 3) Conduct an «audience analysis» to align workforce needs with strategic goals and to make learning tools available for informal learning to take place (see Appendix VII).
2nd Step – Design and development of learning objectives	2nd Step – Design and development of informal learning tools and methods[5]	4) Gather content and resources needed, with the help of experts in the subject matter (line managers and others); 5) Set a correspondence between resources and each learning objective;

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[5] Splitting learning projects according to two streams of analysis is recommended. Ideally, an organization should establish two learning functions, to address each learning area:

    1.1. Formal training & development: responsible for the know-how attained in classroom or through web base modules;

    1.2. Informal training & development: responsible for overall knowledge management and tools, leading workers to engage in informal learning in their daily operations when needed.

		Designing Informal Learning throughout the ISD process		

		6) Establish an overview of the training solution through an instructional design document;
		7) Define the format and/or formats of informal learning tools, regarding learner's needs, the content and the client's goals. Here are a few suggestions of automated and personal tools:
		    a. Self-reflection:
		        i. Methods to stimulate self-reflection (e.g. DISC methodology)
		    b. Non-relational resources:
		        i. Content aggregation and mashups
		        ii. Online collaborative working
		        iii. Communities of practice
		        iv. Wikis, microblogs
		        v. Social networking
		        vi. Organizational search engines
		    c. Peers interaction:
		        i. Micro training sessions with a coach
		        ii. Social gatherings with defined learning objectives		

3rd Step – Delivery and implementation	3rd – Setting the informal learning course[6]	1) Create the variety of media and training material previously defined; 2) Feed informal learning tools with precise information: it must include the data gathered during the 1st step and address the guidelines defined in the 2nd step; 3) Communicate and incentive the use of informal learning tools.		

4th Step – Evaluation of the training course	4th Step – Measure the informal learning tools	Apply techniques to measure each informal learning tool implemented:
		    a. Experimentation (pilots)
		    b. Briefings to collect feedback from learners
		    c. Observation
		    d. Web monitor
		    e. Suggestions inquiries (web based)		

Table 10 - Practical implications of designing informal learning

It is important to clarify the role that learning professionals play in this scenario. Informal learning is an approach requiring lesser need of control when compared to formal training. Therefore, these professionals should act as moderators and settle policies which allow this part of the learning scenario to be left to chance. The key is to settle a base structure for informal learning tools to become visible in the organization and well known by all employees. Once the infrastructure becomes developed and implemented, informal learning will be embedded in the culture and collaborative learning will result in improved resolution of problems. In the medium and long term,

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[6] Learning promoters should only support the implementation of the training and informal learning tools, without directly interfering or micromanage. They should try to collect employees' feedback regarding the most fitting and effective learning style. It is important to direct learners where to look for and who to ask to get the information they need. Also, try to motivate learners and make them feel responsible for their performance.

the idea is for informal learning to become mainstream and used in daily operations. Company C contributed with a practical example in this area.

> We have the basic "skeleton" established and at everyone's disposable (…) we have people asking us to organize share-talks to improve certain competence or discuss ideas. [Company C]

Another suggestion for organizations, lies with solving the older issue that persists in many businesses: results-versus-people dichotomy. Addressing informal learning means that executives and managers need to work together with HR professionals. If learning professionals assume the role of learning promoters and moderates, line managers, in turn, become responsible to coach and promote informal learning in their teams. Financial results and people management are both important functions that managers need to assume. A recommendation is to train line managers in rapid coaching methods, identification of learning opportunities and mentoring. Again, this aspect should be reflected in the career development plan and rewarded. Therefore, managers and team members must provide important inputs to learning promoter and directly contribute to the development of informal learning tools, as shown in the third step of the suggested framework.

A final emphasis should be placed in the promotion of fun when preparing for the design of informal learning. Fun, as a driver of informal learning, presents itself as an efficient strategy to overcome some of the shortcoming of informal learning. Fun fosters open communication and companionship while helping to overpower the risk of making mistakes or looking incompetent. On top of that, fun promotes positive emotion, creates greater energy and increases individual's optimism and resilience. Moreover, fun and the feelings of enjoyment promote creativity by powering brain development, helping to create knowledge and intellectual complexity.

Limitations and suggestions for future researches

It would be possible to improve the current study, which gives way for further investigations in this topic. Firstly, eleven interviewed companies is considered a relatively small sample, even though the objective of this dissertation was not the generalization of the results to the Portuguese reality.

Also, the analysis of «self-reflection», as one of the components of informal learning, turned to be a difficult element to analyse through the method followed in this research. Apart from the activities specified by the managers, it is close to impossible to determine whether or not the employees of that organization engage in self-reflecting activities or not. To address this and

improve the current study results, other investigation methods and techniques for data collection should be introduced (e.g., focus group to generate the dimensions of analysis).

Future studies in this field should include not only the managers working in the field of learning and development perceptions, but also middle managers and team members' view on the matter. Thus, there is room for studies that consider cross-level types of analysis.

