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Master Thesis

The Strategic Use of Microlearning as a Training Approach for the Purpose of Workforce Skills Development in Multinational Corporations

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Appendix 02:

Declaration of Authorship

"I hereby declare that this thesis is my own work, that it has been created by me without the help of others, using only the sources referenced, and that I will not supply any copies of this thesis to any third parties without written permission by the head of this degree program."

At the same time, all rights to this thesis are hereby assigned to ZHAW Zurich University of Applied Sciences, except for the right to be identified as its author.

Last name/first name of student (in block letters)

KRYSTAL LOH JOEY

Student's signature

[redacted]

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Management Summary

The rapid pace of digital disruption aggravated by socio-demographic trends have impacted the nature of work tremendously. The skills that multinational corporations (MNCs) value and relied upon have been evolving faster than ever. Hence, learning and development (L&D) has been finding new ways to help their workforce keep up with the shifting skills needs. However, there have been numerous issues with traditional training for skills development, including considerable financial and time investments that may interfere with a company's daily operations. As a result, an increasing trend toward technology-enabled learning, such as microlearning, has aided MNCs in quickly filling skill gaps.

The aim of this thesis was to shed light on the emerging topic of microlearning in hopes of paving the way for future research. With many L&D professionals still unfamiliar with the present state of microlearning, they would have been even far less aware of the factors to implement it successfully within their organizations. This research also took on the strategic lens in examining the role of strategic human resource management (SHRM) and organizational learning (OL) through the perspective of L&D professionals. Four research objectives have also been of particular interest throughout this thesis.

In order to fulfill the research question and stated objectives, this research adopted a qualitative research design of an exploratory nature. Semi-structured interviews were conducted with six L&D professionals. There were two categories of L&D experts interviewed: those with strategic level experience and those with systems or operational level expertise.

The results showed that L&D professionals agreed that SHRM and OL serve as a sources of competitive advantage. The conducted research also revealed that OL is not only a competitive advantage, but also a survival strategy, as it aids the firm in adapting to its ever-changing business environment. The findings also indicated that L&D is seen as a strategic enabler. The results gathered that the most critical skills gap is the need to enable employees to take care of their continuous self-development. By combining the information from the literature review with the findings from the interviews, five main drivers for the adoption of microlearning emerged. Likewise, this thesis also presented five main features that distinguish microlearning as an effective training approach for skills development.

Taking into account the study's limitations, the findings led to recommendations for L&D professionals on nine multi-dimensional success factors for the implementation of microlearning. While L&D has a crucial role to play in the success of an organization’s training strategy and approach, it also demands significant buy-in and participation from top management, line management, and every single employee. Ultimately, every single learner should be responsible for his or her continuous self-development in order for the organization to gain a competitive advantage through its human capital.

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IV. List of Abbreviations

ADDIE Model	Analysis, Design, Development, Implementation and Evaluation Model
CAL	Computer Assisted Learning
CHRO	Chief Human Resource Officer
COVID-19	Coronavirus Disease 2019
CSR	Corporate Social Responsibility
EC	European Commission
HR	Human Resource
HRBP	Human Resource Business Partner
HOD(s)	Head of Department(s)
HRD	Human Resource Development
HRM	Human Resource Management
KPI(s)	Key Performance Indicator(s)
IRBs	Institutional Review Boards
IT	Information Technology
L&D	Learning and Development
LMS	Learning Management System
MNC(s)	Multinational Corporation(s)
MOOC(s)	Massive Open Online Course(s)
OD	Organizational Development
OL	Organizational Learning
RBV	Resource-based View
SAM Model	Successive Approximation Model
SCORM	Sharable Content Object Reference Model
SHRM	Strategic Human Resource Management
T&D	Training and Development
UX	User Experience
xAPI	Experience API
ZHAW	Zurich University of Applied Sciences

V. Definitions

Unless otherwise stated, the terms organization(s), firm(s), company(ies), business(es) and Multinational Corporation(s) are used interchangeably.

Additionally, for the purpose of establishing a clearer understanding, the term HR is used to describe a functional area within an organization. The terms HRD, HRM and OD refer to facilitators of OL. Lastly, the term L&D refers to a specialty within HRD.

1. Introduction

1.1 Trends Affecting the Global Workforce

Multinational corporations (MNCs) function in an interconnected world not in a vacuum. These firms operate in a particular societal context in which they are both affected by and have influence over their surroundings (Abebe, 2012). Numerous external trends which have led to the disruption of business models and radically changing the workplace (Schwartz et al., 2016). According to a research conducted by Deloitte in 2016, four main external trends – globalization, evolving demographic composition of the workforce, changing workers expectations towards work and digital disruption, have a significant structural impact on labor markets and businesses worldwide (Geller, Wakefield, & Walsh, 2016).

As MNCs operate across transnational borders in order to gain greater access to wider consumer markets and distribution networks, it has led to the proliferation of a global workforce that is both culturally and ethnically diverse (The Economist Intelligence Unit, 2015). This trend has further accelerated given the fact that many well-educated individuals continue to seek better career opportunities abroad. OECD (2019) data reveals between 2000/01 and 2015/16, the share of highly educated migrants rose from 27% to 35% for those born outside of the OECD, and from 21% to 30% for those born in an OECD country. Globalization has also increased rivalry, as MNCs must preserve or gain a competitive advantage in global markets while avoiding home competition (The Economist Intelligence Unit, 2015).

The changing demographic composition of the workforce has also become the norm in many organizations as baby boomers retire and millennials enter and take over the workforce. By 2025, workers aged 20 to 65, belonging to Generation Z (born between 1997-2012) and Millennials (born between 1981-1996) would make up 63.8% of the global labor force participation, surpassing the percentage of Generation X (born between 1965-1980) and Baby Boomers (born between 1946-1964) which is set to shrink to just 36.2% of the global workforce (Beresford Research, 2021; Lettink, 2019). This demographic upheaval has given rise to changing social values and workers expectations leading to prevailing workplace trends such as the increase prevalence of a freelance economy, making long-term employment relationships a thing of the past – and so is unquestioning employee loyalty (Tulgan, 2017). Millennials, also dubbed “digital natives” expect companies to deliver exceptional employee experiences with constant learning and development (L&D) opportunities in order to retain talent (Tulgan, 2017).

Digital disruption has altered the way companies recruit, manage and retain their workers (Schwartz et al., 2016). Manpower Group (2020) reported that global talent shortages are at a record high, with 54%

of companies worldwide unable to find the skills they are looking for. As the pace of digital disruption continues to accelerate, skills sought after by employers and job roles are evolving faster than ever. As technology disrupts the workplace, the most in-demand jobs may be similar as previous years, but the skills needed to perform these jobs continue to change rapidly (Manpower Group, 2020).

Countries around the world are responding to this trend by rolling out policies and initiatives to ensure that people have the right skills for jobs. For example, the European Commission (EC) launched the European Skills Agenda on 1 July 2020 with the aim to close systemic gaps to help the economy adapt to a green and digital economy (European Commission, 2020b). Through this agenda, the EC hopes to develop a future-oriented skills development system that adopts training solutions that directly links labor market and societal needs (European Commission, 2020a). Training solutions, such as microlearning, have been used to help workers bridge their personal skills gap (Erasmus+ National Agency for EU Higher Education Cooperation, 2020).

1.2 Challenges and Implications of Workforce Trends on Learning-and-Development

All of the trends of workforce disruption have raised the importance of L&D while prompting changes in the way organizations support and develop their workforce.

Challenges of multigenerational and diverse workforce, brought about by globalization and the effect of demographic shift, have broaden L&D's span of target learners in terms of having to cater to the learning needs of different generations, nationalities and professional backgrounds (LEO Learning, 2013).

Another challenge for L&D is the change in worker expectations towards long-term employment which has resulted in people serving shorter tenures in a particular job (Muzzell, 2015; Schwartz et al., 2016). When these employees leave an organization, they take valuable information, skills and experiences with them. Hence, L&D must find solutions to maintain a flow of up-to-date information that its ever evolving workforce can swiftly access (Muzzell, 2015).

The most significant challenge facing L&D is the rapid rate of digital disruption, which is fast transforming the corporate environment and demanding L&D to equip its personnel with the necessary skills to remain competitive (Huba & Kozak, 2020). According to Weinberg (2002), digital disruption has the potential to alter the nature of work affecting the relevance of various job tasks. As a result, some of the skills which the workforce has accumulated over the years might become less relevant, or even rendered obsolete. As a result, L&D must assist employees to deal with the changing skills needs

as a result of the rapid technological development by providing continual reskilling and upskilling training to prepare them for the future of work (Kar, Kar, & Gupta, 2021).

1.3 Research Question and Objectives

The information presented in the preceding sections emphasizes the trends affecting the global workforce, as well as the challenges and implications they pose for MNCs. These trends have undoubtedly caused strategic human resource management (SHRM) to take on new significance. This necessitates a strategic focus on human capital planning and intellectual capital development (Srivastava, 2000). According to Lundy (1994), human resource management (HRM) objectives are only strategic if they are in line with the company's overall strategy. Organizations are also realizing that investing in people is critical to their performance and success (Srivastava, 2000). Thus, businesses need to develop their employees' skill sets through organizational learning (OL) (Argote & Miron-Spektor, 2011). Ultimately, the aim of SHRM and OL is to aid in the development of the organization's capabilities, thereby improving its employees' work performance and productivity and contribute to the attainment of its overall strategic objectives, while serving as a long-term source of competitive advantage for the firm (Karakas & Manisaligil, 2012; Lee, Kim, & Zo, 2015).

One of L&D's primary strategic responsibilities is to manage the development of its workforce capabilities and close skills gaps through the development of an organizational training strategy – and to do so in a way that supports other key business goals (Van Dam & Masie, 2018). Van Dam & Masie (2018) defines an organization's training strategy as a blueprint in which the company seeks to support the professional development of its workforce and build capabilities across the company in a timely and cost-effective manner. An organizational training strategy should also seek to develop employees' competency profiles and identify skills gaps which can be fed into the training needs of employees (Cegos UK Limited, 2015).

Hence, effective skills development, through upskilling and reskilling, is needed to close employees' skills gaps and help them improve their work performances and productivity (Milano, 2019). According to Kawar (2011), skills development ensures that each individual's potential is realized, laying the foundation for employability. However, conventional training for skills development demand significant cost- and time-investment which may interfere with the company's day-to-day operations (Hughey & Mussnug, 1997). There are also many problems associated with traditional instructional design for skills development, including limited budget, employees' lack of motivation to self-develop, and outdated training scopes that fail to keep up with industry standards for technology and processes (Khouri, 2020).

In an increasingly digitalized world, there has been a growing trend towards microlearning, to provide bite-sized, specific, quick and on-demand training (Winkelhake, 2018). Microlearning can also assist L&D professionals in fragmenting training content into easily digestible chunks, assisting L&D professionals who are under increasing pressure to offer cost- and time-efficient trainings for skills development that allow employees to learn as they work. Microlearning can also help companies plug skills gaps quickly through training that allow learners to directly apply what they have learnt to their daily job tasks (Bersin, 2018).

However, microlearning as a training approach for skills development in MNCs has not been researched in detail. As a particularly new field, the factors for ensuring a successful implementation of microlearning has been even less researched. There is almost no academic literature on the aforementioned topic, even as microlearning in the workplace has been gaining popularity in recent years.

As microlearning is a new topic in the field of L&D, many L&D professionals might still be unfamiliar with how they can incorporate microlearning as part of their organization's training strategies for the purpose of skills development. This thesis intends to shed light on a relatively new topic in hopes to pave the way for further research. This thesis presents the current state of microlearning through the eyes of L&D professionals with the goal of increasing their understanding of the topic and helping them explore the possibilities of implementing microlearning within their own organizations. Thus, the research question and objectives addressed in this thesis are stated below.

Research Question

What are the success factors for the implementation of microlearning as a training approach for skills development in MNCs?

The specific aim of this thesis is to investigate the success factors necessary for the implementation of microlearning, when utilized as a training approach for skills development as part of the company's training strategy. More specifically, the objectives to answer the research question are fourfold:

Objective 1

First and foremost, this thesis examines, how do L&D professionals view SHRM and OL as sources of competitive advantage.

Objective 2

Secondly, this thesis seeks to ascertain the role of L&D professionals in helping to develop a training strategy to close skills gaps, as well as the most pressing skills gaps that exist within organizations today.

Objective 3

Thirdly, this thesis intends to uncover the drivers for the adoption of microlearning as a training approach for skills development.

Objective 4

Finally, the fourth objective seeks to outline the features that make microlearning an effective training approach for skills development.

1.4 Limitations

Several domain limitations must be stated for this research. Firstly, the limited ability to gain access to the appropriate sample may pose as a possible limitation in this study as microlearning is a young and emerging field. Despite having access to a small sample size of six L&D professionals, not all participants have existing experience of implementing microlearning as a training approach for skills development. However, the sample size will still be large enough to uncover a range of perspectives and opinions from the interview partners to provide an initial investigation and a general direction in which the field of microlearning is developing. Furthermore, while the findings and recommendations presented might be applicable to other MNCs, the organization's digital readiness should also be taken into consideration, as it might likely have bearing on the successful implementation of microlearning as a training approach for its skills development. In addition, even though a significant number of academic literatures was considered for this work, time constraints of the thesis restricted the amount of research conducted. Lastly, the main focus of this thesis will be limited to L&D professionals from MNCs as opposed to smaller businesses, such as, small and medium enterprises. Other specialties and departments within MNCs, apart from L&D, will be excluded from this research.

1.5 Structure of Thesis

There is a clear and cogent structure to this thesis. The introductory chapter briefly presents the research question and four specific research objectives that could be explored in this study. The second chapter

provides a broad framework for reviewing the literature related to the SHRM, OL and microlearning streams. The first literature stream provides a brief overview of SHRM and the most common management models and theories to develop an understanding of the strategic role of HRM. The second literature stream discusses how organizations can increase their learning capacity by implementing learning activities. OL and SHRM are also explored and how both contribute to the achievement of an organization's strategic objectives. Additionally, special attention is given to L&D professionals in terms of their role in aligning workforce capabilities with long-term strategic goals. A third stream of literature addresses the microlearning literature, focusing on how this training approach can be successfully implemented.

The third chapter describes the methodology and methods used in this thesis. This section also explains how the data collection and analysis will be conducted. The findings of the qualitative research are reported in the fourth chapter of this thesis. This chapter is particularly heavy due to the vast amount of information gathered with the help of six interview partners. The fifth chapter covers the discussion which aims to highlight which information is inconsistent, supportive or overlapping, as well as point out new information emerging from the study that is helpful in answering the research question. The views of L&D professionals on SHRM and OL as sources of competitive advantage for the organization will be analyzed. L&D's role in closing skills gaps in their organizations' workforces is also assessed. A discussion of the most pressing skills gaps plaguing MNCs follows. The drivers for using microlearning as a training approach are clearly explained. In addition, the features that make microlearning an effective training approach for skill development is discussed. The final chapter concludes the thesis. There will be a recapitulation of the main findings and recommendation for a set of success factors for future implementation of microlearning as a training approach for skills development, limitations and suggestions for future research. All references used in this study are listed at the end of the thesis.

2. Literature Review

2.1 Strategic Human Resource Management

SHRM emerged in the early 1980s following historical developments from scientific management, human relations, participative management to SHRM (Kaufman, 2014; Koppes, 2014). Owing to the Industrial Revolution that began in the 18th century, large scale organizations were pushed to adopt vertical and horizontal diversification of their business functions, which led to the start of the need to manage personnel (Kaufman, 2014). Overtime, HRM emerged as a replacement for personnel management (PM) from early 1970s that signaled the changing expectations of a better educated workforce (Lundy, 1994). PM was often viewed as a technical system that lacked relevance and flexibility to respond to market changes. The limitations of PM were evident as it was not developed based on a sound theoretical foundation which led to interventions being more prescriptive rather than analytical, and perceived by management as being out of context with the organization's needs (Lundy, 1994). HRM became more systematic as specific human resource functions were introduced – employee selection/placement, rewards, appraisal, development and career planning (Devanna, Fombrun, & Tichy, 1982). The roles of each HR function were also presented in terms of the three levels of management – strategic, managerial and operational (Devanna et al., 1982). SHRM was developed in order to put Human Resource (HR) practices into strategic perspective by aligning employees' behaviors with organizational goals that they accept as legitimate, and bringing out the maximum knowledge, skills and abilities they bring with them (Kaufman, 2014; Lundy, 1994). SHRM emphasized the significance of HRM interacting with the organization's systems, stakeholders and the environment in which it operates in order to align and be well-integrated in its business context (Abdali, 2019). However, critics of SHRM have pointed out the difficulties of finding a precise match between the current situation confronting the organization and its external environment which leads to the complexity in the implementation of a suitable strategy. Another significant criticism of SHRM is that strategic decisions are not always founded on the results of rational calculations (Malik, 2009).

2.1.1 Main Models of SHRM

Two of the most prominent models of SHRM are the 'matching model', also known as the 'Michigan model' was developed by Fombrun, Tichy, and Devanna (1984) and the 'Harvard model' developed by Beer, Spector, Lawrence, Mills, and Walton (1984).

According to the 'matching model', an organization's employees are treated the same way as any other business resource, and the firm's HR system and organizational structure should be managed in a way that is congruent with the overall business strategy (Fombrun et al., 1984). As shown in Figure 1, the

four constituent components of HRM – selection, human resource development (HRD), appraisal and rewards, were expected to contribute to organizational effectiveness (Tiwari, Srivastava, & Kumar, 2019). This model is often described as taking a harder approach to SHRM emphasizing the importance of maintaining a tight fit between the organization's HR strategy with the overall strategies of the business (Tiwari et al., 2019). The development of employees was restricted to the firm's HR policies and practices. Hence, critics highlighted that this model limits the role of the HR function to one that is highly reactive and calculative with regards to the quantity of human resources needed to achieve organizational objectives while undermining the importance of societal and external factors (Malik, 2009; Tiwari et al., 2019). This SHRM model has also attracted other forms of criticism for oversimplifying the process of finding a fit between an organization's overall strategy and its corresponding HR strategy. Thierry (2018), pointed out that strategies are often created on a more intuitive, political and subjective manner, whereas this conceptual model presents a view that the link between business and HR strategy only relies on rational and mechanical approach to strategic decision-making. Nonetheless, the 'matching model' provided the foundation in SHRM literature that underpinned the coherence of the internal HR system and organizational structure with the overall business strategy to achieve the best-fit.

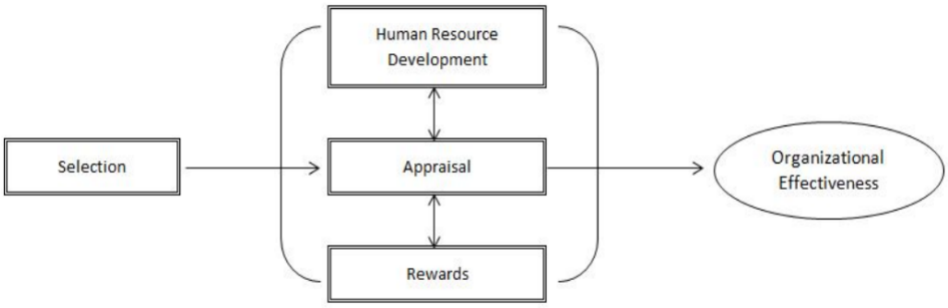

Figure 1 The Matching Model adapted from (Fombrun et al., 1984)

As illustrated in Figure 2, the 'Harvard model', on the other hand, adopted a more comprehensive approach to SHRM and took a more holistic perspective with regards to considering people as valuable assets of organizations rather than viewing them as variable costs (Agyepong, Fugar, & Tuuli, 2010). In contrast to the hard approach taken by the 'matching mode', the 'Harvard model' adopts a soft, high-commitment approach to SHRM by empowering, developing and trusting employees to achieve organizational goals in a mutually beneficial manner (Gould-Williams & Davies, 2005). This multi-level framework took into consideration the viewpoints of stakeholder interests, as well as, situational factors that exists within the firm's internal and external environment (Beer et al., 1984). Stakeholder interests and situational factors can act as a constraint and also influence HRM policies which may

indirectly impact the firm's HR outcomes and long-term consequences. The model also drew attention to the importance of the role of line managers in ensuring the alignment of the organization's competitive business strategy with its HR policies (Agyepong et al., 2010). Policy choices made affected the overall commitment, competence, congruence between the goals of the employees and those of the organization, as well as the overall cost effectiveness of the firm's HR practices (Beer et al., 1984). In the long run, if the organization is able to strengthen its HR outcomes, it will lead to positive consequences for employees' individual well-being, greater organizational effectiveness and favorable societal well-being. The model also illustrates circularity between the organization's policy choices and stakeholder interests and situational factors (Beer et al., 1984). The advantage of the 'Harvard model' is that it acknowledges the importance of environmental and stakeholder influences, and recognizes trade-offs between the interest groups (Malik, 2009).

However, the shortfall of this SHRM model is that it did not explain how, and the intensity by which the four HRM policy choices, HR outcomes and long-term consequences for the organization, were influenced by the identified stakeholder interests and situational factors (Agyepong et al., 2010). Furthermore, close to four decades since this model was first introduced, situational factors like sustainability and a firm's approach to corporate social responsibility (CSR), have been increasingly linked to business strategy (Kaymak & Bektas, 2017). Environmental challenges and issues regarding CSR play a big role in steering HR policies and practices, yet the relationship between these increasingly relevant factors has not been reflected in the 'Harvard model'. Bučiūnienė and Kazlauskaitė (2012), suggests that HRM policy choices play a crucial role in promoting and developing CSR and aids in the synchronization between the organization's profit-driven and social goals. Hence, L&D professionals need to be able to quickly react to these growing trends and play a critical role in gaining employee support and the necessary buy-in from other relevant stakeholders, in order to continuously build and sustain the firm's reputation and link CSR with organizational success (Bučiūnienė & Kazlauskaitė, 2012).

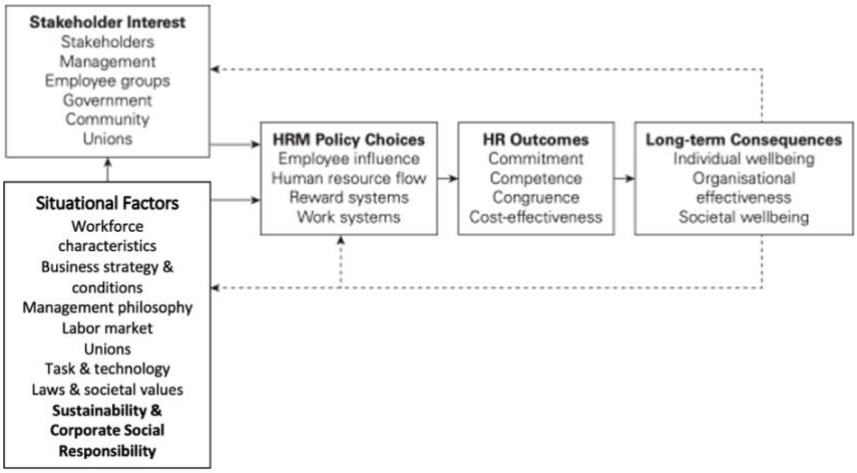

Figure 2 The Harvard Model adapted from (Beer et al., 1984)

Hence, it is observed that both the 'matching model' and the 'Harvard model' place SHRM in the context of HR systems, policies and practices being linked with the organization's strategic objectives.

2.1.2 Main Theories of SHRM – Contribution to a Firm's Competitive Advantage

Huselid (1995), reported that investments in high performance work practices within an organization are associated with lower employee turnover, greater productivity and corporate financial performance. Huselid's (1995) study was one of the first studies to test the hypothesis that high performance work practices of an organization is dependent on the internal and external fit between HR systems, policies and practices and its overall business strategy. Since the 1980s, there has been a growing conviction that SHRM could serve as a source of competitive advantage for firms (Lundy, 1994). As such, there are many theories of SHRM that have emerged to emphasize that HR can provide a source of sustained competitive advantage. However, due to the scope of this thesis, only the three of the most prominent theories will be discussed namely: resource-based view (RBV), human capital theory and social exchange theory.

RBV takes the approach of achieving competitive advantage, over the long run by establishing core competencies in an organization which are superior to those of its competitors (Boxall, 1996). Firms can generate sustained competitive advantage – a characteristic which rivals find themselves unable to compete away – by ensuring that its resources are valuable, rare, costly to imitate and non-substitutable (Barney, 1991; Boxall, 1996). Hamel and Prahalad (1990), added that while an organization's competitors might acquire some of its technologies, it would find it more difficult to duplicate the firm's extensive internal coordination and learning. Learning in the context of organizations refer to the acquisition of new insights or knowledge, structures and systems (Fiol & Lyles, 1985). Hamel and Prahalad (1993) also argued that a firm's ability to learn faster and apply its learnings more effectively than its competitors would help it gain competitive advantage over its rivals (as cited in Boxall, 1996).

Human capital theory supports the belief that people's learning capacities are just as important as the resources required in the production of goods and services (Nafukho, Hairston, & Brooks, 2004). This theory attempts to explain the benefits of education and training for employees as a form of human resource investment (Marquardt, 2009). It takes the view that the skills and knowledge that employees possess are forms of capital (Schultz, 1961). The key outcome from investments made in an organization's human capital is improved performance on the individual level, and increased productivity and performance on the organizational level (Nafukho et al., 2004).

Social exchange theory postulates that organizations that take an active interest in implementing HRM practices, it will attempt to engage and support its line managers via social exchanges throughout the

implementation process. In return, line managers would likely reciprocate the social exchange relationship with the organization because they would feel obligated to achieve its objectives, be more committed to their work and the organization (Bos-Nehles & Meijerink, 2018). Once the line manager implements the HRM practices, social exchanges between him- or herself would begin, the relationship strongly affects employees' perceptions of the HRM practices (Bos-Nehles & Meijerink, 2018). If done right, these positive social exchanges would be mutually beneficial for both the organization and its workforce (Gould-Williams & Davies, 2005).

2.1.3 How SHRM and Learning are Intertwined

The main theories of SHRM such as RBV, human capital theory and social exchange theory have exemplified that organizations can value-add and develop its human capital through education and training. Consequently, this investment may lead to an increase in individual performance along with improving the productivity and profitability of the organization.

In a fast-paced, dynamic and global environment, many organizations need to strive to achieve operational excellence – by producing better, faster and cheaper – as part of their business model in a bid to drive growth and remain relevant (Hess, 2014). In order to achieve operational excellence and competitive advantage over rivals, firms need to constantly train their workforce, stay innovative and adapt to their business environment. Furthermore, learning has become an indispensable activity in today's knowledge-based economy marked by globalization, increased competition and informational technology revolution (Zhang & Nunamaker, 2013). However, organizations cannot learn unless it empowers and invests in its workforce to help them learn. The increasing pace of change and volatility of the business environment have made it necessary for companies to encourage their employees to learn faster and more efficiently in order to facilitate speedier adaptation (Hess, 2014).

Furthermore, employees nowadays are constantly pressed for time and lack time to learn. According to Bersin (2017), employees have just 1% of their typical workweek to focus on learning. Hence, companies also need to ensure flexibility in where and how their employees learn to meet the needs of the modern learner – one that is constantly impatient, overwhelmed and easily distracted (Bersin, 2017).

In order to meet these challenges, organizations have been increasingly progressing towards technology-enabled training to take advantage of real-time delivery and the accessibility to large numbers of employees across the globe (Martin, 2008; Zhang & Nunamaker, 2013). Learning has also transformed to become more portable and flexible, transforming from one that requires learners to be present somewhere to learn, to empowering them to do so when and where they want (Bersin, 2017).

Digital technologies have brought forth new training approaches such as microlearning to create personalized and customized learning experiences for all employees (Konovalova, 2020).

2.1.4 Conclusion

The theoretical underpinnings of this research may be found in SHRM literature; thus, it is crucial to understand how SHRM has evolved since it emerged in the 1980s and how it serves as a form of competitive advantage for organizations. This section began with a brief history about SHRM and how it evolved from traditional HRM. Following which, it went on to describe the main models and theories supporting SHRM that have developed over time. The main models of SHRM were also critiqued for its shortcomings to develop an objective view of their contributions. Suggestions also were made on how the 'Harvard model' could be better adapted to fit the circumstances of the current technological and business environment. Based on the theoretical understanding of the SHRM models and theories that support it, the perspective of how SHRM and learning are intertwined is discussed. The overarching theme of SHRM linked HR policies and practices to achieving organizational effectiveness, emphasizing the value it provides in helping the organization to achieve its strategic objectives. As a result, SHRM will provide a solid theoretical foundation for subsequent streams of literature on OL and microlearning.

2.2 Organizational Learning

The field of OL has been widely researched and dates as far back as five decades ago (Fiol & Lyles, 1985). Simon (1969), defined OL as comprising of the imperceptible evolution in states of knowledge, as well as, the often observable changes in the structural and OL outcomes within an organization. Authors of OL literature have attempted to provide HRM researchers with a clearer understanding of how information is processed and knowledge is created in organizations (Wang & Huang, 2013). Many academics and experts in this field are in consensus that OL can be viewed as an activity or process of learning in organizations through which the acquisition of experiences results in the creation of knowledge (Argote & Miron-Spektor, 2011; Mirvis, 1996; Valamis, 2019). The purpose of OL as a process of learning is to improve the firm's actions through knowledge acquisition and better understanding (Fiol & Lyles, 1985). The outcome of knowledge gained by an organization, results in the corresponding change in the range of potential behaviors that the firm can exhibit and how this newly acquired knowledge is stored, a term defined as organizational memory (Huber, 1991). Apart from measuring change in organizational behaviors, researchers have also measured attainment of new knowledge within organizations by assessing the characteristics of its products and services (Argote & Miron-Spektor, 2011). Organizations can also measure its behavioral adaptation through changes made in its management systems, decisions and allocation of resources (Fiol & Lyles, 1985).

However, as research in OL progressed over the years, there has been a distinction between older and younger schools-of-thought regarding this field. Researchers that presented an older perspective of OL often described individuals learning on behalf of the organizations (Argyris & Schön, 1978). The newer perspective of OL argued that individuals should not just be seen as learning in silos, rather, humans are social beings that learn, as a collective, within a community of practice (Brown & Duguid, 1991; Wenger, 2000). Easterby-Smith, Araujo, and Burgoyne (1999), highlighted that in order for an organization to conceptualized collective learning, it first needs to increase its learning capacity through the implementation of various learning activities. Learning activities are components, contributions, or interventions that form part of the OL process which would help the firm achieve its overall strategic training objectives (Easterby-Smith, Araujo, & Burgoyne, 1999, p. 148.). According to Figure 3, four broad categories of learning activities were distinguished, namely: educational and training activities, the active use of internal learning sources, the active use of external learning sources, and fostering a conducive learning environment (Easterby-Smith et al., 1999, p. 148). However, this figure was unable to determine which of the four main categories of learning activities organizations place a greater emphasis on. According to Pelster, Haims, Stempel and van der Vyver (2016), organizations have largely skewed towards internal learning sources that help employees constantly learn and share knowledge. Despite the current strong focus on internal learning sources, organizations are shifting

towards including both internal and external learning sources, shifting from a corporate-centric learning universe to a learner-centric one (Pelster et al., 2016).

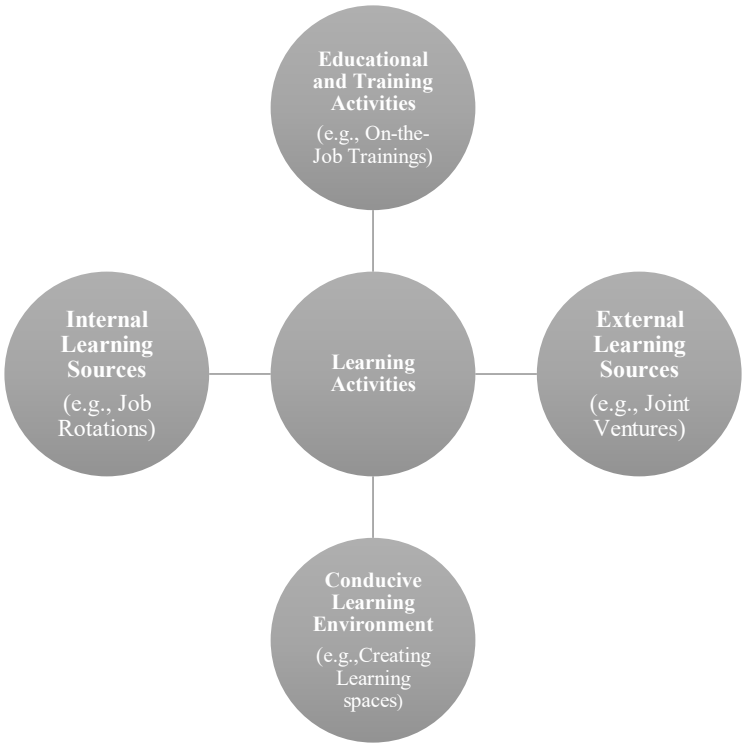

Figure 3 Types of Learning Activities adapted from (Easterby-Smith et al., 1999, p. 148)

Lastly, the authors of the newer perspective of OL agree that unlike the older perspective of OL, while knowledge can be stored as organizational memory over time, the acquisition of knowledge is also context dependent and cannot be stored without changes (Örtenblad, 2001). This implies that organizations must be able to apply the knowledge attained according to the appropriate context or situation it finds itself confronted with. Knowledge that is adapted to suit a new situation will result in it carrying a new meaning altogether (Örtenblad, 2001). Additionally, Fiol and Lyles (1985), identified four contextual factors that affect OL, namely: the conduciveness of the corporate culture for learning, the organization's strategic position which creates a momentum for learning, the organizational structure that promotes innovativeness and new insights, and the complexity and dynamism of the organization's internal and external environment in which it operates (Fiol & Lyles, 1985).

2.2.1 Strategic Impact of Organizational Learning

There is widespread acceptance of the clear linkage between an organization's overall strategy with OL in order to ensure the long-term survival of the organization (Örtenblad, 2001). Argote and Miron-Spektor (2011), expounded on this link by pointing out that an organization's ability to learn and adapt

is crucial to its performance and future success. In a rapidly changing business and technological environment, OL has become an important strategy for companies to develop its workforce into a competent knowledge-based resource capability, adding to its competitive advantage against its competitors (Saru, 2007). Moingeon and Edmondson (1996) also highlighted that, OL constitutes a kind of capital in certain market environments. Lau, Lee, and Chung (2018), supported the view that effective OL and knowledge transfer mechanisms within an organization, are necessary to empower the firm to meet its business challenges and foster innovative business practices in a knowledge-based society. However, an organization will be left inadequately prepared to facilitate OL within its organization if it does not have a supportive learning culture where the link between its HRD and business objectives is indisputable (Saru, 2007).

2.2.2 Organizational Learning and a Firm's Competitive Advantage

The connections between OL and a firm's competitive advantage, are discussed in this section. OL can be seen as a capability, strategic resource, and competency, which is directed to enhance the overall performance of the organization and help it to achieve competitive advantage.

Smith, Vasudevan and Tanniru (1996) proposed that dynamic OL is an important organizational capability that can help a firm achieve competitive advantage. The authors sort to link OL with RBV by emphasizing that gains made from OL can be reorganized or reconfigured to better suit its competitive business environment. Moingeon and Edmondson (1996) added that, OL is the collective capability of an organization to mobilize human resources to new tasks, reproduce processes, and establish systems and structures for widespread transmission of routines. As a result, OL should be viewed as a strategic resource to the organization by providing it with the capability continuously adapt to the competitive context in which it operates. Other researchers have distinguished that sustained OL results in the development of two dimensions – cognitive and behavioral development (Fiol & Lyles, 1985; Schein, 2010). Schein (2010), emphasized that lasting behavioral transformation will not last unless it is preceded or accompanied by cognitive redefinition. Information technology (IT) is also recognized as a contributor and facilitator in helping a firm achieve competitive advantage when combined with OL. IT helps organizations gain competitive advantage by achieving gains of target resources by reconfiguring with other resource bundles (Smith et al., 1996).

Murray and Donegan (2003) also studied the empirical link between superior organizational competencies and a learning culture within an organization, which has major implications on firm performance. By embracing OL, individuals' behavior and cognitive capability of individuals improves, resulting in a culture that enables businesses to respond more effectively to their environment and remain competitive. This study also extends beyond the work conducted by Fiol and Lyles (1985) that

justified that two levels of learning exist – lower- and higher-level learning. Murray and Donegan (2003) found that, OL led to the creation of observable routines across four broad competency groups, namely: management, technical, learning and operational. The authors discovered that at different levels of learning, different competency groups will show similar evidence of learnt routines than other groups. Hence, OL when combined with competency development across the four competency groups mentioned, bring about institutionalized cultural routines and practices that are beneficial for the improvement of organizational performance (Murray & Donegan, 2003).

2.2.3 Facilitators of Organizational Learning

Ruona and Gibson (2004), purported that HRD, HRM and Organizational Development (OD) are crucial in tapping the strategic potential of an organization's workforce. While they are all terms that have a central focus on people, systems and integrated solutions in order to contribute to the overall business strategy, individually, they have diverse meanings (Ruona & Gibson, 2004).

As previously highlighted in sub-section 2.1.1 HRD falls under the realm of HRM. HRD can be understood as the planned activities of an organization with an aim of providing its workforce with the opportunities to acquire new skills and knowledge to meet current and future job demands (Ruona & Gibson, 2004; Werner & DeSimone, 2011). L&D, also known in some organizations as Training and Development (T&D), constitutes a major specialty within HRD (Werner & DeSimone, 2011). Beevers and Rea (2016), provided an overarching definition for L&D as follows:

> Build individual and organizational capability and knowledge to meet current and strategic requirements, and create a learning culture to embed capability development (Beevers & Rea, 2016, p. 4).

Employee learning and skill development needs were traditionally assumed to be addressed only through classroom-based training; however, many of these needs are now met in the workplace rather than the classroom. (O'Toole, 2010). The main role of L&D is to ensure that the organization's workforce keeps its skills and performance aligned with the organization's goals, by creating a continuous culture of learning and growth for employees at every stage of their career (McNeill, 2021).

On the other hand, HRM acts as a bridge between an organization's management and its employees, assisting in the planning, coordination and implementation of the company's administrative and strategic functions (McNeill, 2021).

Lastly, OD is defined as the application of applied behavioral science in a systems context, to bring about change and improve organizational performance and capacity. OD collaborates with the

organization to bring about change, enhance systems and work processes (O'Toole, 2010). Unlike L&D, OD is not focused on the analysis, design and delivery of training, but rather, its focus is on the systems within the organization and its interdependencies (O'Toole, 2010).

Hence, while HRD, HRM, and OD contribute significantly to organizational performance, it is crucial that the roles of each facilitator of OL are clearly distinguished. Furthermore, a large part of the role of HRD is in L&D, through the implementation of learning activities to help employees acquire new skills and competencies.

2.2.4 Skills Versus Competencies Development

Skills refer to the specific ability that an individual possess in order to accomplish a predefined task (SpriggHR, 2019). According to Tomaszewski (2021), there are four main types of skills: soft skills, hard skills, general, and domain-specific skills. Whereas, competencies refer to a broader concept that combines a set of behaviors, skills and knowledge that will enable an individual to successfully accomplish the task (Sturm, 2019). Competencies can be classified into three broad areas, namely: functional or technical competencies, human competencies and conceptual competencies (Katz as cited in Bhattacharyya, 2011). Skills and competencies can be developed through training, coaching, mentoring, feedback and experience (Sturm, 2019).

2.2.5 Upskilling Versus Reskilling

Training to close skills gaps can be achieved through upskilling and reskilling. Upskilling is the process of training individuals up to help them advance in the same roles, rather than change jobs (Randstad, 2020). This terminology focuses on enhancing the worker's current skill set so that he or she can work within the same job (HR In Asia, 2019). In contrast, reskilling refers to the process in which individuals learn a new set of skills in order to be qualified to take on a different job (HR In Asia, 2019). The impetus for reskilling might be due to the changing job landscape, whereby some jobs may become less relevant or even become obsolete. Organizations may need to reskill their workers in order to help them gain new areas of expertise instead of having to hire new employees (Randstad, 2020).

2.2.6 Role and Characteristics of L&D

L&D plays diverse roles within an organization. Their role requires them to be course designers, direct deliverers of training modules and project managers of learning activities, amongst others (Garavan et al., 2019). According to Ramachandran (2015), the role of professionals specialized in L&D have

evolved to cover four broad areas, namely: a change management champion, an employee engagement champion, a collaboration champion and an employer brand champion. As a change management, L&D is increasingly called upon to lead and communicate the benefits of change. They can do so through cross-functional projects, such as working in project teams with members from internal communications or marketing to design awareness campaigns to communicate the benefits of a new training approach. As an employee engagement champion, L&D will be expected to develop learning journeys that inspire, engage, and reconnect people with their organization, rather than simply fixing a business problem. As a collaboration champion, L&D is increasingly expected to help the organization create communities of practice and curating training modules for these communities to learn best. Finally, as an employer brand champion, L&D is required to position the organization as a 'learning organization' to provide a significant edge against its competitors in order to stand out in a highly competitive talent landscape. Furthermore, L&D professionals also play a major role in ensuring that training modules and learning activities are in-sync with the organization's strategy, vision, priorities, and objectives. Hence, conversations between top management, senior executives and L&D professionals are essential to assess the current skills gaps that may be hindering the organization from integrating its long-term strategic plans and with the efficient use of its human capital (Van Dam & Masie, 2018). L&D interventions through a comprehensive and well-thought-out training strategy, should seek to close the skills gap experienced within the organization (Van Dam & Masie, 2018).

The characteristics of L&D depend on factors such as the organization's size and maturity (Garavan et al., 2020). Tzabbar, Tzafrir, and Baruch (2017) found that the impact of training on an organization's performance was shown to be stronger in medium-sized businesses than in larger firms. In theory, training may be perceived as more effective in larger organizations because they have more capital and expertise to create and administer training (Garavan et al., 2020). With respect to maturity, L&D that are still in its early stages of growth may focus more intensively on job-related training. As it matures, however, the training focus may shift to a wider range of training practices and a larger emphasis would be placed on the quality of training programs offered (Garavan et al., 2020).

2.2.7 Success and Barriers of L&D Training Strategy Implementation

According to CIPD Asia (2021), an organization's training strategy helps to set out the workforce capabilities, skills and competencies that the firm requires in the short- and long-term, as well as how it might develop in order to achieve organizational success and effectiveness. Meeting the organization's performance needs through employee development is at the heart of L&D's training strategy. Niazi (2011) added that, to contribute positively to organizational performance, L&D must take a purposeful approach to developing their human capital. In business practice, some L&D professionals might concentrate their efforts on grooming talent that are regarded as 'high-performing'

or 'high-potential' through leadership programs, talent management and succession planning, to develop a leadership pipeline that is critical to the long-term success of the organization. Mentoring programs, in-house development programs, and project-based learning are examples of other L&D interventions. However, L&D departments may also adopt a more inclusive workforce development approach that include a broader range of learning activities to reach larger segments of their workforce. Employees can now take control of their professional development with the proliferation of user-friendly digital-learning platforms, replacing or augmenting traditional classroom learning experiences. Increasingly, L&D professionals have been designing learning journeys "that include fieldwork, on-demand or pre- and post-classroom digital learning, social learning, on-the-job coaching & mentoring, shadowing, lunch-and-learn sessions, secondments, and short workshops" (Sotubo, 2019, p. 1). Many L&D Departments also make use of training frameworks such as the "70:20:10" model, referring to 70 percent of learning occurring on-the-job, 20 percent through contact and cooperation within teams, and 10 percent through learning interventions such as classroom training and digital or online courses. These percentages are suggestions, and may differ depending on organizations and industries (Van Dam & Masie, 2018).

However, Periyasamy (2020) recognized that there are seven common barriers hindering the successful rollout of L&D training strategies. They are as follows: creating learning activities without linkage with organizational strategic objectives, limited resources, employees' resistance to change, work-learning dichotomy, lack of support from leadership, lack of an organizational-wide learning culture, and short-term vision towards OL. Firstly, being overly focused on the learning activity alone without aligning it with the organization's strategic goals might result in employees being disillusioned on the need for OL. Furthermore, many organizations cut their training budgets when the company is hit by economic downturns (Periyasamy, 2020). Instead, L&D should be viewed as an investment, rather than a cost by the business (Nafukho et al., 2004; Periyasamy, 2020). Employees may also be averse to change as they have been accustomed to certain work practices or procedures over time and may be hesitant to change. Moreover, work and learning are often treated as two distinct parts of employment in many businesses, with work mostly taking precedence (Periyasamy, 2020). The organization's leadership or top management also play a crucial role in driving the successful rollout of any L&D training strategy by gaining the buy-in and building confidence amongst employees. Finally, the lack of learning culture and short-term focus of L&D professionals can hamper efforts to promote continuous learning (Periyasamy, 2020).

2.2.8 Main Instructional Design Models – ADDIE and SAM

There are a number of instructional design models that L&D professionals can use when creating learning activities and training materials for employees within an organization. However, the standard

framework that many L&D professionals use to design and develop training materials is the ADDIE model (Vergroesen, 2021). The acronym stands for each stage or phase of the design process – analysis, design, development, implementation and evaluation (Vergroesen, 2021). Mayfield (2011), highlighted that the popularity of ADDIE can be attributed to the fact that the model provides training developers with a consistent process to follow. ADDIE is also described as a 'waterfall' approach as each stage flow from one to another in consecutive successions (Aharon, 2021). This model allows for revisions of improvements to be made to earlier stages in order to ensure that the learning experience meets the desired learning goals (Mayfield, 2011). However, critics of the ADDIE model have pointed out that the downside of this model is its linearity which makes the design process slow and inflexible for more dynamic and immediate training needs (Vergroesen, 2021).

The ADDIE model has been challenged by agile instructional design models such as the Successive Approximation Model (SAM), which emphasizes on rapid prototyping approaches and design thinking (Seufert & Meier, 2016). This model has its roots in software development, but over time, the same design principles have been used by L&D professionals (Vergroesen, 2021). The SAM model is a three stage process – preparation, iterative design and iterative development (Vergroesen, 2021). The aim of SAM is to get learning activities out of the development process quickly and into use by employees through constant collaboration and quick iterations (Aharon, 2021; Vergroesen, 2021). The three stages of SAM work in a circular fashion. L&D professionals have to repeat the steps in the cycle until they get the training to work as best as possible (Aharon, 2021). The process can be repeated as many times as required in order to gain employee feedback and improve on the design of the training (Vergroesen, 2021). However, the major shortcomings of this model lie in the repetitive nature of the review and feedback process which can contribute to more errors, and the wastage of valuable time and resources (Aharon, 2021; Vergroesen, 2021).