Organizational success lies on a coherent mosaic of connected human resources components, so it becomes important to reflect the organization's commitment to foster informal learning in those pieces of the "puzzle".

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Appendixes

Appendix I – Semi-structured interview script

"Ice-breaker":

Good afternoon, my name is Catarina Delgado and first of all I would like to thank you for your kindness in contributing to my master thesis at ISCTE-IUL by answering to some questions. I also wish to assure you that this interview is anonymous and for academic purposes only.

1. Perceptions on Informal Learning	
1.1 General opinion on this topic	1.1 Nowadays, it is very common to talk about lifelong learning, learning organisations and informal learning. What is your opinion on these matters?
1.2 Specified opinion on informal learning	1.2 More specifically, apart from what you have already said, what do you think informal learning is really about?
1.3 Existence of informal learning in this organisation	1.3 So, from what you are saying, we can assume that there is informal learning in this company?
1.4 IL specific activities	1.4 Which activities of informal learning can you identify?
1.5 Opinion on the fact that the main source of knowledge is IL	1.5 Some research studies mention that workers state that they obtain most of their knowledge through informal learning. From your experience, what is your opinion on these results?
1.6 Reflecting on the conciliation between formal and informal learning	1.6 Do you agree that informal and formal learning should be conciliated in organisations? In what way? Can you give examples?
2. Antecedents of Informal Learning	
2.1 Complexity of work as an antecedent to IL	2.1 Several studies refer the growing demands of knowledge and the increasing complexity of work in contemporary society. How is this reflected in this company?
2.2 New situations and problems at work as an antecedent to IL / Support of the organisation to learning through external or non-relational resources	2.2 In various organisations, workers search for information in an autonomous way, to solve problems they come across. Do you consider that this happens in this company? In what way?
2.3 Social events as an antecedent to IL	2.3 It is defended that moments of leisure and entertainment related to work (e.g., social gatherings outside the company, public celebrations of employees achievements, teambuilding activities) contribute to knowledge and learning. What is your view on this subject? What kind of activities like these do you have in this company? What are the main goals of the firm when organising these events?

2.4 Strength of the HR system as an antecedent to IL / Learning Activities initiated by workers	2.4 Are there in this firm people responsible to identify the learning needs? What is the contribution of managers/intermediate leaders and of the workers themselves in this process? What is the relation between performance appraisal and training and development in the company?
2.5 Value of work as an antecedent to IL	2.5 In many occasions, employees feel that their work adds value to the organisation which increases their predisposition to engage in informal learning. What is your opinion about this, considering this company?
3. Methods to support Informal Learning	
3.1 IL through interacting with others	3.1 In some organisations, informal learning occurs through information sharing among employees. What is your take on this, considering this firm?
3.2 IL through self-reflection	3.2 Recent studies on this issue point that self-reflection stimulate employees to engage in informal learning. In what way does this happens to the workers in this firm?
3.3 IL through non-relational resources: *3.3.1 Networking tools and knowledge platforms*	3.3 Relying on external resources is a fundamental component of informal learning, namely online search. Does your company encourages workers to learn on their own? 3.3.1 Does your organization possess any platform, which allows knowledge management or information sharing among employees? What led to its implementation?
4. Outcomes of Informal Learning	
4.1 Consequences of knowledge management platforms	4.1 If yes (question 3.3.1.): What results came from establishing this kind of tool in the company?
4.2 IL effects on performance	4.2 Which effects can you identify in the workers performance that could be related to the informal learning activities you mentioned before?

Thank you very much for your cooperation and participation in this study.

Appendix II – Participant companies general profile

Company Dimensions	A	B	C	D	E	F	G	H	I	J	L
Interview date	20/05/2017	06/06/2017	23/06/2017	26/06/2017	28/06/2017	29/06/2017	03/07/2017	05/07/2017	06/07/2017	10/07/2017	11/07/2017
Interview duration	40 min	42 min	36 min	32 min	25 min	43 min	25 min	30 min	29 min	26 min	33 min
Interviewee's job title	Academy Director	HR Area Coordinator	Head of Knowledge	People development Senior Manager	Senior Manager	HR Director	Talent Manager	Head of People Development	Academy Manager	Talent and resourcing specialist	HR Development manager
Industry/Sector	Road and rail transport	IT consulting	Retail	Consulting/ Auditing	Consulting/ Auditing	Paper tissue	Beauty and cosmetics	Insurance	Energy	Telecoms	Retail
Headcount (in Portugal)	> 1000	11-50	> 10000	> 1000	51-200	200	400	> 1000	> 10000	> 1000	> 1000
Operating areas	Local	Worldwide	Worldwide	Worldwide	Worldwide	Worldwide	Worldwide	Worldwide	Worldwide	Worldwide	Worldwide
Legal form	State-owned	Private	Private	Private	Private	Private	Private	Private	Private	Private	Private

Appendix III – Example of retrieved text segment from MAXQDA

Aprendizagem informal é tudo aquilo que nós sentimos que é uma aprendizagemo através do próprio local de trabalho, ou através de projetos, ou através de passagem de conhecimento ou através de conversas e conferências. Portanto, no fundo em que a pessoa não tem que estar numa sala de aula mas consegue aprender de uma forma mais próxima e normalmente mais ligada à sua realidade quotidiana.