2.2.9 Conclusion

This section began by offering a background of OL, its purpose and subsequent outcomes. There has also been a growing distinction between older and younger schools-of-thought regarding this field, specifically with regard to how organizations learn. The newer perspectives of OL disagree that individuals learn, in silos, on behalf of the organizations, rather, they are of the view that individuals learn as a collective or in a community. To facilitate a collective learning process, organizations need to first increase its learning capacity. Easterby-Smith, Araujo, and Burgoyne (1999), introduced four broad categories of learning activities that could in turn lead to an increase in learning capacity for an organization. Additionally Fiol and Lyles (1985), identified four contextual factors that could affect how organizations apply knowledge that it has acquired. There is also a wide acceptance of the link between OL and the overall effectiveness of an organization. Moreover, Saru (2007) emphasized the

importance of having a clear linkage between the firm's HRD and its overall business strategy in order to be adequately prepared to facilitate OL within an organization. Next, the linkage between OL and a firm's competitive advantage are explained. Ruona and Gibson (2004), also acknowledged that there are three facilitators of OL – HRD, HRM and OD – that play a key role in aligning the strategic potential of a workforce with the organization's overall business strategy. However, it is crucial to note that while all three facilitators contribute significantly to organizational effectiveness, L&D, which is a subset of HRD, is largely responsible for creating learning activities for employees to improve their work performance through skills and competences development. Increasingly, organizations are also putting more emphasis on upskilling and reskilling of their workforce to close skills gaps. L&D professionals play a significant role in aligning business strategic plans and with its efficient use of human capital. Van Dam and Masie (2018), emphasized that a well-thought-out training strategy is key to helping the organization close its existing skills gaps. Nevertheless, However, Periyasamy (2020), identified seven common barriers that organizations should be mindful of that may hinder the successful implementation of these training strategies. Finally, there are two main models of instructional design – ADDIE and SAM – used by L&D professionals today. ADDIE takes on a more linear approach where each stage of the model flows in a consecutive fashion, whereas SAM is a more agile model that focuses on quick iterations and design thinking.

The review of the literature on SHRM and OL, as well as its strategic link with business strategy provides a foundation for the introduction of microlearning literature.

2.3 Microlearning

Microlearning is a fairly young research area that has its roots in the educational context (Gabrielli, Kimani, & Catarci, 2005). Leong, Sung, Au, and Blanchard (2020), conducted a study to review the trends of microlearning in terms of related publications and internet searches, during 2006 to 2019, from Scopus and Google Trends. The authors found that the terms 'Education', 'Higher Education' and 'In Higher Education' were consistently ranked the top five one-word, two-words and three-words phrases in the titles and abstracts of publications, respectively (Leong et al., 2020). Furthermore, it was observed that there were more mentions of higher education in the identified publications than other levels of education. The authors attributed this finding to the fact that students from tertiary education are expected to take more initiative for their own learning needs and be responsible for their own progress (Leong et al., 2020). The context of microlearning have not been confined to just learning in an educational context but rather, expanded to meet other learning demands, such as lifelong learning and learning on-demand, of working professionals in the context of corporate learning (Gabrielli et al., 2005).

Hug and Friesen (2009), observed that theory and research constantly struggle to keep up with technological innovations, its interactions and permutations, as well as the social forms and practices that evolve with it. Hence, it comes as no surprise that there still exists confusion regarding the term 'didactics of microlearning'. Furthermore, different cultural and academic traditions may add to the complexity and obfuscation of the understanding of the term 'didactics of microlearning'. For instance, the French commonly associate the term 'didactic' as a literary genre, while the Germans may view it more as a variety of concepts, models, and understandings. On the contrary, Anglo-American contributions to the term mainly focuses on instructional design or theory (Hug & Friesen, 2009, p. 4).

A listing of the major works in the field of microlearning further demonstrates this confusion. As illustrated in Table 1, next to each author is listed the country(ies) of the institution(s) of which the contribution to research was made, the context in which microlearning was described to be used and the author(s) understanding of the term 'didactics of microlearning'. The list of eight major works on microlearning reveals contributions from the United States, Canada, Austria, Germany, and Greece. This list supports Hug and Friesen's (2009) observation of a strong central-European contribution to the field of research on microlearning as six of the eight major works mentioned are from central Europe. Of these, three looked at microlearning in the context of corporate learning, while two did so in an educational context and three considered both contexts. This brief review of the major works also confirms the inconsistency in the understanding of the term 'didactics of microlearning'. The understanding of the term is dependent on "the level of reflection and theoretical or practical demands, didactics can also be seen to refer to concepts, approaches, models, theories, experiences, or

technologies, or to questions of an art of teaching and learning" (Hug & Friesen, 2009, p. 4). Contrary to Hug and Friesen's (2009), observation of the common associations of the term 'didactic' based on different cultural and academic traditions, no distinct patterns can be detected as a range of terms were used describe the authors understanding of the term. The term 'didactics of microlearning' were described as a method, instructional design, processes of teaching and learning design, approach, theory, learning resource, concept, as well as a model.

In an attempt to bridge equivocal nature of the different description of the term 'didactics of microlearning', this research utilizes the term 'approach' to describe microlearning forms of training.

Author	**Country of Institution**	**Context**	**Understanding of 'didactics of microlearning'**
Gassler, Hug & Glahn (2004)	Austria	Corporate Learning	Method
Kerres (2007)	Germany	Educational Context	Instructional Design
Hug & Friesen (2009)	Austria & Canada	Educational Context & Corporate Learning	Processes of Teaching & Learning Design
Bruck, Motiwalla & Foerster (2012)	Austria & United States	Educational Context & Corporate Learning	Approach
Sofianopoulou & Kamilali (2013)	Greece	Educational Context & Corporate Learning	Theory
Göschlberger (2017)	Austria	Educational Context	Learning Resource
Göschlberger & Bruck (2017)	Austria	Corporate Learning	Concept & Approach
Dolasinski & Reynolds (2020)	United States	Corporate Learning	Model

Table 1 Review of Major Works of Microlearning (Own Creation)

Microlearning as a training approach is often classified as a form of informal and self-directed learning that is highly dependent on the motivation of learners (Bruck, Motiwalla, & Foerster, 2012; Glahn, 2017; Göschlberger & Bruck, 2017). The focal point of informal forms of learning is its small feedback loops and instant reflection gained from such forms of learning (Göschlberger, 2017). Moreover, microlearning is seen as a specialized form of self-directed and regulated learning as learners have the freedom to arrange their own personal learning (Kerres, 2007). This form of learning is based on Baumgartner's micro-learner model, which states that a learner must first grasp a basic understanding of a particular concept before they actively try to learn more about it and construct their own knowledge from what they learn (Baumgartner as cited in Göschlberger, 2017). Hence, microlearning serves as an effective catalyst to initiate learning by laying the groundwork in arousing learners' curiosity in a topic or concept.

Sofianopoulou and Kamilali (2013), highlighted that microlearning can increase learner's motivation and responsibility towards learning due to its collaborative control and educational interaction in helping them achieve their learning goals. Microlearning paired with Web 2.0, a term referring to the shift from static web pages to a dynamic digital environment, have also been found to increase learners' engagement through the process of co-creation and user-generated content (Buchem & Hamelmann, 2020; Göschlberger, 2017). Through the process of co-creating learning content through social interaction and concept exploration, learners are able to achieve a higher level of motivation and feel a greater sense of responsibility for achieving their own learning goals (Gagne et al., 2019). Learning that can be taken independently, unsupervised and at any time of choice might also increase workers' motivation to accomplish the training (Mohammed, Wakil, & Nawroly, 2018).

Another core theme of microlearning as a training approach is its ability to improve learners' long-term memory through self-pacing, spaced repetition and self-assessment (Glahn, 2017; Shail, 2019). Studies such as the one conducted by Wimmer, Li, Gorgolewski, and Poldrack (2018), found that by spacing condensed training sessions across weeks rather than completed in a one large session, significant improvements could be observed with regards to participants' long-term memory of the learning. The effectiveness of microlearning on imparting knowledge stems from its ability to make learning units easy to understand and memorable for a longer periods of time (Mohammed et al., 2018).

Microlearning have been widely studied in different contexts, such as textiles, medical training, engineering, language learning in higher education, amongst others (Leong et al., 2020). Despite the growing popularity of microlearning, few research has examined its impact empirically. On the whole, microlearning was found to have a favorable effect on learning in most empirical research conducted. For instance, Hesse et al. (2019), looked into the impact of microlearning on dairy employees in Germany. Participants were invited to take three microlearning lessons for colostrum management, each

had a survey embedded at the end. Of the 64 participants who completed the survey after taking the microlearning modules, 78% of them reported that they felt more confident to complete the skills taught after the training (Hesse et al., 2019). In another study, Fagerstrøm, Gulliksen, and Grønli (2017), examined the impact of microlearning using a flash cards mobile application for healthcare professional training in Norway. The research utilized a between-subjects design with a randomized selection of two experimental groups and one control group in the study. Both experimental groups were assigned to use the microlearning application while the control group was given the traditional training with long-form classroom-based training. A pre- and post-test was conducted to measure the knowledge gained by learners. The outcome of the study showed that knowledge gains in the experimental groups were higher than that of the control group (Fagerstrøm et al., 2017).

Work still needs to be done in the field of microlearning as a training approach to leverage Web 2.0, specifically with regards to allowing learners to create and share content with one another, interact with and solve learning activities with their peers, as well as tag, rate and comment on co-created content (Göschlberger, 2017). Govender and Madden (2020), observed from a study of the effectiveness of microlearning conducted at one of the major retail banks in South Africa, that microlearning has yet to embrace the social tenet of learning. Social elements and feedback mechanisms weaved into an organization's learning platforms can help to promote a collaborative learning environment and enhance the notion of continuous learning within the organization.

2.3.1 Definition of Microlearning

There is currently no official definition of microlearning. Many authors have attempted to define the concept of microlearning (Andriotis, 2018; Kapp & Defelice, 2019). Hug (2005), distinguished microlearning through the three levels of instructional design – micro, meso and macro levels – by highlighting that microlearning is the smallest learning unit that occur at the most minute of levels. Current instructional design theories often differentiate between the micro level as being concerned with the structure of a single lesson, the meso level which oversees the course structure, and the macro level that covers the curriculum of the course (Kerres, 2007). Often, these small learning units or short-term learning activities are published as microcontent (Sofianopoulou & Kamilali, 2013). Microcontent is a term that refers to information published in a condensed format, with its length determined by the constraints of a single core topic, as well as, the physical and technical limitations of the software of device used for distributing and aggregating the content (Sofianopoulou & Kamilali, 2013).

From the different definitions of microlearning presented in literature, six main elements can be used to appropriately describe, analyze, and generate a comprehensive understanding of microlearning. The

six elements are time spent, content, form, learning context, learning activity and target learners (Hug, 2005; Kapp & Defelice, 2019; Sofianopoulou & Kamilali, 2013).

Time spent. In microlearning, the learning experience is meant to be just long enough to provide learners with what they require at the moment and allow them to get on with their work (Torgerson & Iannone, 2019). The time taken to consume the content is subjective depending on the length of the single instructional topic (Hug, 2005). However, the time range to go through the learning content can take between a few seconds to about 10 to 15 minutes (Sofianopoulou & Kamilali, 2013; Torgerson & Iannone, 2019).

Content. Microcontent that is presented in small chunks of information with a focus on presenting a single definable idea or topic to learners (Sofianopoulou & Kamilali, 2013). Hug (2005), concur on the point that microlearning content is introduced in small units or narrow topics that deal with specific tasks or problems. Additionally, the content should provide learners with all elements necessary to achieve the desired learning objective (Kapp & Defelice, 2019). Lastly, the content should be useful and accurate to help learners at their point of need (Bersin, 2018).

Form. Microcontent should not be haphazardly divided into smaller parts as each unit should be independent of another. Dividing the microcontent to smaller pieces would result in its loss of meaning (Sofianopoulou & Kamilali, 2013). The training design process must be intentional and the learning objective should be clearly defined (Kapp & Defelice, 2019). Hug (2005, p. 4), used the keywords, such as, 'fragments', 'episodes' and 'knowledge nuggets' to describe such microcontent.

Learning context. Microlearning can be introduced as part of a curriculum setting, parts of training modules or even as part of informal learning (Hug, 2005; Sofianopoulou & Kamilali, 2013). Formal learning refers to a structured way of learning, often involving trainers or facilitators, with the training delivered in a classroom setting. On the other hand, informal learning provides more flexibility with regards to the way content is created and consumed (Cournoyer, 2021). Employees are empowered to seek out learning resources when they need help (Bersin, 2018).

Learning activity. Often, the learning activity is problem or goal-oriented and seek to encourage learners to learn by examples (Bersin, 2018; Hug, 2005). Assessments or some type of activities used to focuses on reinforcing the learning to promote knowledge acquisition (Kapp & Defelice, 2019).

Target learners. Microlearning targets learners who are interested in exploring concepts or be empowered to solve practical problems on their own. These learners can be described as proactive and eager to build their own mental structures through self-exploration and social interactions (Sofianopoulou & Kamilali, 2013).

After gleaning insights from the different elements that constitute to microlearning presented in existing literature, the following definition of microlearning will be used for the purpose of this research study:

> *Microlearning is a problem-based or goal-oriented training approach, that intentionally focuses on a single definable, short topic or idea, stating clear learning objectives to elicit a specific outcome from the learner. (Own Creation)*

2.3.2 Microlearning and the Landscape of Learning Environments

Technological innovation has given rise to given rise to a multitude of learning environments. Moore, Dickson-Deane and Galyen (2011), explained that the term learning environments provide the context in which learning takes place and can be categorized based on the following considerations, namely: the learning goal, target audience, access (physical, virtual and/or both), type of educational material, tools, technologies and techniques utilized. Over the years, researchers have taken a relaxed use of terminologies to describe different learning environments, resulting in the rise of different categorizations even though the learning environments in comparison may share similar characteristics (Moore et al., 2011).

Gabrielli et al. (2005), presented one such categorization of the different categorizations of learning environments based on temporal-spatial dimensions. As illustrated in Figure 4, the different types of learning environments were mapped on the graph based on their space dimension on the y-axis, and corresponding time dimension on the x-axis. At the bottom of the graph, the authors mapped pervasive and classroom-based learning environments as they are restricted and contained with respect to space and time. The interaction of both environments, known as mixed reality, allow learners to use technologies to complement traditional learning activities and/or interface between the physical and digital world. The next group of learning environments is a more desktop-based experience. Computer assisted learning (CAL) and web-based learning environments both depending on eLearning for training delivery. While the access to this group of training environment is more flexible than the pervasive and classroom-based learning environments, both are ill-suited for learning on-the-move. To address this need, ubiquitous and mobile learning environments make use of technologies that are supported by mobile technologies, embedded computers, and wireless networks to provide learners with seamless access to learning content anywhere and anytime. The intersection between ubiquitous and mobile learning environments is that of microlearning. Leong et al. (2020) found that mobile technologies play a big role in the development and support of microlearning. Many microlearning publications were also studied from the perspectives of eLearning or mobile learning (Leong et al., 2020).

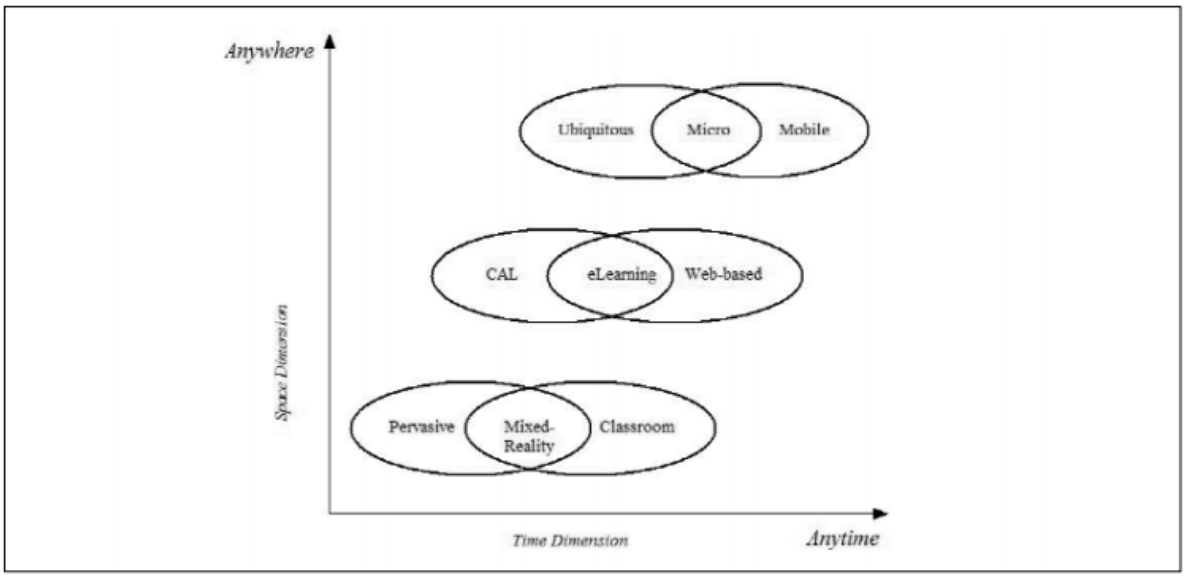

Figure 4 Types of Learning Environments according to Temporal-Spatial Access adapted from (Gabrielli et al., 2005)

However the landscape of learning environments presented by Gabrielli et al. (2005) is not the only practicable categorization. Moore et al. (2011), presented another possible categorization of learning environments based on its design methodology. The authors mentioned that training delivered online can fall into one or more of these three categories – self-paced, self-directed or instructed-led (Moore et al., 2011). Hence, the microlearning environment can be described as one that falls under both the self-paced and self-directed categories, as this approach to training allow learners to learn at their own time, pace and is not location specific. Additionally, microlearning enable learners to take charge of their own learning.

2.3.3 Modalities of Microlearning

Torgerson and Iannone (2019), mentioned that there are five common modalities of microlearning – text-based resources, eLearning modules, videos, infographics and podcasts. However, organizations are not limited to the above-mentioned modalities. Valamis (2020), provided more examples of the modalities of microlearning that L&D professionals can consider. They include mobile apps, gamified modules, and social media. So, Lee, and Roh (2020), also found that learners preferred video and image content compared to text-based resources, suggesting that learners may prefer more visual compared to text-based content.

2.3.4 Benefits and Limitations of Microlearning

The benefits of microlearning as a training approach have been well-documented by researchers and L&D professionals. Valamis (2020), described the benefits of microlearning based on three categories – time, relevance and performance. Firstly, microlearning allows employees to respond to business needs faster through targeted content and continuous training (Axonify Inc, 2021). By providing just-in-time learning, employees can focus on getting quick answers to problem-based questions at their moment of need, thereby shortening course delivery times (Andriotis, 2018; Bersin, 2018; Valamis, 2020). Secondly, organizations can also use microlearning to personalize and adapt their training content to better serve the learning needs of individuals, fitting the learning experience in their workflow (Valamis, 2020). Learning that is personalized and supportive of the learner's pace, strengths and weaknesses would lead to an increased sense of employee engagement (Andriotis, 2018; Axonify Inc, 2021). Furthermore, microlearning complements adaptive learning as computer algorithms can be utilized to deliver learning activities that addresses the learner's unique needs (Valamis, 2020). Finally, microlearning has been linked to better work performance as this training approach makes knowledge and skills learnt easier to retain (Axonify Inc, 2021).

Microlearning is also ideal for hard skills training, such as learning new rules and regulations or learning new skills like coding, that require mental repetitions to best retain information (Howard, 2021). Microlearning is suited for hard skills training for two reasons. To begin with, focusing on teaching a single subject as briefly as possible enhances the likelihood that the learner will remain engaged throughout the training. In addition, the goal of microlearning is to eliminate any extraneous information that is not directly related to the learning objective, allowing the learner to concentrate entirely on the concept to be acquired without having to filter out irrelevant material (Howard, 2021). So et al. (2020), also found that microlearning was deemed more appropriate as a training approach for learners who wanted to enhance their knowledge on practical skills, topical issues and domain-neutral topics (So et al., 2020).

On the other hand, some limitations of microlearning as a training approach have also been identified. For instance, microlearning might not be suitable as a training approach for complex tasks (Andriotis, 2018). Pappas (2016), agreed that microlearning is not suitable for subject matters that contain many sub-topics, ideas or concepts. Additionally, microlearning modules may be seen as fragmented or disjointed if it does not cover a single, complete idea or concept. Hence, it might not be ideal for in-depth subject matters that may tend to cover several ideas or concepts (Andriotis, 2018; Pappas, 2016). Microlearning's one-size-fits-all approach is also not the ideal training approach for soft skills training which require learners to learn by doing, which necessitates learners to learn by doing with more physical repetitions than mental repetitions needed. Soft skills are better honed through broad-based

training, in a variety of settings, rather than the one-size-fits-all approach provided by microlearning (Howard, 2021).

2.3.5 Integrating Microlearning into Instructional Design Models

Traditional instructional design models are fast becoming ineffective and less adaptable in dealing with a rapidly-changing world (Lau et al., 2018). These traditional models are losing relevance due to reasons such as, the diminishing attention spans of learners, the rapid proliferation of smartphones, and the quick access to information using search engines such as Google (Dolasinski & Reynolds, 2020). A survey conducted by Microsoft found that the human attention span has fallen from 12 to eight seconds, shorter than that of a goldfish (Gausby as cited in Leong et al., 2020). Microlearning is becoming all the more relevant in dealing with learners' shorter attention span as this training approach focuses on shorter course delivery (Leong et al., 2020).

Another shortcoming of traditional instructional design models is its distinction of the role of the instructional designer and L&D professionals, training facilitator, and the learner (Kerres, 2007). As illustrated in Figure 5, the conventional role of the instructional designer is to develop a training concept, design the content and materials based on the learning objectives. In conventional facilitator-led teaching scenarios, the training facilitator would be responsible for delivering the learning activities and ensuring that their learners reach their desired learning outcomes (Kerres, 2007). Ultimately, the process will flow to the learner who would learn through his or her participation in the learning activity.

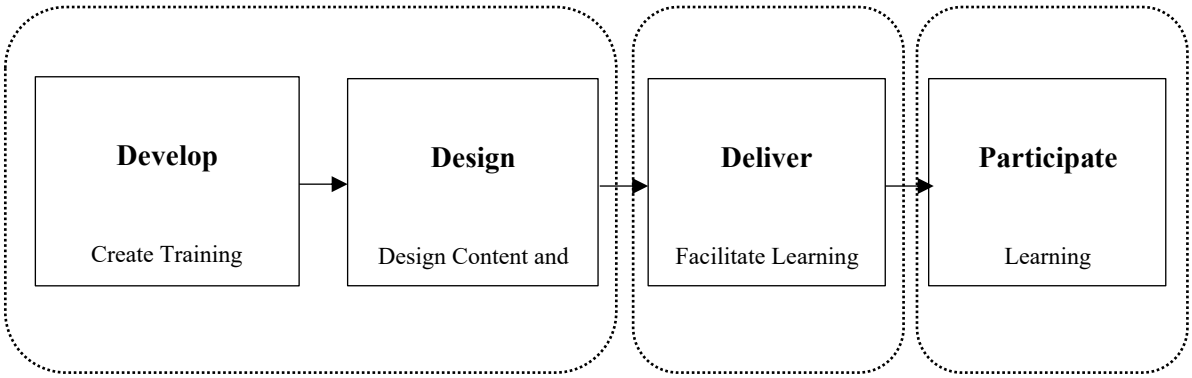

Figure 5 Distinction of Roles Within a Traditional Instructional Design Model (Own Creation)

However, traditional instructional design models and their corresponding roles have undergone a metamorphosis since the introduction of Web 2.0 (Kerres, 2007). Web 2.0 have brought about an open, dynamic and fragmented digital environment, in which learners have access to microcontent that can be accessed and individually aggregated to construct one's own learning (Buchem & Hamelmann,

2020). More importantly, the advent of Web 2.0 technologies have brought about a socio-cultural change that encourages the active participation of learners in the process of co-creation and distribution of user-generated content (Buchem & Hamelmann, 2020). This 'do-it-yourself' culture have blurred the line between the traditionally demarcated role of the instructional designer, L&D professionals, facilitator and learner, as the internet continues to have a pervasive role in our everyday lives (Kerres, 2007).

The creation of user-generated content have promoted the trend towards microcontent through problem-based learning, where learners themselves acknowledge that they are constructors of their own learning (Buchem & Hamelmann, 2020; Kerres, 2007). Hence, with the declining attention spend of learners, as well as their need to be in control of their own learning objectives have garnered interest in microlearning as a suitable training approach in many organizations, particularly in skills development.

In recent years, researchers and L&D professionals have sort to integrate microlearning into traditional instructional design models in an attempt to incorporate the strengths of these models, while concurrently seeking to minimize their shortcomings (Dolasinski & Reynolds, 2020). Microlearning can also be incorporated into agile instructional design models such as SAM, as it fits nicely into employees' workflow, that is, to deliver learning activities without disrupting their daily work (Axonify Inc, 2021). Furthermore, microlearning can complement agile instructional design models as it supports rapid iterative design, development and quick rollout of short learning units (Prasad, 2020). This agile process also encourages quick prototyping, continuous feedback and evaluation of the learning experience until the final product is ready to be formally rolled out (Prasad, 2020).

Dolasinski and Reynolds (2020), proposed one such instructional design model that integrates microlearning as a training approach in four phases. The model includes four phases: (1) determination of a training strategy and corresponding training objectives; (2) development, design, and delivery of learning activity; (3) participation, practice, and demonstration of learning activity; and (4) evaluation of learning activity.

Phase 1: Determination of training strategy and corresponding training objectives. Dolasinski and Reynolds (2020) began the first phase of the model by identifying the specific training needs of the organization based on its overall business strategy. Following which, L&D professionals need to determine the training strategy and the corresponding training objectives that would help the organization achieve its training needs. This phase of the model also corresponds to the pre-production stage of Kapp and Defelice's (2019) three stage process – pre-production, production and post-production – for planning and implementing a learning activity. At this stage, organizations are encouraged to analyze the target learners, the learning and technical environment, and the goals of the

learning activity. The organization can also draw reference and evaluate the effectiveness of previous learning materials (Kapp & Defelice, 2019).

Phase 2: Development, design, and delivery of learning activity. Following the identification of the organization's training needs, L&D professionals would need to develop the training content and materials. In microlearning, information presented would have to be narrowed down to a single definable area or topic (Sofianopoulou & Kamilali, 2013). If the goals of the learning activity contain multiple ideas or topics, it is suggested that separate microlearning modules are designed (Dolasinski & Reynolds, 2020). Subsequently, in the design stage, microlearning allows for the integration of multiple sensory and modalities of information presentation to cater to all types of learners, in order to help them understand and retain what they have learnt (Dolasinski & Reynolds, 2020). Thereafter, in the delivery stage, while there is no exact optimum length of time each learning unit should be, it is recommended that each microlearning module should be kept short and no more than 15 minutes in length (Sofianopoulou & Kamilali, 2013; Torgerson & Iannone, 2019).

Phase 3: Participation, practice, and demonstration of learning activity. In this phase, learners' participation and practice of a new skill through microlearning can help with targeted behavioral changes, and help them commit the newly acquired skill from short-term to long-term memory for longer term knowledge retention (Dolasinski & Reynolds, 2020). An important component of microlearning is the feedback loop through short assessments conducted to help learners reinforce what they have learnt (Göschlberger, 2017). Organizations must not forget to measure the behavioral changes of their employees after they have completed the learning activity. Kapp and Defelice (2019) suggests that organizations use appropriate measurement tools to observe and record exhibited behaviors after the deployment of the microlearning module.

Phase 4: Evaluation of the learning activity. Finally, in this phase, the microlearning module can be evaluated by gathering data from sources such as facilitator observations, learners' feedback and job behavioral change assessments (Dolasinski & Reynolds, 2020). Learning analytics gathered from these sources would be used to measure how effective the learning activity is to achieve the stated training objectives in phase 1.

In Figure 6, an adapted version of the instructional design model proposed by Dolasinski and Reynolds (2020) is illustrated.

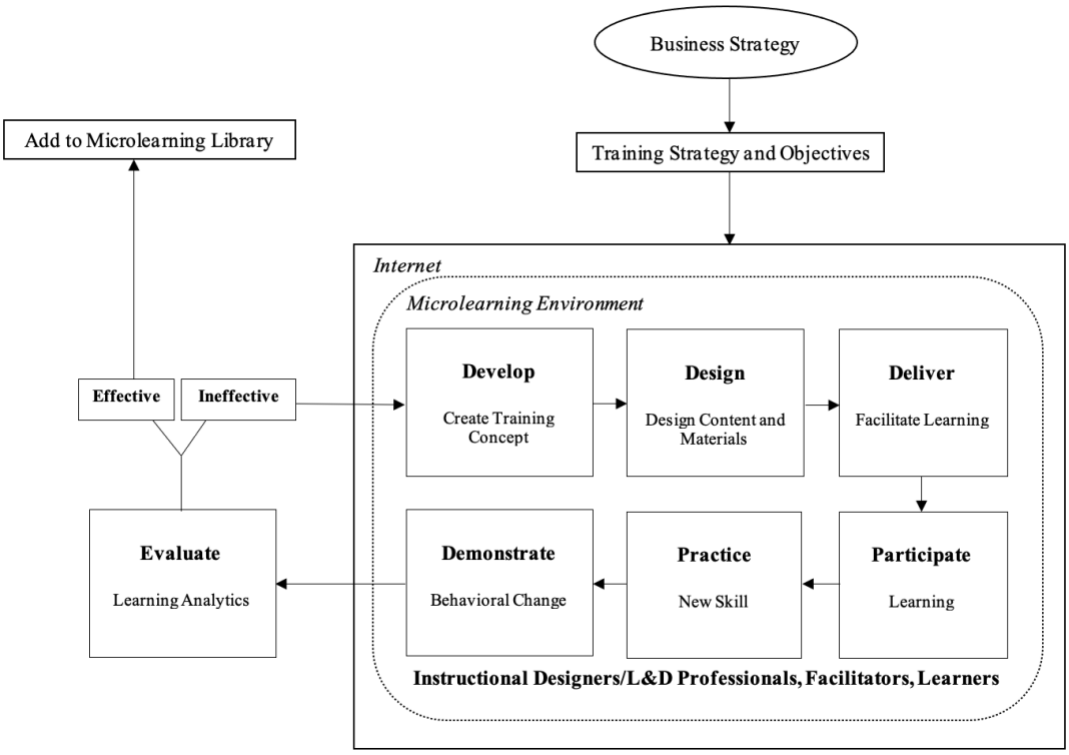

Figure 6 Integration of Microlearning into Traditional Instructional Design Model adapted from (Dolasinski & Reynolds, 2020)

While the instructional design model by Dolasinski and Reynolds (2020) appear to give a complete overview of how microlearning can be integrated as a training approach, a few shortcomings of the model were identified. Firstly, the proposed model currently still demarcates the role of L&D professionals, trainers or facilitators, and learners. However, critics of this view argue that the rise of constructivist approaches to instructional science as well as the pervasiveness of Web 2.0 have blurred the boundaries between the these roles (Kerres, 2007). With the boundary between the roles dissolving, learners are free to become designers and facilitators of their own learning activities. Additionally, this model is still based on the scenario that learners are still highly dependent on the training content and materials that are available to them on the learning platform. However, Kerres (2007), offered another perspective in which the boundary inside and outside of the microlearning environment becomes permeable. The means that learners have the power to construct their own learning environments using the vast resources and materials available on the internet, other than what is currently available on the microlearning platform. This would break the existing constraint on learners based on the training material that the platform currently provides (Kerres, 2007).

2.3.6 Uses of Microlearning

Torgerson and Iannone (2019), highlighted four ways in which organizations commonly use microlearning which includes: (1) preparation before a learning activity; (2) follow-up to support a learning activity; (3) stand-alone training; and (4) performance support.

Preparation before a learning activity. Organizations may use microlearning as a way to prepare its employees before a series of larger learning activities, such as a webinar or a workshop (Kapp & Defelice, 2019). This would give learners an adequate understanding of the subject matter and bring all the participants up to speed, prior to the learning event.

Follow-up to support a learning activity. Microlearning can help to provide after-course reinforcements to strengthen or deepen learning (Thalheimer, 2017). Kapp and Defelice (2019), mentioned that microlearning can help learners to process bite-sized pieces of information as part of a refresher course to supplement, augment or reinforce post-instructional learning.

Stand-alone training. Microlearning can also be used as a stand-alone training to replace classroom-based or formal training (Thalheimer, 2017). This training approach can also be used to provide moment-of-need or just-in-time learning as a form of informal training to help employees gain the necessary skills required to perform a task (Thalheimer, 2017; Torgerson & Iannone, 2019).

Performance support. The aim of the utilization of microlearning for performance support is to promote immediate or near-term performance (Kapp & Defelice, 2019; Torgerson & Iannone, 2019). By providing action nudges to directly prompting or supporting behavioral changes, employees would be able to improve their near-term performance (Thalheimer, 2017).

2.3.7 Drivers for Adoption of Microlearning

Howard (2021) investigated the drivers of online micro-course professional development amongst qualified teachers in a college in the Middle East. The author found that the accessibility advantages of online micro-courses is one of the drivers for the institution's adoption of microlearning. This training approach was found to be conveniently accessible to learners, promotes self-regulated learning and applies the principles of flexibility in andragogy (Howard, 2021). Another driver is the robust reflexivity that micro-courses brought to their learning experience. Learners commented that they were able to look at the training content with 'fresh eyes' by embracing the constructivist learning approach, giving them the freedom to invent and explore new possibilities (Howard, 2021). Mabhele and Van Belle (2019) also pointed that the organization's existing technology infrastructure, as well as the

existing expectations, skill sets and attitudes of employees serve as critical drivers of microlearning adoption. However, the acceptance, adoption and sustained usage of learning technologies also depend largely on the support of the organization's leadership. The adoption of microlearning within an organization is aided by its leadership that essential for cultivating an innovation-driven culture within the company (Mabhele & Van Belle, 2019). Additionally, the positively perceived outcomes of bite-sized learning and increased learner's engagement have also been highlighted as a possible driver for adoption. Lastly, the Coronavirus Disease 2019 (COVID-19) have also be identified as providing an impetus of organizations to reassess their training approaches in responses to the pandemic restrictions, necessitating working from home (Howard, 2021)

2.3.8 Evaluation and Measures of Success of Microlearning

Organizations can evaluate learning activities implemented within the company to determine the effectiveness of the learning activity in reaching its stated objectives (Kapp & Defelice, 2019). The evaluative opportunities of any learning activity are two-fold: (1) evaluating whether the learning activity has led to learning, behavior changes, and ultimately performance improvements; and (2) evaluating the developmental process of the learning activity itself (Kapp & Defelice, 2019).

Despite its criticisms (Reio, Rocco, Smith, & Chang, 2017), the four-level Kirkpatrick model has been the dominant evaluation model in measuring the effectiveness of learning activities (Govender & Madden, 2020; Kapp & Defelice, 2019). Kirkpatrick (2006), claimed that training could be evaluated using four levels of evaluation, namely: reaction, learning, behavior and lastly, results. The four-levels in the model are evaluated sequentially, in a continuum. At the reaction level, the focus is to access the learner's reaction of the training immediately after participating in it. Corresponding measurement instruments include post-workshop surveys, focus group discussions, amongst others (Kapp & Defelice, 2019). The second level of evaluation is content evaluation to access what employees have learnt as a result of the training. In order to exhibit that the effectiveness of the learning activity, L&D professionals need to measure the "extent to which participants change attitudes, improve knowledge, and/or increase skill as a result of attending the program" (Kirkpatrick & Kirkpatrick, 2006, p. 22). Some evaluation instruments may include multiple choice or open-ended examinations, rubrics or simulations (Kapp & Defelice, 2019). On the third evaluation level, behavior, it is crucial to access how well employees can apply their newly acquired knowledge and skills on the job (Reio et al., 2017). Line managers of employee who have undergone the training could conduct a performance review to assess if their subordinates are able to put what they have learnt into practice (Kapp & Defelice, 2019). Finally, the last stage of the evaluation model is the most complex to evaluate as organizations need to measure the actual organizational changes that have occurred as a result of the learning activity implemented, and how it has helped it to achieve its overall business strategy and objectives (Reio et al., 2017). The

corresponding evaluation instruments include, having baseline data to compare and contrast indicators of success within the organization, as well as measuring the improvement of individual employees through annual performance reviews (Kapp & Defelice, 2019).

However, the Kirkpatrick's hierarchical structure have constantly been deemed problematic by researchers and business practitioners alike, due to its assumption that the higher levels of the model being of greater importance than the lower levels (Reio et al., 2017). As a result, business practitioners such as L&D professionals, have inclinations to over simplify the complex nature of training evaluations by skipping the lower levels of the model in order to focus on the higher levels of evaluation (Govender & Madden, 2020; Reio et al., 2017). Another erroneous assumption often made by practitioners of this model, is the tendency to wrongly assume that learners who reported to have positive reactions to the learning activity at first level, would ultimately improve their job performance and contribute to the success of the organizational strategy and objectives (Reio et al., 2017). However, Kirkpatrick (2006) emphasized that there is no guarantee that positive reaction by learners would result in favorable job performance and organizational success.

Apart from evaluating learning, behavior changes and performance improvements brought on by the learning activity, organizations can also evaluate their training development efforts through a strength, weaknesses, opportunities and threats (SWOT) analysis. Kapp and Defelice (2019), suggested that organizations can conduct the SWOT analysis by asking themselves the following questions:

1. *Strengths*. What were your team's most valuable assets in rolling out this learning activity?
2. *Weaknesses*. What were the weak points in your team's ability to rolling out this learning activity?
3. *Opportunities*. What were the internal organizational assets or advantages that were not utilized in the completion of this learning activity?
4. *Threats*. What external forces, if any, could jeopardize this learning activity or others similar to it in the future?

A possible criticism of the SWOT analysis is that this evaluation model identifies potential issues without providing relevant solutions. Critics have also pointed out that this method of analysis tends to oversimplify the evaluation efforts, whereas in reality there are no quick fixes when it comes to modifying the learning activity based on the result of the analysis (Kapp & Defelice, 2019).

2.3.9 Conclusion

Microlearning as a training approach, is a fairly young field that has its origins in the educational context, particularly in tertiary levels of education. Whilst numerous authors have contributed to this field of research, there is currently still no consensus with regard to the terminology, 'didactics of microlearning' with many terms used interchangeably. The subsequent section attempts to define the term 'microlearning' based on six main elements before proceeding to map out its existence as a learning environment, according to its temporal-spatial dimensions. The common modalities, benefits and limitations of microlearning were also later introduced. Following which, the use of microlearning as a training approach to complement traditional instructional design models was examined. One such instructional design model, consisting of four phases, was proposed by Dolasinski and Reynolds (2020). Thereafter, the common uses of microlearning, as well as the drivers for the adoption of microlearning were explored. Finally, the evaluation and measures of success of microlearning using evaluation models, such as the four-level Kirkpatrick model and SWOT analysis were presented.

Several gaps were identified during the review of the literature on microlearning. Firstly, there is still a lack of research in the area of the desirability and feasibility to integrate microlearning as a training approach with advanced technologies such as artificial intelligence, virtual reality, augmented reality and internet of things. The most common integration presented in literature has been with mobile devices (Bruck et al., 2012; Göschlberger & Bruck, 2017; Govender & Madden, 2020; Hesse et al., 2019; Hug, 2005; So et al., 2020). Secondly, more effort is needed to understand how the unique characteristics and personalities of adult learners may affect their motivation to take on microlearning as a training approach. Finally, more work needs to be done to understand how to provide learners with more customizable and adaptive learning content.

2.4 Reflection of the Three Literature Streams

Figure 7 summarizes the flow of the discussion of this chapter. The three streams of literature reviewed linked successful strategy implementation through organizational learning, with a particular focus on workforce skills development using microlearning as a training approach. The SHRM literature sets the tone for the research context, recognizing that L&D professionals have a key role to play in the overall business strategic decision-making process. Their role as strategic decision-makers, also influences their views with regards to the impact of OL towards allowing the organization to reach its business strategy and objectives. Moreover, SHRM also establishes the link between organizational effectiveness, and the need for organizations to provide their employees with upskilling and reskilling opportunities through L&D, given that employees' individual development goals should be aligned with that of the organization. In this context, OL becomes the means to aid the strategic purpose of SHRM, which is to make organizations more effective and successful, by investing in learning activities that help their employees to perform better and keep up with a rapidly changing business environment. The last stream of literature then explores how microlearning could be used as a training approach to help the organization reach its OL goals. Thus, assisting the organization in its quest to meet its training needs, in turn enhancing its employees' work performance and productivity, and contribute the organization's overarching strategic goals, while concurrently providing it with a long-term source of competitive advantage.

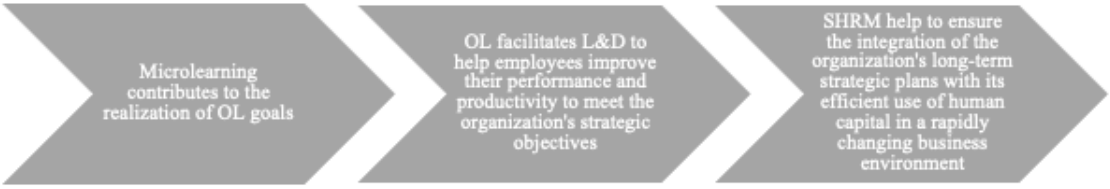

Figure 7 Flow of Literature Review Streams (Own Creation)

3. Methodology and Methods

3.1 Methodological Approach

The conceptualization of the success factors required for the implementation of microlearning has been based on the perspectives of L&D professionals who participated in this research. Referring to one of the five types of research designs discussed by Wollman (2021), this research took the form of an exploratory study to explore this relatively unexplored and ill-defined research area. Kothari (2004) explained that, the exploratory nature of qualitative studies is useful in developing an understanding of the differing view of participants, and gives new perspective and familiarity to a phenomenon. Thus, this research not only reports on the perspectives of L&D professionals but also attempts to clarify, shed light and look for patterns regarding the success factors for implementing microlearning as a training approach through their lens (Wollman, 2021). In order to facilitate the process of finding out why and how L&D professionals have formed these views about microlearning, theoretical evidence outlined in the literature review would be used to support the findings by exploring reasons and factors that may have contributed to the perceptions of the study participants. Thus, an inductive method of inquiry guided this exploratory study. This method of inquiry begins with observations before generalizations are made based on specific observations and experiences, hence, the process of data collection comes first before detecting patterns and deriving theoretical implications (Coccia, 2018). Exploratory studies' flexible methodology enables for the emergence of significant insights from rich qualitative data obtained during qualitative interviews conducted with L&D professionals. However, Coccia (2018) cautioned that conclusions drawn from data collected may be probable, depending on the data gathered.

In order to better understand the theoretical underpinnings of the methodological approach used, it would be helpful to review the concepts of ontology, epistemology and research paradigms. Ontology refers to a branch of philosophy that studies the nature of reality and essence of its existence. Burrell and Morgan (1979) proposed, that there are two main ontological perspectives: one of an objective nature, and the other, a subjective nature. The subjectivist ontological position suggests that there could be multiple perceptions of reality while the realist position takes the view that reality exists independent of individual cognition (Burrell & Morgan, 1979). Epistemology is the study of the nature of knowledge, how it is acquired and it provides a two-fold argument between positivism and interpretivism (Becker & Niehaves, 2007). Positivism adopts a scientific stance towards research while interpretivism believes that social phenomena are unique and socially-constructed (Crotty, 1998). The research paradigms or theoretical perspectives, either scientific or humanistic, help to guide the researcher in determining the methodology and methods in terms of what to research, how to conduct it, and how to analyze it (Crotty, 1998).

This study's research question acknowledges the existence of multiple perspectives of L&D professionals. It aims to analyze the success factors for the implementation of microlearning as a training approach for skills development by drawing the distinctive, first-hand experiences of the study participants. By taking a multi-perspective approach to the existence of reality and the construction of contextual meaning based on the differing perceptions of the individual L&D professionals regarding microlearning, this research takes on subjectivist ontological and interpretivist epistemology positions. The choice of ontological perspectives has an influence on the epistemological position that a research would take, which would in turn determine the choice of research paradigm, which in this case was humanistic (Crotty, 1998).

3.2 Qualitative Research Approach

According to Johnson and Christensen (2014), the three research approaches: qualitative research, quantitative research and mixed methods research. This study takes on a qualitative research approach. Qualitative research depends primarily on the collection of qualitative data. Chu and Ke (2017) observed that, the number of scholarly research that adopted qualitative research approaches have been on the rise in recent decades. However, the term 'qualitative research' has not been well-defined. Previous studies that did not utilize statistical analysis were labelled as qualitative research. Apart from categorizing qualitative research based on the methods of data analysis, researchers also categorize qualitative research based on a study's data collection methods. For instance, ethnography, interview, historical, observation and focus group methods were commonly considered as qualitative research approaches (Chu & Ke, 2017; Yilmaz, 2013). Fidel (1993) also pointed out that, qualitative and quantitative research are on opposite ends of the spectrum. He goes on to add that qualitative research can help researchers to obtain insights into human behavior and is best suited for studying complex and little-known topics. Qualitative research takes the view that human behavior is context-dependent, socially constructed, personal and unpredictable. Hence, the typical steps that researchers have to take from the data collected, from bottom-up is as follows: observe, draw patterns, generate hypothesis before generating a theory (Johnson & Christensen, 2014). Furthermore, Roger et al. (2018) highlighted that the identity of which one perceives him- or herself with, has strong implications for which topics, methods and research paradigm that one operates in.

However, one significant disadvantage of qualitative research is its inability to draw generalizations beyond the participants involved in the study as different groups of people may construct differing realities and points of view (Johnson & Christensen, 2014). Moreover, qualitative research often involves a small sample size, it may be difficult for the researcher to reach a widely applicable conclusion.

3.3 Methods of Data Collection

This research intends to obtain insights by understanding the phenomena being studied through the lens of L&D professionals by drawing on their first-hand experiences, viewpoints, thoughts and emotions, qualitative interviews were conducted.

Rubin and Rubin (2011) defined qualitative interviewing as the direct dialogue between the researcher and the study's participants. By conducting qualitative interviews, researchers aim to extract the participants' interpretations of complex, contradictory and counterintuitive phenomenon of interest (Rubin & Rubin, 2011). Kvale (1996) suggested that, there are seven stages to the process of qualitative interviews, namely: thematizing, designing, interviewing, transcribing, analyzing, verifying, and reporting. The role of thematizing is to determine the researcher's role in facilitating the understanding of the participants' experiences, in alignment with the researcher's topic of interest as well as their selected research method (Kvale, 1996). To ensure that the qualitative interviews conducted contributed to valuable insights, the research was designed such that the existing literature on the topic was first reviewed, while also taking into account the research resources required. This included identifying the study's participants who would be able to value add to the research question at hand. Thus, the subsequent sections further elaborate on the characteristics of semi-structured interviews, as well as how the data is collected, the outline of the interview procedure, and appropriate sampling techniques used.

3.3.1 Characteristics of a Semi-Structured Interview

To address the research question, semi-structured interviews were conducted. According to Harvey-Jordan and Long (2001), semi-structured interviews are used as a data collection tool to explore participants' perceptions, experiences and attitudes. This data collection tool uses a series of open-ended questions based on the topic areas the researcher wants to cover, allowing for the development of numerous themes or sub-topics.