Interview 3
16 - 16
Informal Learning
Perceptions of informal l...
Informal learning defini...

Aprendizagem informal é tudo aquilo que nós sentimos que é uma aprendizagemo através do próprio local de trabalho, ou através de projetos, ou através de passagem de conhecimento ou através de conversas e conferências. Portanto, no fundo em que a pessoa não tem que estar numa sala de aula mas consegue aprender de uma forma mais próxima e normalmente mais ligada à sua realidade quotidiana.

Appendix IV – Coding frame in MAXQDA

Code System	415
Informal Learning	0
Perceptions of informal learning	95
Antecedents of informal learning	161
Informal learning components and supporting methods	136
Outcomes of informal learning	23

Code System	415
Informal Learning	0
Perceptions of informal learning	0
Informal learning definition	16
Factors influencing investment on learning	37
Informal vs Formal learning's significance	42
Antecedents of informal learning	0
New tasks situations and characteristics	9
Selection of candidates	5
Promotion of fun	25
Performance appraisal quality and HR system strengh	26
Intent to learn	29
Perceived value of work	7
Learning climate and opportunities	41
Market shifts	19
Informal learning components and supporting methods	0
70:20:10 Model for Learning and Development	7
Nonrelation resources	13
Knowledge platforms	38
Peer interaction	25
Online social networking	12
Job rotation/ Cross training	6
Market analysis	2
Mentoring	7
Job shadowing	7
Self-reflection	17
Trial and error	2
Outcomes of informal learning	23

65

Appendix V – Analytical framework

Analytical dimension	Components	Purpose
Perceptions of informal learning	*Informal learning definition*	To clarify how managers define informal learning.
	Informal vs Formal learning 's significance	To present the ways through which a company balances informal with formal learning opportunities; Importance given to informal learning in the overall learning scenario of the company.
	Factors influencing investment on learning	To enunciate the reasons for emphasizing specific types of learning or learning opportunities to the detriment of others; To pinpoint and apprehend constrains and benefits of informal learning.
Antecedents of informal learning	*New tasks situations and characteristics*	To understand if workers are exposed to new tasks situations and characteristics in the company and comprehend if managers recognize these as enablers of informal learning opportunities; To depict the relationship between task factors and workplace learning (specifically, informal learning).
	Selection of candidates	To clarify the relationship between learning and people's selection; To denote if selection of candidates with high learning goal orientation is taken into account.
	Promotion of fun	To diagnose managers' perceptions of "fun" in the workplace and identify related events and activities in the company.
	Performance appraisal quality and strength of the HR system	To identify the existence of a performance appraisal system; To denote a link between performance appraisal and training and competences development; To demystify if managers send clear signals of expected behaviours to employees.
	Intent to learn	To identify workers' self-awareness of the need to improve, acquire knowledge and build expertise (dynamic model component); To realize if supervisors help employees identify their learning goals.
	Perceived value of work	To elucidate the connection of employees' given importance to their work with engagement in informal learning; To explore the role of self-efficacy in learning.
	Learning climate and opportunities	To detect the presence of a learning climate in the company; To portray the learning climate and opportunities.
	Market shifts	To understand if managers recognise market shifts as enablers of different learning opportunities, namely informal learning; To portray the impact of changes in the market on the company's learning environment.
Supporting methods	*Self-reflection*	To explore if self-reflection occurs in the company, identifying organizational processes, which enable employees' self-reflection.
	Peer Interaction	To explore and describe informal learning activities which involve peer interaction.
	Nonrelation resources	To identify informal learning through non-relational sources in the company.
Consequences of informal learning	*Outcomes of learning opportunities*	To shed light on the consequences of each identified informal learning activity for the employees and the company.

Appendix VI – Coding map

Informal vs Formal learning's significance (42)

Informal learning definition (15)

Factors influencing investment on learning (36)

Perceptions of informal learning (0)

Selection of candidates (5)

Performance appraisal quality and HR system strengh (26)

Promotion of fun (25)

Market shifts (19)

Antecedents of informal learning (0)

Intent to learn (29)

Learning climate and opportunities (41)

New tasks situations and characteristics (9)

Perceived value of work (7)

Informal Learning (0)

Informal learning components and supporting methods (0)

Outcomes of informal learning (23)

70:20:10 Model for Learning and Development (7)

Self-reflection (17)

Nonrelation resources (13)

Peer interaction (24)

Appendix VII – Questions for an «audience analysis»[7]

Who will participate in the training?
When will they want to engage in this learning?
Where will learners want to learn?
Who should we contact to help build and organize the informal learning tool/activity?
What resources will be at the learner's disposal?
What software and hardware will learners need?

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7 Based on Neal and Hainlen (2012)