Prior to conducting a semi-structured interview, the researcher will have to prepare an interview questionnaire of schedule consisting of predetermined initial and prompt questions (McIntosh & Morse, 2015). Harvey-Jordan and Long (2001) added that, while the core themes and sub-topics are usually identified before the interview is conducted, the interview schedule should allow for adaptations to provide room for themes to develop throughout the discussion. Longhurst (2009) goes on to describe the elements of a semi-structured interview in more detail. Firstly, the interviewer must let the interviewee explore and discuss the subject matter at hand in a manner of their choosing. Unlike unstructured interviews, where deviations from questions are not allowed, interviewees of semi-

structured interviews tend to experience some guidance and prompts to encourage him or her to consider the questions further (Harvey-Jordan & Long, 2001; Longhurst, 2009).

The candor with which the interview respondents express their ideas can get to the heart of the subject. Additionally, adding genuine quotes in a study can help to bring the research topic to life (Harvey-Jordan & Long, 2001). However, the researcher runs the risk of the interview partner going off topic and wasting valuable time (McIntosh & Morse, 2015). This risk can be mitigated with effective time management and courteous use of cues, prompts or interruptions (Harvey-Jordan & Long, 2001).

With regards to the specific structure and format of semi-structured interviews, this data collection tool uses a fairly detailed interview schedule or guide, for which researchers might have sufficient objective knowledge, but is still lacking subjective knowledge about a particular phenomenon (McIntosh & Morse, 2015). Since the interview partners involved in this thesis fall into two categories – strategic and systems or operational level, two different sets of interview schedules or guides were created. The interview schedules or guides for this research, which can be found in Appendix A and B, consists of four parts, namely: a general introduction, a brief explanation on the research question and its objectives, a list of questions that the interviewer would like to discuss during the interview, and closing remarks to the interview.

Additional considerations were also taken when preparing and facilitating a semi-structured interview. For instance, Hopf (2004) highlighted the advantages of allowing interviewees to narrate their experiences freely as such thoughts and memories are often left unexpressed should the interview be conducted in a direct and structured manner. However, qualitative researchers encounter two categories of biases: participant bias and researcher bias, which can make it difficult for them to retain objectivity and avoid bias. (Shah, 2019). An example of a type of participant bias is acquiescence bias, whereby the interview participant decides to agree with the interviewer based on how the questions are asked or just to complete the interview as fatigue sets in (Noble & Smith, 2014; Shah, 2019). Hence, it is crucial to frame open-ended questions to keep participants from simply agreeing or disagreeing. Rephrasing the question in different ways might help to gain insights into the participants experiences instead of receiving closed responses (Shah, 2019). On the other hand, confirmation bias is an example of a researcher bias. This form of bias may occur during data analysis, in which the researcher may be tempted to look for data that supports his or her personal opinions while ignoring data that contradicts them (Noble & Smith, 2014). According to Shah (2019), qualitative researchers should review all of the data they've obtained and interpret it objectively, as well as regularly evaluate impressions to ensure that preconceived assumptions are avoided.

Most forms of qualitative interviewing require researchers to deal with professional ethical codes during the process of conducting the interview. Institutional Review Boards (IRBs) often require researchers to obtain informed consent from the research participants in order to safeguard the respondents against invasion of privacy, breaches of confidentiality or anonymity, and possible distress caused by the themes raised during the interview (Gubrium & Holstein, 2001). For simplicity and accuracy in data collection, semi-structured interviews are normally conducted one subject at a time, and is often audio recorded for convenience and accuracy during interview transcription (Harvey-Jordan & Long, 2001).

3.3.2 Interview Procedure

As mentioned in the previous sub-section, to gain the insights and viewpoints from various interview partners, semi-structured interviews were chosen as the data collection method for this thesis. To gain a clearer understanding of the success factors for the implementation of microlearning, when used as a training approach for the implementation of skills development, as part of the organization's training strategy, six interviews were conducted in total. The interview partners selected were categorized into two perspectives: the viewpoints from L&D professionals with experience in setting out their organization's training strategy, and the viewpoints of subjects who have had systems or operational experience in implementing microlearning as a training approach. In order to arrive at a representative overall conclusion on which to base the subsequent findings and analysis on, both perspectives mentioned must be considered.

Qualitative data was gathered over a time of four weeks. Table 2 provides a list of the interview partners' profiles to give a broad overview with the assigned interviewee number, their current role, industry and business ownership, as well as an outline of their industry experience.

Interview Category	Interview Partner	Current Role	Current Industry and Ownership	Interview Partner's Industry Experience	Date and Interview Location	Interview Type
Strategic Level	Interview Partner 1	Global L&D Manager	Pharmaceutical Industry (MNC with global headquarters located in Lachen, Switzerland)	22 years of experience in diverse HR and L&D roles spanning across the food processing, heavy machinery, and pharmaceutical industries.	22.06.2021 Lachen, Switzerland	Virtual
	Interview Partner 2	Global Head of Talent and Learning	Electrical/Electronic Industry (MNC with global headquarters located in Zurich, Switzerland)	20 years of experience in diverse HR and L&D roles spanning across the insurance, banking and finance, manufacturing, and electronics industries.	09.07.2021 Zurich, Switzerland	Virtual
	Interview Partner 3	Global Head of HR	Fashion Industry (MNC with global headquarters located in Bad Zurzach, Switzerland)	22 years of experience in dual roles in the HR profession and business transformation consulting in the telecommunications and fashion industries.	16.07.2021 Bad Zurzach, Switzerland	Virtual
Systems or Operational Level	Interview Partner 4	HR Manager	Semiconductor Industry (MNC with global headquarters in Levallois-Perret, France)	Approximately 10 years of experience in diverse HR and L&D roles spanning across the industrial services, healthcare, and semiconductor industries.	06.07.2021 Singapore	Virtual
	Interview Partner 5	Business Development Manager	Software Industry (Finnish Enterprise Software Company headquartered in Joensuu, Finland)	20 years of experience spanning across the business consulting, enterprise software; educational technology industries.	07.07.2021 Wiesbaden, Germany	Virtual
	Interview Partner 6	Talent Development & Employee Experience Manager	Semiconductor Industry (MNC with global headquarters in Ayutthaya, Thailand)	20 years of experience in diverse HR and L&D roles spanning across the telecommunications, business consulting and semiconductor industries.	12.07.2021 Ayutthaya, Thailand	Virtual

Table 2 Interview Partners' Profiles (Own Creation)

Purposive criterion sampling method was used to identify suitable interview partners. According to Dudovskiy (n.d.), purposive sampling is a non-probability sampling method that relies on the researcher's own judgement when choosing members of the population to participate in the study. While this sampling method can be advantages as it is cost-efficient and time-effective, the researcher needs to be mindful of its vulnerabilities, such as being prone to high levels of bias and the inability to generalize findings.

For this research, interview partners are separated into two categories – strategic and systems or operational level. Firstly, interview participants that fall under the strategic category, must work in an MNC for at least five consecutive years and have had a role in setting out their organization's training strategy. Only individuals with adequate experience to provide significant insights for the research were chosen using this criterion (Kothari, 2004). In addition, the interviewees came from a diverse range of industries to ensure a representative analysis with differing experiences and perspectives. Under the strategic level, three L&D professionals were interviewed. The interview partners were recruited using the connections of Mr. Christian Olivier Graf, the researcher's thesis supervisor, and his professional network with the Sounding Board of the International Management Institute at the Zurich University of Applied Sciences (ZHAW) School of Management and Law. This category of interview partners was first contacted via email by Mr. Graf by way of introduction, explaining in German, the research topic and purpose of the request by the researcher to conduct expert interviews with the selected individuals. After the initial introduction was made, the researcher proceeded to contact the interview partner, via email, with a request for a virtual interview, providing a brief introduction of the researcher's academic background and stating the research topic, before suggesting a few possible interview dates and timings which was later agreed upon according to the interviewees' preferences and availability.

Under the systems or operational level, interview participants selected must be L&D professionals, with either operational management experience in L&D or expert knowledge of enterprise learning platform that incorporates microlearning. Three L&D professionals were interviewed under this category of interview partners. Two of these individuals came from the researcher's own network and have extensive experience in the implementation of training strategies and designing a range of learning activities. One of whom had the experience of authoring and implementing microlearning within his organization, in his capacity as a HR Manager. The third interview partner was selected after extensive desktop research had been conducted to identify a technical expert from a HR technology company that has incorporated microlearning as part of their enterprise learning platform, in MNCs, for the purpose of skills development. The reason for tapping on the insights of this category of interview participants is to elucidate the features of microlearning that make this training approach effective for skills development. Similar to the first category of interview partners, this group of interviewees were

contacted via email and the interview dates and timings were later agreed upon according to the interviewees' preferences and availability.

All the interviews were conducted over the platform Microsoft Teams due to geographical proximity and time constraints; each interview lasted between 15:08 to 49:20 minutes. All the interview partners did not wish to be named in this thesis, hence the researcher assigned a number, from one to six, to each of the interview partners' profiles to ensure that their anonymity and confidentiality are respected. Interview partners one to three belong to the strategic level, while interview partners four to six belong to the systems or operational level.

Figure 8, offers an overview of the structure of the interview questions for interviewees from the strategic level and systems or operational level. The core themes to each of the ten questions for both categories have been outlined, as well as the corresponding key authors cited in the literature review. Multiple questions asked, in both interview categories, were grounded in theory presented in the literature review, whereas others were included for specific reasons which would be beneficial to outline the drivers for adoption and features of microlearning.

This section described in detail the approach and procedures used to conduct the semi-structured interviews required to achieve the objectives of this thesis. In the subsequent section, the focus is laid on the methods of data analysis through which the semi-structured interviews will be analyzed.

	STRATEGIC LEVEL		SYSTEMS / OPERATIONAL LEVEL	
	THEME	KEY AUTHOR(S)	THEME	KEY AUTHOR(S)
QUESTION 1	Professional background	NA	Professional background	NA
QUESTION 2	Job-specific information	NA	General/Platform-specific information	NA
QUESTION 3	Training strategy of the organization	Niazi (2011), Sotubo (2019), Van Dam and Masie (2018), Peruyasamy (2020) & Nafukho et al. (2004)	Factor(s) for the successful implementation of microlearning as a training approach for skills development.	NA
QUESTION 4	Past experiences of implementing microlearning as a training approach for the purpose of skills development.	Torgerson and Iannone (2019), Sofianopoulou and Kamilali (2013), Hug (2005), Kapp and Defelice (2019), Bersin (2018) & Cournoyer (2021)	Past experiences on which example(s)/modality(ies) of microlearning are most preferred by the organization for skills development.	Torgerson and Iannone (2019), Valamis (2020) & So, Lee and Roh (2020)
QUESTION 5	View on SHRM as a source of competitive advantage, and the role it plays in helping the organization meet its strategic objectives.	Huselid (1995), Boxall (1996), Nafukho et al. (2004), Hairston and Brooks (2004), Bos-Nehles and Meijerink (2018) & Gould-Williams and Davies (2005)	View on the main benefits and limitations of microlearning as a training approach for skills development.	Valamis (2020), Axonify Inc. (2021), Andriotis (2018), Bersin (2018) & Pappas (2016)
QUESTION 6	View on OL as a source of competitive advantage, and the role it plays in helping the organization meet its strategic objectives.	Smith et al. (1996), Moingeon and Edmondson (1996), Fiol and Lyles (1985), Schein (2010) & Murray and Donegan (2003)	Past experiences on the most highly demanded content/training areas that organizations are using microlearning for skills development.	So et al. (2020)
QUESTION 7	Role of the L&D function to assist in closing skills gaps. View on the most pressing skills gaps that exists within the organization.	Garavan et al. (2019), Ramachandran (2015) & Van Dam and Masie (2018)	View on how microlearning can leverage on the strengths and minimize the shortcomings of traditional instructional design models.	Vergroesen (2021), Mayfield (2011) Aharon (2021) & Seufert and Meier (2016), Kerres (2007) & Buchem & Hamelmann (2020)
QUESTION 8	Views on drivers of adoption of microlearning as a training approach as part of the organization's broader training strategy for skills development.	Howard (2021) & Mabhele and Van Belle (2019)	View on how microlearning can be integrated into each stage of traditional instructional design models for the purpose of skills development.	Dolasinski and Reynolds (2020)
QUESTION 9	View on where microlearning could best fit as a training approach as part of the organization's broader training strategy for skills development.	Maddox (2008) & So et al. (2020)	Past experience on the main reasons for the use(s) of microlearning as a training approach for skills development.	Torgerson and Iannone (2019), Thalheimer (2017) & Kapp and Defelice (2019)
QUESTION 10	Views on creating a training implementation plan on the strategic level before rolling out a new training strategy or approach.	NA	Past experience on how the organization can evaluate and measure learners' behavior change and performance improvements, as well as its training development efforts.	Kapp and Defelice (2019), Reio et al. (2017), Govender and Madden (2020) & Kirkpatrick and Kirkpatrick (2006)

Figure 8 Structure of Qualitative Semi-structured Interview (Own Creation)

3.4 Methods of Data Analysis

The qualitative data gathered through semi-structured interviews covers a wide range of topics, offering extensive narratives of the varying experiences and perspectives of the interview partners, in both the strategic and systems or operational levels. To analyze the qualitative data collected through the interviews, two coding methods were applied and analyzed using MAXQDA, a software package for qualitative data analysis. A code, in qualitative analysis, is typically a word or a short phrase that symbolically assigns a summative attribute to a section of a language-based or visual data in order to capture its essence (Saldana, 2021, p. 5).

The qualitative data analysis began with the identification of the first-order concepts as the basic units of analysis. According to Corbin and Strauss (1990), coding to achieve first order categories often require the constant comparison of the actual occurrences, happenings and events, presented in raw data such as interview transcripts or field notes, as a possible indicator of a phenomena. Saldana (2021) further elaborated that, coding allows researchers to sort and group similarly coded data into groups because they share the same features or characteristics. The coding method used in the first coding cycle was open coding, which entails comparing actual occurrences, happenings and events for similarities and differences. Thus, conceptually similar codes can eventually be grouped together to develop appropriate categories based on the common properties, qualities and dimensions of the first order categories (Corbin & Strauss, 1990, p. 12). Arriving at a category, according to Saldana (2021), does not imply arriving at a reduced answer, but rather a drive to consolidate meaning of the categories developed. The results of the first cycle of coding gave rise to 32 categories from the interviews conducted on both the strategic and systems and or operational levels.

The second-order analysis went a step further by looking for common patterns among the first-order categories and utilized descriptive labels to group those that were comparable. The coding method used for the second coding round is axial coding. Axial coding method entails relating and constructing linkages between categories and subcategories to reveal themes, new categories, and new subcategories (Allen, 2017). This coding cycle employs the same analytical approach as the first coding cycle, in which categories developed must be compared based on their similarities and differences. However, the categories created during this round of coding, on the other hand, are higher level and more abstract than the concepts they represent (Corbin & Strauss, 1990). As a result, the initial 32 first-order categories were reduced to a manageable eight themes. However, understanding the purpose of each of these clustered first-order categories aided in answering the research question, and was critical in generating second-order themes. Therefore, the second-order themes generated contributed towards describing or explaining the phenomena, that is the success factors for the implementation of

microlearning as a training approach for skills development. Ideas and concepts mentioned by the interview participants that have been covered in the literature review were taken into account. However, the focus remained on novel concepts and themes that were discovered during the data analysis. The second-order themes were further categorized into three large overarching dimensions to put things into perspective.

Finally, through the specification of the properties and dimensions of the second-order categories, they can be defined and given explanatory power to demonstrate how they interact, giving rise to the formation of a theory of a phenomenon (Corbin & Strauss, 1990; Saldana, 2021). In Figure 9, the qualitative coding data structure had been created based on the 32 first-order categories derived, which was subsequently collapsed into eight themes resulting in three overarching dimensions.

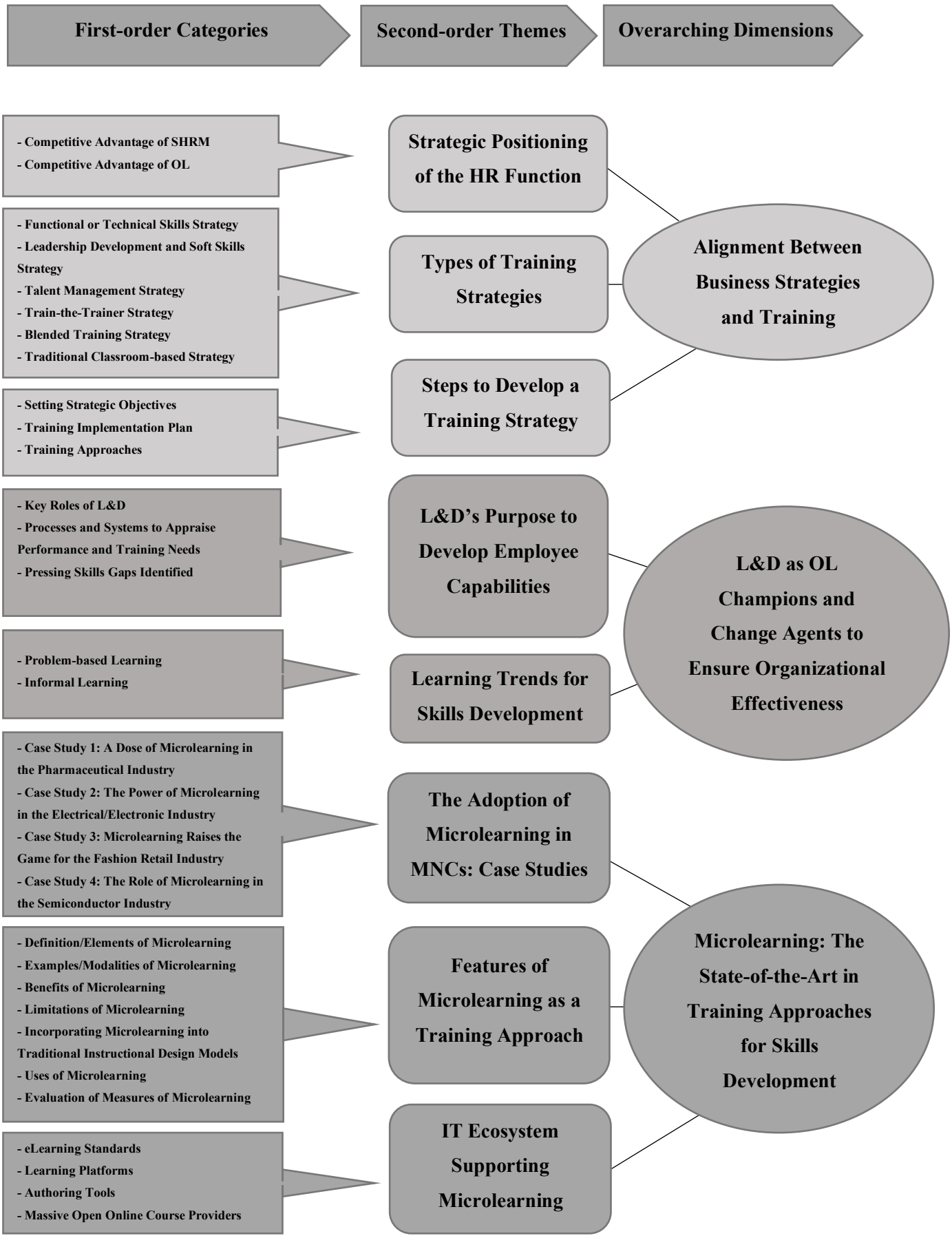

Figure 9 Qualitative Coding Data Structure (Own Creation)

4. Findings

4.1 General Orientation of Findings

The aim of the chapter is to present the findings of this research gathered from the six semi-structured interviews conducted on both the strategic and systems or operational levels. The first two dimensions cover emerging themes mainly derived from the findings of the interviews conducted with Interview Partners 1 to 3 who hold senior global leadership positions in the HR function in MNCs and have a role in setting out their organization's training strategy and policy. On the other hand, the third dimension covered themes generated from the findings of the interviews conducted with Interview Partners 4 to 6 who have either had the experience of authoring, implementing, or incorporating microlearning as part of an enterprise learning platform, in MNCs, for the purpose of skills development. However, from time to time, findings from one category of interview partners supported insights on topics directed at the other category of interview partners, and vice versa.

All the themes that have surfaced as a result of the data analysis were geared toward answering the research question in totality. The three research objectives developed at the beginning of the research aided the researcher to deconstruct the research question to examine the topic in smaller sections and were also helpful in structuring the presentation of the findings.

The first three themes derived offered a deeper understanding of how the interview partners viewed SHRM and OL in providing a competitive advantage for their respective organizations. It also aimed to investigate the viewpoints of the same group interview participants on the role of SHRM and OL in helping the organizations develop training strategies that help it to meeting its business strategies. The next two themes generated aims to shed light on the role of L&D professionals in closing the skills gaps that exist within their respective organizations. In addition, the current learning trends that have emerged in recent years, as observed by the interview participants will be outlined. Finally, the last three themes that surfaced aim to present case studies of how microlearning is currently implemented in four of the interview partners' organizations. The next two themes intend to elucidate the interview participants' understanding of the features of microlearning, as well as the IT ecosystem required to support this training approach.

The subsequent sub-sections aim to present the findings based on the overarching dimensions, and its corresponding themes and categories.

4.2 Alignment Between Business Strategies and Training

The first overarching dimension consists of three themes, namely: the strategic positioning of the HR function, the different types of training strategies, as well as the steps to develop a training strategy. The strategic positioning of the HR function theme sort to clarify the L&D professionals' opinions on the role of SHRM and OL in generating competitive advantage for their respective firms. The theme of the types of training strategies discussed the different types of training strategies adopted by the different organizations. The last theme under this dimension presented the general steps taken by organizations to develop a training strategy which was then followed by the development of suitable training approaches.

The following sub-section presented the findings pertaining to the first theme under the first overarching dimension.

4.2.1 Strategic Positioning of the HR Function

The interview participants from the strategic level were firm on their believe that SHRM and OL served as competitive advantages for their respective organizations. However, several interview partners expressed certain barriers hindering SHRM and OL, including a lack of top management support for HRD and the promotion of an organizational wide-learning culture.

4.2.1.1 Competitive Advantage of SHRM

The interview partners from the strategic level were unanimous in their agreement that SHRM serves as a competitive advantage for their respective organizations. Being in senior positions, this category of interview partners are key decision-makers of their respective organization's HR systems, policies, practices, and training strategies. Interview Partner 3 (2021, appendix E) explained that *"[...] it's very important that any HR department or any strategic department are really in tune with the business."* However, Interview Partner 1 (2021, appendix C) pointed out that the strategic direction of the organization and its corresponding hiring strategy to help it to reach its goals are often not in alignment. Interview Partner 1 (2021, appendix C) succinctly summarized his views on the matter in the quote below:

> *I think the benefits of having career paths, key positions, successors are very limited if you don't do strategic resource planning long-term. We have an idea of what kind of products we want to produce in three years or five years, but we don't analyze what that means for the kind of roles that we need to fill. It's all quite a gut decision, at this moment.*

Interview Partner 1 (2021, appendix C) also expressed that *"The area where you can distinguish yourself from other companies is the quality of the human factor. If you plan this long term, strategically, then you have a huge advantage."* Interview Partner 2 (2021, appendix D) reinforced this view by adding that he believed it is important to *"have all the elements in place that will create a strategic advantage or competitive advantage. So, that starts with hiring the right people […]"*. However, Interview Partner 1 (2021, appendix C) highlighted that, the organization must first have a long-term strategic plan to attract the right talent:

> *[…] you need to do something to be attractive, not just the salary. It is also, do you have interesting prospects for the people, does the company think long-term and does it have a strategy? Do they have a plan? Is the plan about the people or the machines? It takes a whole package for the company to stay attractive. It's not only about attractiveness, but Human Resource planning is also about success in the market.*

Interview Partner 1 (2021) further elaborated that, prior to creating a long-term strategy or plan to attract and hire the right talent, top management must first adopt a mindset that is focused on analyzing the company's near- and long-term goals and align them with the skills required to attain these goals.

All three interview partners provided recommendations on how organizations can achieve competitive advantage through SHRM. Interview Partner 1 (2021) recommended that HR should be part the executive board in order to leverage the close relationship with top management, to better strategically align HRM with the organization's overall strategic objectives. Unfortunately, Interview Partner 1 (2021, appendix C) observed that throughout his extensive industry experience, top management do not often take the holistic approach to people management by regarding employees as variable costs, instead of valuable assets to the firm, commenting that *"It is always the same; sales, sales, sales, everything else doesn't count and HR is just a cost. But it is the people that matter."* Whereas HR's involvement on the board was clearly demonstrated by Interview Partner 3 (2021), who mentioned that she seats on the board of directors at her company and would seek the board's approval before developing any HR initiatives. Interview Partner 3 (2021, appendix E) elaborated further on her involvement on the board:

> *I'm part of the holding directly to with our CFO and our owners. I'm part of five people really driving the company together with the business. The business belongs to the extended board. From that perspective, anything we do in HR is probably treated at the highest level possible in terms of strategy.*

While the advantage of being on the board meant that HR initiatives would likely be treated at the highest level conceivable within the organization, the disadvantage of such high visibility is not being able to implement things under the radar (Interview Partner 3, 2021).

In addition, Interview Partner 2 (2021, appendix D) pointed out that he is *"a strong believer that HR is done by every single manager. The HR department provides just the appropriate processes, guidance, policies, and tools. But HR has to be done by every single manager."*

Last but not least, Interview Partner 2 (2021) and Interview Partner 3 (2021) observed some possible challenges that MNCs might face when trying to achieve competitive advantage through SHRM. As MNCs often have multiple worksites or offices worldwide and employ a large workforce, Interview Partner 2 (2021, appendix D) observed that it is often a challenge to maintain consistency and common understanding of SHRM throughout the organization as *"... everyone defines great HR skills, managerial skills and leadership skills differently."* Furthermore, budgetary constraints and the need to be in constant contact with top management also come into play when deciding which HR priorities to strategically focus on, or invest in (Interview Partner 2, 2021). Interview Partner 2 (2021, appendix D) summarized this challenge concisely below:

> *[...] You have to create processes to onboard people. You have to identify the great people out there. You have to do executive search. You have to do training internally. Long story short, you have a lot of activities and no company in the world can do everything perfectly or invest in everything perfectly. So the barrier is always having to have a permanent communication and collaboration with the management to understand what are the priorities? Where should invest more? Where a bit less? So, it is this balancing or finding the perfect balance in investing into the right areas.*

Another observation made by Interview Partner 3 (2021) is that trends, like sustainability, have gained prominence. These trends might seem completely normal, but they present serious leadership challenges that force leaders to examine new ways of leading (Interview Partner 3, 2021). Interview Partner 3 (2021, appendix E) even provided a concrete example to illustrate her point:

> *For example, you have to think, 'Okay, do I bring my team for this workshop? This is expensive and the flight is not very ecologically friendly, yet there is value in being face-to-face or do I do things differently, maybe virtually with my team.' [...] I still have many of my colleagues with whom I have to have constant discussion with regarding how they can connect with their people, create a rapport and trust without travelling.*

4.2.1.2 Competitive Advantage of OL

Once again, the interview partners from the strategic level were unanimous in agreeing that OL serves as a competitive advantage for their respective organizations. The topic that emerged most frequently was the importance of fostering a learning culture within the organization to stay sensitive to changes in the external environment to ensure its growth and survival. Interview Partner 2 (2021, appendix D) highlighted that, *"[...] there are many aspects on HR that can create a competitive advantage as well. For instance, if we have a great learning culture."* This observation was echoed by Interview Partner

1 (2021, appendix C) who explained that, an *"... organization needs to establish a learning culture and [...] have the portfolio for people to learn what they need to learn."* Interview Partner 2 (2021, appendix D) further exerted that OL does not just serve as a competitive advantage, but a fundamental necessity to an organization's *"survival strategy".* Interview Partner 3 (2021, appendix E) seconded this view, expressing that OL is *"[...] important for individuals and organizations to survive"*, and believes that *"[...] an organization with people who don't want to learn goes nowhere".* Interview Partner 2 (2021, appendix D) also stressed that organizations need to constantly change and adapt to the dynamic business environment to stay ahead of their competitors:

> *So, if you don't learn, if you don't change, if you don't adapt, if you're not open to all these kinds of elements, I think it's going to be rather risky. And organizations will be not able to survive in this market. If we want to compete with all the other great companies, like Siemens and Schneider, I think we need to adapt and learn all the time.*

Interview Partner 3 (2021, appendix E) also shares this opinion and confirms:

> *The world is moving faster and faster, I also believe the challenges we all face, and we saw it in the last two years require very strong resilience and very strong ability to learn fast. Therefore, I believe that it has to be a competitive advantage.*

Interview Partner 1 (2021, appendix C) described OL as a *"cultural topic" and* adds that his top management struggles to *"see any connection"* between OL and organizational performance. Interview Partner 3 (2021) agrees with the aforementioned view by Interview Partner 1 that correlates OL with the culture one sets in the company. Interview Partner 3 (2021, appendix E) also highlighted that, it takes *"[...] a lot of self-confidence and [...] humbleness"* on the part of L&D to recognize that their contributions might not often be apparent, but essential in driving the OL culture within the organization. Interview Partner 1 (2021, appendix C) also advised L&D professionals *"[...] to be dynamic in this learning process."* Interview Partner 1 (2021, appendix C) used the Latin term *"autopoiesis"* or *"self-creation"*, to express how organizations should flexibly adapt their learning to the evolving needs of the company. Nevertheless, Interview Partner 2 (2021, appendix D) pointed out that one of the challenges of fostering a learning culture within the organization, is ensuring that every employee adopts the *"right mindset"* to learn and *"sees the need or necessity to permanently developed"*. This also buoys down to his or her *"personality, adaptability, openness or mindset on how to approach things"*.

One recommendation proposed by Interview Partner 1 (2021, appendix C) in order to promote a learning culture within the organization, is to advocate for a culture of learning from the top, starting with the board members as *"role models"* for continuous learning. Another recommendation offered by Interview Partner 3 (2021), is for L&D to try to steer away from using purely theoretical tools or

approaches and avoid overly technical jargons that might unintentionally intimidate employees. Interview Partner 3 (2021, appendix E) provided this explanation as a justification for why her organization might not refer to training approaches, such as microlearning by name, to avoid the business viewing it as belonging *"[...] to HR and [the] business doesn't really own it"*. However, one disadvantage of developing a learning culture organically within the business, rather than artificially through hard processes, visible tools, formal methodologies, or technical jargons, is its lack of visibility (Interview Partner 3, 2021).

The following sub-section presented the findings from the second theme under the first overarching dimension.

4.2.2 Types of Training Strategies

L&D interventions through a comprehensive and well-thought-out training strategy, aims to integrate the long-term strategic plans of the business with the effective use of its human capital. Six different training strategies were mentioned by the interview partners from the strategic level: (1) functional or technical skills strategy, (2) leadership development and soft skills strategy, (3) talent management strategy, (4) train-the-trainer strategy, (5) blended strategy and (6) traditional classroom-based strategy. These training strategies will be further elaborated in the subsequent sub-sections below.

4.2.2.1 Functional or Technical Skills Strategy

Interview Partner 2 (2021) identified, functional or technical skills training as one of a three-pronged training strategy used within his organization. The two other components of the broad training strategy mentioned by Interview Partner 2 (2021) were leadership development and soft skills development, as well as talent management strategies, which will be elaborated in the following sub-sections. Interview Partner 2 (2021, appendix D) further emphasized that individuals require the appropriate skills to *"strategically develop"* in their jobs, likewise, these skills are also required by organizations to function *"efficiently and effectively"*. Interview Partner 5 (2021, appendix G) from the systems or operational level, referred to this type of training strategy as *"classical learning"* consisting of *"course work"* and certification trainings.

4.2.2.2 Leadership Development and Soft Skills Strategy

All three interview partners on the strategic level mentioned that one aspect of their respective organizations' training strategy comprises of leadership development programs to develop future

leaders within their company. According to Interview Partner 1 (2021, appendix C), developing a leadership pipeline within his organization involves establishing *"[...] assessment centers for middle management and development centers where they get feedback on their competencies."* Identification of potential leaders through succession planning is another facet of leadership development emphasized by Interview Partner 2 (2021) that is crucial for the organization's long-term success. Interview Partner 2 (2021, appendix D) clearly elaborated the process of analysis and considerations taken during succession planning below:

> *This is based on analysis that we're doing internally to understand where do we have our talents? Where do we have our successors? [...] Because in the beginning, we have to look at where are the critical roles? And where are the critical roles that we cannot refill easily? Where are successors that we have to build now, or potentially in the future?*

While all of the strategic level interview partners indicated leadership skills as an example of soft skills, other types of soft skills were also noted. For instance, Interview Partner 2 (2021, appendix D) mentioned that extending beyond functional competencies, *"[...] soft skills or behavioral competencies should be developed."* Additionally, Interview Partner 3 (2021) highlighted that her organization created a training academy that focuses heavily on interpersonal skills, another type of soft skills. Interview Partner 4 (2021) mentioned team building skills as yet another example of soft skills. Finally, citing communication skills training as an example, Interview Partner 6 (2021) also voiced her concern that firms frequently overlook employee development in the area of soft skills.

4.2.2.3 Talent Management Strategy

Once again, the responses from the interview participants on the strategic level showed that talent management made up one vital component of their organizations' overall training strategies. The interview partners from the strategic level were in consensus that talent management begins with attracting and retaining the right talent. The following is an exemplar quote by Interview Partner 2 (2021, appendix D) presenting his views on talent management: *"[...] being an attractive employer out there that people see us as a very attractive company to work for. It goes into the retention of our existing people. We have great people internally."* Apart from attracting and retaining talent, the interview partners agree that organizations need to ensure that they develop their workforce by providing career development opportunities and clear career pathways. Interview Partner 2 (2021, appendix D), expounded on the importance of clear career development as being useful in *"[...] precisely and specifically developing talent for a potentially new role."*

4.2.2.4 Train-the-Trainer Strategy

Another training strategy that emerged from interviews with several interview participants was the train-the-trainer strategy. According to Interview Partner 1 (2021, appendix C), this training strategy involves training potential *"champions"* across sites to enable them to train others within their organizations. Interview Partner 1 (2021, appendix C) shared his experience of adopting this training strategy below:

> *[...] we said each site needs to have a champion. The champions will get train-the-trainer, and they have the online modules. They can come to Lachen for networking days, and they can also call in the experts that we have here at headquarters. They can then decide which elements of the online training they will recommend for their new hires.*

Interview Partner 5 (2021, appendix G), also offered his perspective on the benefits of this training potential trainers by highlighting that:

> *[...] they don't have to be a full-blown trainer, but simply an employee who mentors or train others. And if you give them the right tools, they can create content and you can measure if it is valuable and used by others, for example.*

4.2.2.5 Blended Strategy

Technological advancements of the twenty-first century, as well as integration of such digital technologies as part of our daily lives, have fundamentally altered learning within organizations. Interview Partner 1 (2021) expressed that, his organization used to conduct certain trainings physically in classrooms, such as its sales and marketing training, but has been moving away from this old training strategy to adopt *"... a more flexible and digital approach."* This new training strategy combines a mix of traditional classroom-based instruction with online learning. Overall, Interview Partner 1 (2021, appendix C) commented that, this blended strategy served the learning needs of his organization's workforce better than in the past, and employees are now *"[...] more aware that with less effort, we can get the same result or even better results in learning."* Interview Partner 5 (2021, appendix G), elaborated on the benefits of a blended training strategy by highlighting that *"[...] there is an additional platform to enforce knowledge using online learning. When it comes to training itself, you don't have to rely on physical training alone."*

4.2.2.6 Traditional Classroom-based Strategy

Lastly, it is clear from the comments and perspectives of the interview partners from the strategic level, that their respective organizations have been moving away from having traditional classroom-based

training as the sole training strategy. Interview Partner 2 (2021, appendix D) shared that his organization was *"... moving away from [the] traditional kind of learning aspect."* In reference to the disadvantages of traditional classroom-based training, Interview Partner 1 (2021, appendix C) succinctly described this training strategy as a methodological *"horror"* as it did not help to address that fact that learners *"have different backgrounds and learning needs"* and it was costly to implement.

The following sub-section aims to present the findings from the third theme under the first overarching dimension.

4.2.3 Steps to Develop a Training Strategy

Another common topic that emerged during the interviews conducted, with L&D professionals on the strategic level, was the steps taken to develop a training strategy. Firstly, the organization needs to define from top-down, the strategic objectives of its training strategy. Following that, L&D professionals responsible for OL and the implementation of learning activities within the organization would need to propose a training implementation plan. Lastly, the organization would then decide the training approaches and tools that would best support the training implementation plan to facilitate the attainment of the strategic objectives set out by top management.

4.2.3.1 Setting Strategic Training Objectives

Interview Partner 3 (2021, appendix E) highlighted that, no matter which training strategy a company chooses to set, it should allow the company to evolve *"with the needs of the consumers and business. It must be quite agile."* As such, Interview Partner 3 (2021, appendix E) recommended against implementing strategies *"which are too heavy and too structured"* which may hinder an organization's speed of adaptation to the ever-changing business environment. Interview Partner 2 (2021) revealed that he collaborates with the management annually, to establish *"six or eight strategic top topics"* that would drive the organization's training strategy. Interview Partner 2 (2021, appendix D) also passed an interesting comment that *"this strategic element"* serves as *"a guideline on what [employees] should focus on"*. This guidance was deemed as necessary by Interview Partner 2 (2021, appendix D), because learners are inundated with training programs that may be irrelevant to their training needs, or have no strategic focus:

> *In the past 20 years ago, you know there were limited classroom training. If you want to go external, you very often have to ask your boss, 'Can I have the money? Will you pay something?'. Everything was more transparent and there was not a high amount of activity. These days, you have a million of offerings and I can't say that everyone's going the right direction. Perhaps some are learning things that I would say are not so relevant. But you*

> *can't create a learning culture and go to people and tell them that they are learning the wrong things. That is just not doable. I think people have to develop and we have try to give them guidance.*

All three interview partners from the strategic level also described somewhat of a centralized approach with regards to how their respective organizations currently approach setting out its training strategy. For instance, Interview Partner 1 (2021, appendix C) explained how his company sets out its training strategies and develop its leadership competencies, *"on a corporate level"*. This mode of operationalization of L&D was shared by Interview Partner 2 (2021, appendix D), describing his company's approach to L&D as *"top-down"*. Notably, Interview Partner 3 (2021, appendix E) shared that her organization did not take a *"global"* approach with regards to HR matters before she joined the company, elaborating that the *"culture in HR was very much set up in the entities and managed by general managers in each country."* Hence, when she joined the company eleven years ago, she had to create *"a global learning strategy from scratch."*

4.2.3.2 Training Implementation Plan

The interview partners on the strategic level had differing perspectives regarding creating a training implementation plan before rolling out a new training strategy. Only Interview Partner 2 and 3 reported that their respective organizations created a training implementation plan, whereas Interview Partner 1 did not. According to Interview Partner 2 (2021, appendix D), combining the company's top-level strategy derived through collaboration with the management, together with a precise evaluation of the strategic skills and competencies required for workforce development assessed by managers, would *"automatically"* or organically give employees *"a proposal on what should be the development steps"*. Similarly, Interview Partner 3 (2021, appendix E) commented that training implementation planning have always been done within her organization, and *"endorsed at the highest level"* management to guarantee that the training strategy is truly owned by everyone. However, this view was not shared by Interview Partner 1 (2021, appendix C) who mentioned in his comment that, he made a training implementation plan for himself and key personnel who were involved in setting out the training strategy:

> *Honestly, I made this plan more for myself. You know, I wrote in the first six weeks when I was here, 80 PowerPoint slides as a synthesis of my experience over the last 20 years. It was only a platform to discuss with my boss and also to show the CFO so that he knows what's coming. I did not communicate this to employees. This was only discussed with those people who were affected. […] With the support of the CFO, there were several things we just did. The leadership program, our CEO said, 'ok, I want to do this'. I work with people who want to do something. If in Manchester, the local general manager says, 'I want to do a pilot on succession planning', I do it.*

Interview Partner 3 (2021) went a step further to elaborate that during the planning phase, she had to decide on how to strike a balance between a centralized approach of standardizing the training strategy across the company, and a decentralized approach of allowing the entities to self-manage their own learning. On a corporate level, the training strategy serves primarily as a framework or foundation that allow employees to develop themselves within a set of training parameters (Interview Partner 3, 2021). Interview Partner 3 (2021, appendix E) summarized her company's philosophy, regarding its corporate view of its training strategy well:

> *Our company's philosophy has always been to set up an infrastructure or basis in the company to enable people to learn and develop. It has always been something very holistic and focused on learning and not training per say. Training is a component of learning, but I don't center everything around training. So, what I mean by that is, we build processes around how people can request development. What should they think about or discuss, and with whom, when they want to develop themselves? And what are the developmental measures we offer, be it an assignment or it could be a training, it could be a certification or an education.*

Interview Partner 3 (2021, appendix E) also cited a "strong diversification of jobs and nationalities" with employees working in different fields from "production of garments, sales in stores, design to finance and IT" and "people with many different levels of education" as the core reasons for the aforementioned company philosophy. Hence, the training strategy developed on the corporate level must not be developed in an isolated manner and should fit with the business's needs (Interview Partner 3, 2021).

4.2.3.3 Training Approaches

After setting the strategic objectives and deciding on a training implementation plan, the third step described by Interview Partner 2 (2021) was to decide on suitable training approaches to meet the organization's training needs. Having a clearer understanding of the required skills for each job role, compared to the current level of skills of the employees performing the role, Interview Partner 2 (2021, appendix D) explained that it is very important to choose the *"right variety of [training] offerings that you can use to close the gap"* and *"develop and deliver content"* that would assist the workforce in developing the right skills to support the company's overall training strategy. He also mentioned some examples of training approaches that could be adopted, for instance *"microlearning, […] job rotation, job enrichment [and] job enlargement assignments"*. However, Interview Partner 2 (2021, appendix D) advised L&D professionals to be mindful to choose the right training offerings and ensure that they were *"purpose orchestrated"*, so that when used *"in combination can create the biggest efficiency and effectiveness."*

4.3 L&D as OL Champions and Change Agents to Ensure Organizational Effectiveness

The second overarching dimension examined L&D or T&D, a specialty under HRD through two themes, that is, the role and tools used by L&D professionals and learning trends for skills development. The former theme illustrated the role of L&D in MNCs, the tools used to appraise performance and determine the organization's training needs, as well as the most pressing skills gaps identified by the interview partners on the strategic level. The latter theme sought to uncover the learning trends that have reinvented training approaches to skills development.

The following sub-sections presented the findings pertaining to the first theme under the second overarching dimension.

4.3.1 L&D's Purpose to Develop Employee Capabilities

The interview partners on the strategic level were in agreement that L&D play multiple key roles in helping organizations achieve its goals by developing its human capital. To fulfil its role, L&D first identify the current skills and competencies required for current and future roles using specific assessment processes and systems that help to evaluate employee performance and training needs. All the interview partners on the strategic level also identified pressing skills gaps that currently exists within their organizations today.

4.3.1.1 Key Roles of L&D

The interview partners on the strategic level identified multiple roles that L&D plays within an organization. One such role mentioned by Interview Partner 1 (2021) and Interview Partner 4 (2021), is that of a change management champion, who leads and communicates the benefits of the change to employees. Interview Partner 1 (2021, appendix C) provided a recent experience of collaborating with his company's communication department on a campaign to raise awareness and promote the use of its LMS, across its worksites in Europe:

> *So, the communication department and I, we did a campaign earlier this year. Now, at least more than 600 people are using it. 600 out of 4000, okay we are at 25%. I hope to increase this even further and it's not only more people but more people who use more of the content. I don't have the statistics at hand, at the moment. I need to create that at end of the year, but with this promotion campaign through the intranet, it really helped [...]*

Interview Partner 1 (2021, appendix C) advised that, L&D should take the change management process slowly and *"very carefully"* as employees take time to *"see the benefits"* of the change. Interview

Partner 4 (2021, appendix F), was in agreement of the vital role that L&D professionals play as change agents:

> *The success factor is really based on the change management that HR actually contributes. If you were to just implement something without proper communication and without proper selling, then it will be a problem. So, for example if you were to implement an online learning platform and you don't really advocate it, and you still send employees for external training, then this will kill your online platform. [...] So, it is important to communicate to employees on the different platforms in which they can learn, and HR should advocate it strongly.*

The strategic level interview partners underscored another major role played by L&D, that is, ensuring that the training and learning activities rolled-out within the organization are in-sync with the organization's strategic goals and objectives. To fulfil this role, Interview Partner 1 (2021, appendix C) suggested that L&D should move away from offering training like *"ready meals"*, without meeting intended learning goals and objectives. Interview Partner 1 (2021, appendix C) also cautioned on taking an overly *"centralized approach"* to L&D, as it is important to have a training *"option for every individual"* to meet their individualized training needs. Instead, he suggested that L&D professionals should acquire the role of *"facilitators to support people, to start discussions with managers to find out what are their learning goals."* Interview Partner 2 (2021, appendix D) also agreed with this view that the role of L&D professionals is *"[...] really to support the organization and to understand the organization first a hundred percent."* To gain a clear understanding of the organization's learning needs, Interview Partner 2 (2021, appendix D) and Interview Partner 3 (2021, appendix E) suggests taking both a *"top-down"* and *"bottom-up"* approach, to gain direct feedback from employees to help both L&D and management develop an impactful and effective training strategy.

L&D play a pivotal role as the bridge between upper management and the rest of the organization. Interview Partner 3 (2021, appendix E) used the term *"strategic enabler"* to describe the opportunity that L&D has as a *"neutral"* party and working *"pan-organization"* to urge employees to be more transparent and forthcoming, something that top management may not be able to do easily. Hence, she stressed the importance for L&D professionals to make every effort to be approachable, and not viewed as an enforcer or a hindrance by creating excessive bureaucracy (Interview Partner 3, 2021). Interview Partner 3 (2021, appendix E) went even further to identify professional qualities and characteristics that L&D professionals should possess to succeed in the role:

> *I think we're really an enabler, business oriented and have a good financial acumen, as well as the people sensitivity [...] I need people who are quite humble and I'm quite happy to share this perfect blend of business, financial acumen, and each other skills. To a certain extend its all about psychology as well, to get the best out of the organization and the people.*

Interview Partner 3 (2021, appendix E) also shared the experience of how her team has encouraged and empowered her organization to achieve performance excellence by pushing past the status quo:

> *I think we must challenge and support at the same time. On the one hand, we have to be a source of positive challenge to see what other organizations are doing, providing insights, providing some thought leadership. [...] Instead of looking at traditional competition, we need to look at different industries. For us, we produce and sell something which is very close to the skin. Hence, the garment industry might not always be our best inspiration. Maybe the medical world can be our inspiration. [...] we have to continuously open the eyes of our organization, challenge them, and bring insights.*

Lastly, an interesting observation was also made by Interview Partner 4 (2021, appendix F), that in the future, more and more of the administrative roles, previously carried out by L&D would be transferred to the employees themselves. Moving forward, L&D professionals *"will have lesser involvement in terms of going to search for the courses, sending employees for these courses and administrative work like course registration."*

4.3.1.2 Processes and Systems to Appraise Performance and Training Needs

All interview partners from the strategic level also mentioned specific assessment processes utilized to review and evaluate employees' performance results, and the gaps that exist between their current skills and competencies versus those required by the organization. According to Interview Partner 1 (2021, appendix C) and Interview Partner 2 (2021, appendix D), a *"gap analysis"* should be conducted to compare what the employee is striving to achieve, with where they are currently at. While Interview Partner 3 (2021, appendix E) appears to be referring to the same assessment process, different terminologies, *"skills gaps analysis" and "training needs analysis" were used*. The process of conducting this assessment was described by Interview Partner 1 (2021, appendix C) as analyzing *"the competencies of a person to match it with the position"*. Other exemplar quote from Interview Partner 2 (2021, appendix D) regarding some questions that L&D or top management, can ask themselves when conducting a gap analysis:

> *To understand where are the gaps? Where currently are the competencies that are not in place? Where do we have to change? Where do we have to unlearn? I'm a big fan of this kind of learning agility aspect of learning and unlearning things.*

Interview Partner 2 (2021) and Interview Partner 3 (2021) also mentioned the performance management system as having a clear connection with the development of core competencies through training. While Interview Partner 1 (2021) did not explicitly state the aforementioned correlation, he indicated that his organization uses the cloud-based, human capital management software, SuccessFactors for goal and performance management. Interview Partner 3 (2021) provided a detailed account of how her

organization's performance management system has a connection to employee development with a goal on leveraging employees' strengths, addressing the deficiencies in their skills and competencies, and guiding future individual and team development. Interview Partner 3 (2021) indicated that, similar to the organization's training approach, the company did not have a standardized performance management system in place at first and had to build one from the ground up. She further elaborated on the details of the organization-wide competency model around interpersonal skills which was formed as part of the performance management system:

> *[...] what we called the academy for us is basically built around these seven core competencies. For example, one of our core competencies is around 'deliver' and 'deliver' is broken down into five expectations. So, it's about focus for people, not delivering what they want, but delivering what the company and the strategy needs. It is also a lot about effective delivery and so on.*

Based on the individual development needs identified using the competency model developed on a corporate level, targeted training approaches can be established to support the development of these competencies (Interview Partner 3, 2021). Interview Partner 3 (2021, appendix E) provided an example of a corresponding training course, entitled *"setting goals and key performance indicators (KPIs)",* that would be applicable to the core competency 'deliver'.

Likewise, Interview Partner 2's (2021, appendix D) organization utilizes a *"[...] competency matrix for functional skills"* called the *"EL Academy on electrification".* Based on these core competencies, employees can be evaluated to see where they stand and what competencies they might need to work on (Interview Partner 2, 2021).

Lastly, Interview Partner 3 (2021) also stressed the importance of conducting mid-term and annual performance reviews to allow managers and subordinates to track learning, changing behavior, and progress with more regular performance appraisals.

4.3.1.3 Pressing Skills Gaps Identified

The central theme that emerged when the interview partners from the strategic level were asked to identify the most pressing skills gaps within their organization, is the importance that learners should drive his or her own learning. Interview Partner 2 (2021, appendix D) mentioned that he is a firm believer in putting the learner in the *"driver seat"* when it comes to effective learning so that each individual can be a *"master of his or her learning plan."* Interview Partner 3 (2021, appendix E) fully agrees with Interview Partner 2 (2021), who believes that learning should be *"self-managed"* and that employees have to be *"proactive"* learners. In keeping with this belief, Interview Partner 3 (2021)

explained that only certain training modules, such as compliance trainings and specific training for managers and executives are made mandatory. Interview Partner 2 (2021, appendix D) shed light on the catalysts that will shape the workforce of the future and the reasons why his organization is attempting to instil in employees a sense of self-development on a continuous basis, as he states:

> *For me, it goes as well into the fact that we were going to face a new way of working rather soon. We are already in the middle of it. We have for example, a programme called 'Future of work', where we're trying to create a certain sensitivity in people and an urgency to again develop themselves permanently. They should be competitive as a company, but also competitive as an employee. We talk about the gig economy and the issue of employability, for example. I think these are topics where we should have certain sense of urgency on an individual basis, but as well on the organizational level to permanently develop our people.*

Interview Partner 1 (2021) agrees that on-going self-development is an important step in preparing the workforce for the future of work. In fact, Interview Partner 1 (2021, appendix C) went further to identify the biggest skills gap that exists within his organization *"as the competency to take care of [one's] own development."* According to Interview Partner 1 (2021, appendix C) self-development entails, being conscious of one's own development needs, be able to *"analyze [one's] own behavior"* and *"identify [...] gaps in knowledge"* and *"get feedback from others"*. Interview Partner 1 (2021) also admits incompatibility between his belief that an organization cannot hire all the skills it needs, and the current hiring culture at his company. Interview Partner 1 (2021, appendix C) mentioned that the current hiring culture was to search for talent when the need arises and *"[...] recruit the right people so that they don't need learning."* However, Interview Partner 1 (2021) expressed that the better solution was to look internally and develop talent that the organization already has. However, Interview Partner 1 (2021, appendix C) noted that L&D plays a crucial role in helping employees nurture the ability to self-develop on a continuous basis, as he states:

> *We should develop people that they are able to learn how to learn. They should be able to learn how to identify gaps because gaps will open not only every two years, but gaps in knowledge might also be there constantly. You constantly need to react, and the people need to have the skills to develop themselves permanently. [...] The skill is to analyze your skills, competencies, and capabilities and to say, 'ok, I need to do something here and there'. [...] The skill that people need to develop, is how to develop themselves. There are lots of issues around that. How do I analyze my skills? How do I see what's available? How can I analyze what is needed in one or two years in my position, or in my next position? How can I qualify, if I want to get promoted, without creating expectations?*

Interview Partner 3 (2021) also identified digital skills as a pressing need within her organization. She recognized a large gap in her organization's workforce between the younger generation, who grew up and were trained with digital technologies, and those aged 35 and up (Interview Partner 3, 2021). Interview Partner 3 (2021, appendix E) provided concrete examples of the challenges brought on by digital transformation:

> *It's very broad, but it can be from someone not knowing how to use excel, to somebody not being at ease when they have to use [Microsoft] teams. If you can't use all the features of [Microsoft] teams today, or another similar application, you are lost. You can't even contribute to your normal job. [...] Everything is becoming digital. From the stores, sales, or fashion advisors, they have to use iPads and create orders automatically online. The systems that they use become more and more sophisticated.*

Interview Partner 3 (2021, appendix E) also emphasized the need for L&D to prepare employees, "[...] from training them on certain applications to enabling them to feel at ease with technology." Other critical skills identified by Interview Partner 3 (2021), that are currently lacking within her organization are resilience and leadership skills. With regards to leadership skills, she recognized that leadership must evolve with the changing times, and leaders cannot operate with a default style of leadership because employees' expectations and interactions with their bosses have changed (Interview Partner 3, 2021). Lastly, Interview Partner 3 (2021, appendix E) also noted that developing resilience is of growing significance in many organizations to help their employees cope with pandemic-related stress:

> *I also think we need to help our people develop strong resilience. We were quite lucky that for many years, life in general was quite easy. The last few years have shown that people need to be strong at home and at work. They need to have strong mental health, good stability, be conscious and mindful. They need to know when they need to stop, when they need to take care of their minds and bodies. I think this is also a new topic for organizations. Before, a lot of companies would not even have wanted to talk to their people about mindfulness.*

In regard to actual hard skills gap, Interview Partner 3 (2021) commented that this category of skills is actually the simplest to develop. Interview Partner 3 (2021, appendix E) believes that employees can always to taught hard skills and states: *"as long as they have the potential and the right attitude, there will always be someone in the world who can teach that technical skills and we will always find a way to learn."*

The following sub-sections presented the findings from the second theme under the second overarching dimension.

4.3.2 Learning Trends for Skills Development

Only the most agile firms survive in today's ever-changing business climate, which is fueled by rapid technological change. Apart from agreeing that learning was essential for an organization's survival, the interview partners on a strategic level also stated that learning has been increasingly the responsibility of the employees themselves. According to Interview Partner 1 (2021) and Interview Partner 2 (2021), problem-based learning and informal learning are two growing learning trends that motivate employees' autonomy and self-directedness in learning.

4.3.2.1 Problem-based Learning

Interview Partner 1 (2021) identified problem-based learning as a growing trend and a long-term goal that his organization aspire to achieve. Several other interview partners agreed with this point. According to Interview Partner 1 (2021, appendix C) learning occurs when *"employees experience [...] a problem or a question."* This form of learning is useful when employees need a quick refresher, ad-hoc assistance or are required to quickly verify something (Interview Partner 1, 2021). Interview Partner 1 (2021, appendix C) provided examples of topic areas in which problem-based learning could be utilized:

> *They can say, I need to do the performance appraisal. Let's have a quick look how do I do this. I need to have a difficult conversation. Let's quickly look at how can I prepare this. I need to do my budget. Let me get the basics. How do I calculate a budget?*

Interview Partner 1 (2021, appendix C) suggested setting up a *"[...] kind of an exchange"* platform that addresses work specific problems, where employees can go and provide *"expert knowledge on the platform by recommending solutions to problems."* Speaking from personal experience, Interview Partner 1 (2021) recalled how his previous organization had attempted to establish such a platform. Interview Partner 1 (2021, appendix C) shared that establishing such a *"knowledge sharing platform"* can be advantageous as employees can find answers to questions they may have if someone else has contributed expert knowledge on the platform. However, he warned that setting up such a platform could take a long time because it requires a critical mass before becoming self-sustaining, as well as time to crowdsource expert information provided to the platform by employees. (Interview Partner 1, 2021).

4.3.2.2 Informal Learning

Another learning trend of growing importance is informal learning. Interview Partner 1 (2021, appendix C) explains: *"You can brush up or dig in, whatever you want to do. You can also choose the topic, and you can choose from six different languages."* Interview Partner 1 (2021) elaborated that the advantage of informal learning provides learners with the opportunity to learn on-the-move and the freedom to decide the duration and topics they wish to learn. Interview Partner 2 (2021, appendix D) supports this point but mentions:

> *[...] it is up to them to pick and choose the timing. Obviously, we have a time range. So, we give them say half-a-year to say, 'Look, in next half year you should upskill yourself in this area'. So, it's not totally without the time pressure. Other than that, they are totally open, they can do it whenever they want. However, they want to do it. How fast they wanted to it or slow? That's absolutely totally up them.*

4.4 Microlearning: The State-of-the-Art in Training for Skills Development

The third overarching dimension consists of three themes, namely: the adoption of microlearning in MNCs, features of microlearning as a training approach and the IT ecosystem supporting microlearning. The first theme featured four case studies of interview partners from both interview categories discussing their experiences of using microlearning as a training approach for skills development. The following theme drew on the experience of the systems or operational interview partners to unpack the technical features of microlearning that make this training approach effective for skills development. The final theme explored the tools and technologies that make up the IT ecosystem and help the organization deploy microlearning.

The following sub-section presented the findings from the first theme under the third overarching dimension.

4.4.1 Microlearning in MNCs: Case Studies

Four of the six interviewed industry experts indicated using a microlearning approach for skills development, as a part of their organization's training strategy. The experiences that these organizations have with microlearning are presented in this sub-section as case studies. Case studies 1 to 4 correspond to the experiences of Interview Partners 1 to 4. Apart from learning how microlearning has been implemented as a training approach for skills development within their respective organizations, interview partners at the strategic level, that is Interview Partners 1 to 3, were also asked what convinced their organizations to adopt microlearning and where it would best fit as part of their training strategy. This line of enquiry was not appropriate for Interview Partner 5 as he is a technical expert from an HR technology company that has implemented microlearning as part of their enterprise learning platform. Finally, Interview Partner 6's experience was not provided as a case study because she noted that training in her company's regional offices in Thailand is still mostly delivered through classroom training and lectures. A snapshot of the training areas, drivers for the adoption of microlearning and training examples in their respective organizations are presented in Table 3 below.

4.4.1.1 Case Study 1: A Dose of Microlearning in the Pharmaceutical Industry

Highly regulated industries, such as the pharmaceutical industry, necessitate intensive training in regulations and compliance requirements, which must be continuously monitored and recorded. According to Interview Partner 1 (2021), the pharmaceutical industry is regulated more rigorously than the banking sector and all employees, especially those from production need to be well-trained. Until three years ago, the company's training management was tracked on paper and in excel sheets (Interview Partner 1, 2021). The difficulty with such a system was organizing different sources of data for use in making business decisions (Interview Partner 1, 2021). Interview Partner 1 (2021, appendix C) explained that his organization adopted eLearning and the LMS with the motivation to ensure that *"[...] less mistakes are made and there is only one source of truth."* He also conceded that by delivering modular subjects on personal skills on the LMS, his company has merely scratched the surface of microlearning (Interview Partner 1, 2021). Interview Partner 1 (2021, appendix C) also added that the LMS contains, an array of personal skills training covers a wide range of 60 topics ranging from titles such as, *"[...] finance for non-financial people to well-being at the workplace, et cetera."* On the other hand, the topic of labelling is one of the many topics covered under functional skills training (Interview Partner 1, 2021). Interview Partner 1 (2021, appendix C) further elaborates that the modalities of which these topics are delivered might be *"[...] a quiz, poster, video [...]"*, and learners can spend anywhere from *"two minutes to half-an-hour."* He observed that such a training approach, offers employees with assistance or input at the moment of need, and encourages continuous learning as they go about their work (Interview Partner 1, 2021).

Interview Partner 1 (2021) identified two drivers for the adoption of microlearning in his organization – positive word-of-mouth and the COVID-19 pandemic. In order to encourage employees to explore the range of topics available on the LMS, Interview Partner 1 (2021) made used of testimonials and first-hand accounts of employees who have used the platform to help them with their daily work. He strongly believes that the good experiences that learners have, contribute to the reinforcement of such a learning culture (Interview Partner 1, 2021). This positive reinforcement will be amplified if important members of the organization's top management or leadership team share their positive experiences using microlearning as a training approach, which will undoubtedly spread the learning culture (Interview Partner 1, 2021). In terms of COVID-19 as a catalyst for microlearning adoption, Interview Partner 1 (2021) explained how the pandemic sparked the development of a modular approach to eLearning, particularly for trainings that have previously been offered in the classroom.

Interview Partner 1 (2021) sees the best match for microlearning as a training approach for the purpose of skills development, in functional skills training such as production techniques training or

administrative training in finance. These are topics or subject areas in which employees might need to refresh or look-up on a regular basis, and microlearning can help with that.

4.4.1.2 Case Study 2: The Power of Microlearning in the Electrical/Electronic Industry

This global leader in industrial technology is no stranger to microlearning as a training approach for skills development. In fact, Interview Partner 2 (2021, appendix D) confidently commented that: *"I think we have established a lot of microlearning, yes."* To illustrate his point, Interview Partner 2 (2021, appendix D) mentioned that his organization uses microlearning for functional or technical skills training under its training academy, called the *"EL Academy on electrification"*. According to Interview Partner 2 (2021), the skills taught through the microlearning modules found in the training academy focuses on a specific functional competency. Ultimately, the completion of several microlearning courses focused on a single competency should aid in the holistic growth of that competency, as well as promote behavior and mindset change (Interview Partner 2, 2021).

The increased demand for online learning has resulted in the availability of a diverse range of training offerings on the market. Interview Partner 2 (2021) sees the strategic need for purposeful learning as a major driver for the uptake of microlearning as a training approach. Interview Partner 2 (2021, appendix D) noted that the culture of self-directed learning has been on the rise in recent years due to the availability of virtual resources, in his comment: *"You know twenty years ago, you had to read books. This entire virtual offering was not there. These days, we have a 'self-initiated' kind of learning culture."* Interview Partner 2 (2021) warns that, the onus is on L&D to ensure that employees are developing the right skill sets, as a flood of online learning resources risk inundating learners, threatening to present them with irrelevant information. To ensure that learners utilize their time efficiently and productively, the one crucial driver is to make microlearning strategically relevant to both the individual and the organization (Interview Partner 2, 2021). Interview Partner 2 (2021, appendix D) also caution that the field of microlearning is still emerging, and it is important to *"always double check the real impact of microlearning."*

Additionally, another driver pointed out by Interview Partner 2 (2021) is that microlearning perfectly suit to the specific learning demands of a particular group of employees. These employees are typically the ones who have a strong desire to learn and upskill themselves. Interview Partner 2 (2021, appendix D) describes these employees as, *"people who already have great skills and are already interested in topics [...]"*.

Interview Partner 2 (2021) is also proud of how his organization has currently leveraged on microlearning as a training approach, for instance in functional or technical skills training in the field of electrification.

4.4.1.3 Case Study 3: Microlearning Raises the Game for the Fashion Retail Industry

The disruption of new digital technologies has produced a sense of immediacy and customer experience in the fashion retail industry. With a long history of more than 150 years, Interview Partner 3 (2021) highlighted that her organization has undergone many evolutions over the years. Taking the company's extensive heritage into consideration, as well as a large number of in-house factories globally, the organization had unique issues that needed to be addressed (Interview Partner 3, 2021). She further elaborated that these issues are often based on specific areas of the business that is strategically aligned with the company's global strategy (Interview Partner 3, 2021). For example, a specific challenge, as part of the organization's leadership development program, was to devise strategies to digitalize the store experience so that customers get a truly 360-degree experience regards of where they shop (Interview Partner 3, 2021). While her organization has employed microlearning, Interview Partner 3 (2021) avoids calling it that to avoid making the training approach sound too technical. Interview Partner 3 (2021, appendix E) explained that microlearning is used to *"[...] first solve an issue but also upskill [...]"* employees.

For Interview Partner 3 (2021), the main driver of adoption of microlearning for her organization is the cost-effectiveness of this training approach. Microlearning has provided organizations with an opportunity to approach learning in a manner that is both cost- and time-efficient to the business. Interview Partner 3 (2021, appendix E) adds that: *"[...] microlearning is a great way to open up the power of learning without creating fears of cost, or waste of time or lack of return of investment."* Interview Partner 3 (2021, appendix E) contends that microlearning is a *"[...] cheaper and more pragmatic"* training approach compared to conventional forms of training, that require investing *"[...] a lot of money, but it might take a long time before the company sees the return on investment."* There is also chance that companies that have invested in conventional training may never reap its benefits if their employees are unable to apply the skills, they have learnt beyond the training course (Interview Partner 3, 2021).

Interview Partner 3 (2021) mentioned that microlearning best fit in her organization's training strategy in high-level strategic planning and process-driven, functional skills training in functions like design, manufacturing, and logistics.

4.4.1.4 Case Study 4: The Role of Microlearning in the Semiconductor Industry

To remain a global leader in the semiconductor industry requires constantly finding innovative solutions to meet the evolving needs of one's customers and keep up with global industry standards. Hence, the challenge for Interview Partner 4 (2021), is looking at new ways of designing and delivering training to help his employees stay current and develop new skills to keep up with new industry demands and trends. Interview Partner 4 (2021, appendix F) specified that his organization currently uses microlearning as a training approach for general compliance topics such as workplace health and safety and cybersecurity, as well as functional skills training comprising of topics such as *"[...] lean management and ten quality golden rules."* The aforementioned topics, according to Interview Partner 4 (2021), are ones that every employee should be familiar with, as many of these trainings aim to educate employees on the company's policies, procedures, and actions required to prevent difficulties in the workplace and legal violations. Interview Partner 4 (2021) also mentioned that his organization encourages its employees to proactively update their technical skills, such as programming and artificial intelligence.

Interview Partner 4 (2021) explained that his company employs microlearning for two purposes: first, to transmit knowledge and then, to reinforce what employees have learned. Interview Partner 4 (2021, appendix F) gave an example of how microlearning can be used to provide employees with just enough information to refresh the learner's memory to allow them to get on with their work, using the following example: *"if I want to refresh my memory on the appropriate password length or cybersecurity topics, I can simply go to the learning platform to get all these information."*

	Training Area for Microlearning	Drivers for the Adoption of Microlearning	Training Examples
Case Study 1: **A Dose of Microlearning in the Pharmaceutical Industry**	▪ Functional/Technical Skills	▪ Positive Word-of-Mouth ▪ COVID-19	▪ Personal Development Training (e.g., Finance for Non-Financial Professionals; Wellbeing at the Workplace) ▪ Production Training (e.g., Labelling) ▪ Administrative Training (e.g., Finance)
Case Study 2: **The Power of Microlearning in the Electrical/Electronic Industry**	▪ Functional/Technical Skills	▪ Intentional/Strategic Learning ▪ Unique Needs of Learners	▪ Electrification Training
Case Study 3: **Microlearning Raises the Game for the Fashion Retail Industry**	▪ Functional/Technical Skills	▪ Cost-effective Training Approach	▪ Design Training ▪ Manufacturing Training ▪ Logistics Training
Case Study 4: **The Role of Microlearning in the Semiconductor Industry**	▪ Functional/Technical Skills ▪ General Compliance	NA	▪ Compliance Training (e.g., Workplace Health and Safety; Cybersecurity) ▪ Quality Assurance Training (e.g., Ten Quality Golden Rules) ▪ Lean Training ▪ Digital Skills Training (e.g., Programming; Artificial Intelligence)

Table 3 Summary of the Adoption of Microlearning in the Organizations of Interview Partners 1 to 4 (Own Creation)

The following sub-section presented the findings pertaining to the second theme under the third overarching dimension.

4.4.2 Features of Microlearning as a Training Approach

All the interview partners from the systems or operational level provided insights into the features of microlearning that make it an ideal training approach for skills development. However, from time to time, the views of the interview partners from the strategic level were included to supported insights of the relevant topic in question. The insights gathered from the expert interviews were subsequently presented in seven key topics, namely: (1) elements of microlearning, (2) modalities of microlearning, (3) benefits of microlearning, (4) limitations of microlearning, (5) incorporating microlearning into traditional instructional design models, (6) uses of microlearning and (7) evaluation and measures of microlearning.

4.4.2.1 Elements of Microlearning

The interview partners expressed differing perspectives and understanding of the elements that constitute microlearning.

Microlearning is most often associated with asynchronous digital or online learning. Interview Partner 1 (2021) related his organization's experience with microlearning using the term eLearning. Interview Partner 6 (2021, appendix H) stated that: *"I see microlearning as part of digital learning or online learning. [...] My understanding is that microlearning is one type of online learning."* She also added that learners should learn for a brief period with microlearning (Interview Partner 6, 2021). Interview Partner 4 (2021, appendix F) supported this view, but added one caveat concerning types of online learning that should be considered as microlearning: *"Learners must be able to learn at any point of time"*. Interview Partner 4 (2021) further emphasized that currently, there are many educational institutions that are conducting scheduled virtual lessons led by a teacher. Despite the fact that these courses were conducted using digital technologies, he does not consider them to be online learning as students are not able to learn at their own time.

Furthermore, Interview Partner 1 (2021) mentioned that he viewed microlearning as an interactive form of learning that allow learners to learn on-the-move and smoothly get on with their work.

Interview Partner 5 (2021, appendix G) took a different take to the elements that make up microlearning, arguing that it should satisfy *"clear learning demands."* This aligns with Interview Partner 2's (2021)

statement that his company uses microlearning for functional skills training with a focus on key learning objectives to develop a specific competency. Interview Partner 2 (2021, appendix D) commented that: *"So, we put together specific learning elements that are focusing on one competency development and just should help you to develop that and change your behavior and mindset."* On the other hand, Interview Partner 3 (2021) understood the term microlearning as a way to *"[...] upskill people in terms of approaching certain topics."*

4.4.2.2 Modalities of Microlearning

The utilization of videos was the most frequently indicated modality of microlearning for skill development by interview partners from the systems or operational level. Interview Partner 4 (2021, appendix F) identified the *"interactiveness of the courses"* as the core reason why videos are popular amongst learners. Interview Partner 6 (2021, appendix H) shares this opinion and commented that: *"I think we should start with bite-sized video-based content with animation which is more interactive for learners."* Although Interview Partner 5 (2021) agreed that organizations prefer video-based training content, he cautioned that developing such content could be costly. Interview Partner 5 (2021, appendix G) also shared that PowerPoint presentation slides have been discovered to be the most common microlearning content on the enterprise learning platform that his company has developed. However, Interview Partner 4 (2021) advised that any text-based content used should not be too wordy, otherwise learners might not bother to read.

Moreover, Interview Partner 6 (2021, appendix H) recommended that organizations implementing microlearning for skills training to consider incorporating *"videos and games on smartphones."* Interview Partner 4 (2021, appendix F) supported the idea and elaborated that his organization has already adopted a *"simplified version of gamification."* Interview Partner 4 (2021, appendix F) further explained: *"With regards to gamification, we are not using very complex games to learn, but rather, we use simplified games such as points, quizzes and badges at the end of the module to check if learners achieved the learning objective."*

4.4.2.3 Benefits of Microlearning

The interview partners on the systems or operational level were divided on the benefits of microlearning for skills development. On the one hand, Interview Partner 4 (2021, appendix F) praised the training approach for allowing learners to learn at their own pace and refresh their memory on what they have learnt and says: *"At any point of time should they forget, they can actually just go and look up the*

microlearning courses to refresh their memory." Interview Partner 4 (2021, appendix F) went even further to demonstrate why microlearning is better than traditional forms of training:

> *This is unlike when you go for external training, once it ends, the teacher is gone, and you have thrown away all the reading materials. But with microlearning, the content is always there, in the cloud and you can access it anytime. Hence, it reinforces learning. [...] This is unlike traditional forms of learning using books and notes, that I would have most likely have thrown away by now.*

In addition, Interview Partner 4 (2021, appendix F) noted that certain skills training, such as *"[...] functional or technical skills like programming and artificial intelligence [...]"*, is better suited to online learning, such as microlearning, than traditional modes of learning, such as external training. Interview Partner 6 (2021) concurred, saying that because microlearning is more theory-based, it might be sufficient for hard skills training.

Interview Partner 5 (2021, appendix G), on the other hand, opposes the aforementioned view and stated that: *"I think there's not much benefit of microlearning. I think we are trained to do it because of the digital world."* Interview Partner 5 (2021) went on to say that he would see microlearning as a benefit if the training content can be easily navigated and found by learners, like how the popular search engine, Google, or online video sharing, YouTube, work.

Finally, Interview Partner 6 (2021) shared her thoughts on the advantages of microlearning as a cost-effective training method that saves money for the company. Interview Partner 6 (2021, appendix H) went on to say that: *"Learners or employees can learn anywhere, anytime."* Interview Partner 3 (2021) agreed with the opinion of Interview Partner 6 (2021) that microlearning is a great way for organizations to unleash the potential of learning without having to worry extensively about the cost factor. Interview Partner 4 (2021, appendix F) shared this opinion and explained why microlearning is deemed as a cheaper training approach:

> *It is definitely cheaper because of the economies of scale. One course might be able to house maybe a hundred users, whereas for external learning, the participant size is limited to the size of the class. That is why microlearning is definitely cheaper.*

4.4.2.4 Limitations of Microlearning

On the flip side, a significant downside to microlearning lies in the way the training approach is perceived by learners. Interview Partner 4 (2021, appendix F) observed that learners might tend to perceive *"[...] microlearning as something that is cheaper in value."* In this respect, the cost-effectiveness of microlearning can be viewed as a double-edged sword. Interview Partner 4 (2021,

appendix F) also warned about the dangers of learners' taking on this perception of this training approach:

> *[...] the perception remains that microlearning is of a poorer quality or a 'poor man's learning resource'. This perception exists even till now. Unless this perception is gone, it will always remain a problem. Unfortunately, people still put a premium on external learning.*

Another limitation of microlearning that was brought up by several interview partners from both categories was that microlearning might not be suitable for soft skills training. Interview Partner 4 (2021, appendix F) commented that: *"[...] for soft skills, microlearning might not be the best platform to learn."* Interview Partner 4 (2021) gave the examples of leadership and team building training, emphasizing the importance for learners to apply the skills they have learnt through first-hand experiences, through practical experiences, rather than relying solely on theoretical lessons taught through microlearning. Interview Partner 4 (2021, appendix F) also believes that soft skills training would be better delivered through blended learning, which combines online and in-person training:

> *So, for example [...] about leadership, you can watch a TED Talk for leadership to reinforce something. But the interaction with the facilitator through external learning is very important. Learners can ask the facilitator questions on how he or she excels as a leader and practice case-studies. For soft skills like leadership, it is important that training is conducted externally.*

Interview Partner 6 (2021, appendix H) supports this point and commented that: *"There are two parts to soft skills training. The first part covers knowledge, and the second covers real-life practice."* Hence, Interview Partner 6 (2021) suggested that organizations can permit their employees to use microlearning to hone their knowledge, but it should also ensure that classroom trainings are provided to allow learners to practice their soft skills. Similarly, Interview Partner 6 (2021, appendix H) made her point using an example of communication skills training:

> *For example, for communication training, learners are taught about daily communication practices, communication process and other concepts of communication. They can learn these through online learning. Once they have been trained on the knowledge of communication, it does not automatically mean that they are good communicators. Hence, they have to practice more in the classroom.*

Interview Partner 6 (2021, appendix H) also highlighted another shortcoming of microlearning that: *"It takes time to transform [learners'] behavior."* Interview Partner 2 (2021, appendix D) agreed with Interview Partner 6's (2021) statement and expressed that: *"Mindset change is always a bit difficult I have to admit with microlearning."*

Interview Partner 1 (2021) also mentioned that dealing with certain types of workplace problems may necessitate more personal interactions, such as having a talk with a HR business partner, as opposed to using microlearning, to acquire a more personalized response to one's enquiry. Lastly, Interview Partner 2 (2021) mentioned that microlearning has still yet to be universally accepted by all learners with varying learning needs. For instance, Interview Partner 2 (2021, appendix D) expressed that:

> *[...] we saw that people who already have great skills and are already interested in topics, they had a strong leverage on these microlearning. But the people who aren't active in training themselves were a bit missed. The differentiation between those two groups was intensified even more with microlearning.*

4.4.2.5 Incorporating Microlearning into Traditional Instructional Design Models

All three interview partners from the systems or operational level seemed to be unfamiliar with the traditional instructional design models – ADDIE and SAM models. Instead of discussing about the strengths and shortcomings of the instructional design models discussed, Interview Partner 4 (2021) focused more on the uses of microlearning. Likewise, Interview Partner 5 (2021, appendix G) commented*: "Actually, I have never seen it. It is completely new, and I learnt something."* Similarly, Interview Partner 6 (2021, appendix H) mentioned: *"Sorry, I have not heard of these models before."*

By extension, the interview partners were asked about their views on the adapted instructional design model by Dolasinski and Reynolds (2020), specifically how microlearning has been incorporated into the model in an attempt to leverage on its strengths and minimize its shortcomings. Once again, Interview Partner 4 (2021), reasserted his views on the uses of microlearning. Interview Partner 5 (2021) also commented that he was unaware of instructional design models being used to develop microlearning modules. Rather, Interview Partner 5 (2021) focused more on the technicalities of the enterprise learning platform that his company has developed. Likewise, Interview Partner 6 (2021, appendix H) reiterated: *"Sorry, I don't know."*

4.4.2.6 Uses of Microlearning

One of the uses of microlearning was reported to be post-event reinforcement. Interview Partner 4 (2021) explained that his organization frequently uses microlearning to reinforce learning following a prior learning activity, such as a training workshop or webinar. Interview Partner 4 (2021, appendix F) further explained an example of how microlearning can be a suitable training tool to be used after a physical training to reinforce specific knowledge:

> *For example, I conducted a physical training entitled 'Manager's Essentials' for all managers but I also gave them this microlearning platform where I created microlearning modules that correspond to this course. At any point of time the managers want to reinforce the knowledge, they can go in and review the course once again.*

Interview Partner 4 (2021) also rationalized that microlearning has become such a practical training approach to reinforce and help learners recall what they have learnt as *"[...] knowledge was limited in the past. Hence, learners could still commit things to memory. But knowledge is so vast these days. This is why microlearning has become a necessity because it refreshes your memory."* Interview Partner 3 (2021) agrees with Interview Partner 4 (2021), adding that microlearning should either be used to either *"prepare for a training or follow-up after the training to ensure that the skills taught are really anchored and applied on-the-job."*

4.4.2.7 Evaluation and Measures of Microlearning

Interview Partner 4 (2021) explained that his organization currently uses the Kirkpatrick model to evaluate training. The training effectiveness form is the measurement instrument used, to establish whether employees considered a given training course useful or whether they have grown more proficient in a certain skill after attending the training (Interview Partner 4, 2021). Interview Partner 4 (2021, appendix F) further explained that after receiving input from employees via the training assessment form, the next step is to ask their managers if their subordinates' performance has improved:

> *This stage is done more informally during the management meetings, we run through the feedback and comments. If it is a general course, we will just ask generally the Head of Departments (HODs) on whether their employees' behaviors have improved.*

The next crucial step was mentioned by Interview Partner 4 (2021) who added that, employees will be assigned projects to determine if they are able to apply what they have learnt after attending the microlearning course. For the fourth step of the model, Interview Partner 6 (2021) stated that her company measures learning against key performance indicators (KPIs) to track employee training performance.

In terms of evaluating training development efforts, the interview partners stated that they do not currently analyze the learning activity's developmental process. Interview Partner 4 (2021, appendix F) explained that his organization's microlearning content that is currently created in-house, are done by *"subject-matter experts"* who are not full-time trainers or course developers.

The following sub-section presented the findings pertaining to the third theme under the third overarching dimension.

4.4.3 IT Ecosystem Supporting Microlearning

To deploy microlearning within their enterprises, L&D professionals must embrace the IT ecosystem and comprehend the various training infrastructure available, as well as recognize the unique responsibilities each plays. Interview Partner 4 (2021) and Interview Partner 5 (2021), in particular, shed light on four training infrastructure necessary for the deployment of microlearning, they include: (1) eLearning standards, (2) learning platforms, (3) authoring tools and (4) massive open online course providers.

4.4.3.1 eLearning Standards

Interview Partner 4 (2021) and Interview Partner 5 (2021) referred to the eLearning Standards: Sharable Content Object Reference Model (SCORM) and Experience API (xAPI) or Tin Can API during the course of the interview. Interview Partner 4 (2021) indicated that the organization's SCORM file, which it utilizes to publish standard-compliant microlearning content, is now hosted on Articulate 360, its course authoring platform. Interview Partner 5 (2021), on the other hand, mentioned that the learning system created by his company uses a newer standard known as xAPI or Tin Can API. Interview Partner 5 (2021, appendix G) clarified that: *"[...] SCORM is 20 years old and there is xAPI which is 10 years old. xAPI is the follow up standard for SCORM."* Interview Partner 5 (2021, appendix G) repeatedly stressed on the capabilities of xAPI, which surpasses SCORM in allowing organizations to keep track of practically any type of learning activity and records the information on a single database, known as a learning record store:

> *We do it based on data, and very detailed data which we collect in their own learning record store, on the platform. So, we have the data on the activities of the learners to a granular level, far beyond what SCORM was capable of. xAPI is the technological answer on this kind of problem. That 80%, or 90% of learning happening in the real world is not trackable. xAPI allows you to expand the data model above the whole learning ecosystem, and you can track if the learner reads a book and marks it in the system or if somebody using a virtual reality simulation learnt something there. You can blend it in one learning path. That is what we do based on the xAPI model. With this, you can track everything that happens on the platform. In the end, you can create so many data points in your learning ecosystem that you can use this data to a correlated with your KPIs automatically, and practically.*

Additionally, Interview Partner 5 (2021) added that the data collected on the learning record store integrated with a skills or competency matrix during back-end development can provide a more personalized learning experience for employees. The information gathered could be used to make personalized recommendations for microlearning courses or learning boards that the learner might find particularly interesting or relevant (Interview Partner 5, 2021).

4.4.3.2 Learning Platforms

Several interview partners described using learning platforms to deploy and manage microlearning content, as well as to consolidate information tracked on a single platform. Interview Partner 4 (2021) indicated that his company is planning to implement Cornerstone, a learning management system (LMS) soon. Interview Partner 4 (2021, appendix F) also pointed out that: *"Within the LMS, there may be a recommender system for microlearning, which facilitates and simplifies the learning experience."* Similarly, Interview Partner 5 (2021) shared how the learning platform developed by his company works. This platform is intended to be used by learners within an organization to search and consume relevant online learning content (Interview Partner 5, 2021). Interview Partner 5 (2021, appendix G) provided a more detailed explanation on how the platform helps organizations to effectively organize a system of development for employees, and said: *"We combine every learning entity, every learning goal, event, or web-based training, and it's combined with a skill or competency matrix in the backend."* Interview Partner 5 (2021, appendix G) stated that the goal was to create *"[...] a content repository built by others"*, in which learners can leverage on *"[...] the most valuable microlearning"* resources on one platform. Interview Partner 5 (2021, appendix G) went on to provide examples of how the learning platform acts as a digital learning repository:

> *[...] it could also be a LinkedIn Learning video as well. It is findable by our platform when its integrated. You can integrate every content marketplace into the platform. So, you have one portal to find everything. If I search for example, for 'marketing', I either find this one file or find the YouTube video somebody curated into the platform because of the topic 'marketing'.*

Interview Partner 4 (2021, appendix F) pointed out that the core benefit of adopting the use of such learning platforms is the ability to ensure that *"[...] employees are accountable to further enhance their knowledge and competencies through these platforms. They also have an ownership to learn and are accountable for their own performances."* However, Interview Partner 1 (2021, appendix C) noted that while his organization had adopted the use of the LMS, two years ago, it was met by *"[...] a lot of skepticism [...]"* and the uptake can be described as *"a bit slow, sluggish."* Interview Partner 5 (2021, appendix G) advised that, to address this issue, organizations planning to use a learning platform should first focus on establishing a platform with a good User Experience (UX) design:

> *So, I would start with a good UX design from the perspective that you create a valuable platform where users know that they can learn and will be there because they find value there. So, I think this is a crucial factor.*

Another challenge experienced by Interview Partner 1's (2021) organization was that 20 percent of its workforce did not have access to a company device.

4.4.3.3 Authoring Tools

Authoring tools are commonly used by L&D professionals to create training content for their employees. In the case of Interview Partner 4 (2021), his organization uses Articulate 360 to create microlearning content. On the other hand, Interview Partner 5's (2021) enterprise learning platform offers a quick content authoring tool allowing all platform users to create their own xAPI-compliant microlearning content.

4.4.3.4 Massive Open Online Course Providers

Finally, apart from authoring original microlearning content in-house, Interview Partner 4 (2021) also encourage employees to seek out microlearning content, available on Massive Open Online Course (MOOC) providers like Udemy and LinkedIn Learning. Interview Partner 4 (2021) elaborated that MOOCs incorporate the concept of microlearning by breaking lengthy courses that may last up to 24 hours into bite-sized chucks that allow learners to consume the content in five-minute intervals. Access to these MOOC providers usually sit outside of the learning platforms and authoring tools previously mentioned. Interview Partner 4 (2021, appendix F) further explained that:

> *Currently, we are facilitating this by asking employees to sign up their own individual accounts and we reimburse them. Employees can actually subscribe to MOOCs like LinkedIn Learning for say a period of three months and we pay them through expense claim.*

However, it was noted that the learning system provided by Interview Partner 5's (2021) organization allow for content from course libraries such as MOOCs to be integrated seamlessly onto the learning platform.

5. Discussion

5.1 Overview of Discussion

The purpose of this chapter is to describe any new insights gained as a result of this research study, as well as to assess the significance of the research findings in light of what was previously known about the research problem. The insights gained from the literature review and the findings from the interviews with industry experts are critically evaluated and distilled to provide meaning, importance and relevance. The four research objectives that were formulated in the sub-chapter 1.3 (Research Question and Objectives) are reiterated below. This chapter aims to answer the following research objectives:

1. How do L&D professionals view SHRM and OL as sources of competitive advantage?

2. What is the role of L&D professionals in helping to develop a training strategy to close skills gaps, as well as the most pressing skills gaps that exist within organizations today?

3. What are the drivers for the adoption of microlearning as a training approach for skills development?

4. What are the features that make microlearning an effective training approach for skills development?

Thus, this chapter is divided into four main sections in order to directly address the study's research objectives using significant insights gleaned from the literature review and interview findings.

5.2 SHRM and OL as Sources of Competitive Advantage

The goal of the first research objective is to uncover the perspectives of the L&D professionals on their view of how SHRM and OL serve as sources of competitive advantage for their respective organizations. The insights unveiled from the existing literature and information gathered through the expert interviews are summarized and presented in the following sub-sections.

5.2.1 Essential Link Between SHRM with Business Strategies

The findings from the interviews clearly show that the interview partners are in agreement on the importance of the organization taking a sustainable long-term approach in aligning SHRM with its overall business strategies. The interview partners' understanding resonates with and complements the findings of the literature review, which show that SHRM was developed to align employees' behaviors with organizational goals, thereby maximizing the knowledge, skills and abilities they possess (Kaufman, 2014; Lundy, 1994). However, the results of the interviews suggest that top management does not always grasp the strategic necessity of tying HR strategies to organizational strategies in order to achieve organizational success. Often, top management have an idea of the products it wants to produce or the fixed assets, like machinery, it requires but they fail to consider the human capital experiences, skills, and roles needed to align with business needs. The findings also point out that HR should be the responsibility of every manager. This is in line with insights gathered from the literature review highlighting that line managers have a role in ensuring that the organization's business strategy and HR policies are in sync (Agyepong et al., 2010).

5.2.2 Learning Culture for a More Adaptable and Agile Organization

The literature clearly justified that OL serves as a strategic resource for an organization by allowing it to continuously adapt to the competitive business environment. Saru (2007) stressed the importance of having a conducive learning culture, where the relationship between HRD and business strategies are undeniable, to allow OL to be properly cultivated within an organization. The interviewees' findings stressed the importance of fostering a learning culture that promotes OL and views it as a source of competitive advantage. Businesses compete in an ever-changing, fast-paced, and unpredictably changing environment. Hence, organizations that have the ability to learn and adapt fast will be able to survive and stay ahead of their competitors. This view is supported by Örtenblad (2001) on the widespread acceptance of the clear linkage between an organization's overall strategy with OL to ensure its long-term survival and business continuity. Moreover, an organization's ability to learn and adapt is critical to its current and future success (Argote & Miron-Spektor, 2011). Literature and interview partners both expressed that organizations that embrace OL, experience an improvement amongst its employees in terms of their behavior and cognitive ability to adapt to changes, resulting in a more agile culture that allows them to respond more effectively to their environment. Once again, the results of the interviews reveal that top management does not always recognize a correlation between OL and organizational performance.

5.2.3 Setting the Right Training Strategy to Meet Strategic Business Objectives

The central aim of an organization's training strategy is to manage the development of its workforce capabilities in order to help it achieve its strategic goals (Van Dam & Masie, 2018). Regardless of the training strategy chosen, the literature review and interview findings agree that it should help the organization remain nimble in order to adapt to changes in the business environment. According to the expert interviews, there are three primary elements to designing a training strategy: (1) setting strategic training objectives, (2) developing a training implementation plan, and (3) selecting the appropriate training approach. Figure 10 depicts the elements that make up the training strategy development in the form of a pyramid.

The findings from the interviews highlighted the importance of first defining the strategic objectives of any training strategy. In the case of MNCs with global operations, this step is normally done top-down, on a corporate level, in close coordination between L&D and top management. The established strategic objectives serve as a clear roadmap to ensure that employees learn what is relevant to them. The literature backs up the interview findings by noting that strategic training objectives must be linked to the overall corporate objectives, otherwise the training strategy would be futile (Periyasamy, 2020).

The subsequent step mentioned during the interviews is the need to develop a training implementation plan. This plan primarily serves as a framework of the organization's training needs. The literature review and interview findings both emphasized, the necessity of top management's support and everyone in the organization taking an ownership of the training strategy for it to be a success. Once again, the existing literature supports the interview findings stating that top management play a critical role in garnering employee buy-in and building confidence in the company's training strategy (Periyasamy, 2020).

The final step in developing a training strategy is to choose the best training approaches that would aid in the execution of the training implementation plan. The interviews also indicated the significance of carefully selecting the most appropriate training approaches from a myriad of options in order to attain the maximum efficiency and effectiveness in achieving business objectives.

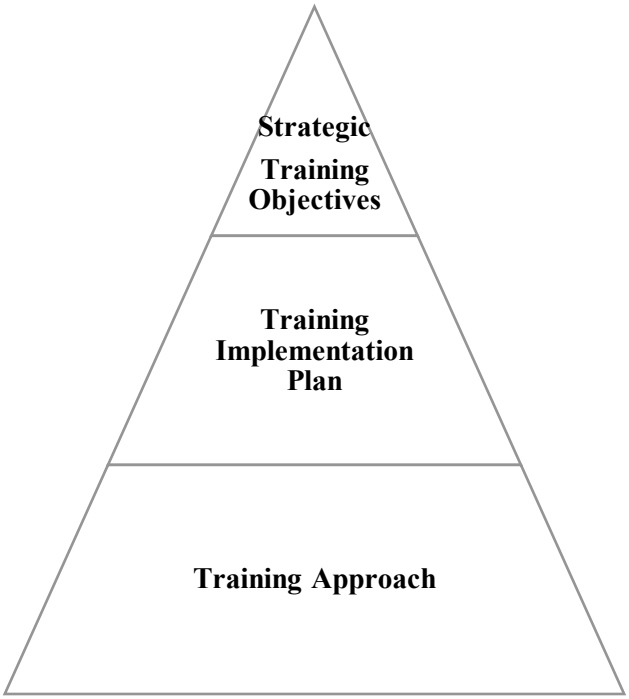

Figure 10 Training Strategy Development Pyramid (Own Creation)

5.3 L&D Driving Organizational Effectiveness through OL

The second research objective is to look into the role of L&D professionals in devising a strategic training plan to address the skills gap that exists within the company and achieve organizational effectiveness. In addition, it also seeks to unveil the most pressing skills gaps that exists within organizations today. The following sub-sections synthesize and report the findings gleaned from current literature and information acquired through expert interviews.

5.3.1 L&D as a Strategic Business Enabler

Both the literature review and the interview findings clearly point out that L&D is a 'strategic enabler' to help organizations meet its strategic objectives. L&D is in a unique position to encourage and empower their respective organizations to achieve performance excellence by challenging the business to push beyond the status quo. L&D must constantly share insights and provide thought leadership to the business, in addition to being a positive source of challenge. According to interview partners, L&D also play a critical role in ensuring that training and other learning activities are kept in line with the organization's goals and objectives.

One of the four roles that L&D professionals take on, according to the literature review, is that of a change management champion (Ramachandran, 2015). The expert interviews' findings corroborate

with the literature review, adding that the change management process should be managed with patience and care, since employees require time to recognize the benefits of any change. Additionally, the existing literature frequently emphasized L&D's use of a 'top-down' approach to devise a long-term strategic plan for the effective use of the organization's human capital, such as having dialogues with top management and senior executives (Van Dam & Masie, 2018). However, the interview findings also suggest that L&D should be open to taking a 'bottom-up' approach and gain direct feedback from employees by gathering their input on how to develop a successful training strategy.

5.3.2 Most Pressing Skills Gap: Continuous Self-Development

The most significant challenge confronting L&D, according to the literature review, is the need to prepare the workforce for digital disruption by supporting them in acquiring skills that will help them remain competitive in this digital age (Huba & Kozak, 2020). While digital skills and the requirement to enable employees to feel at ease with technology were highlighted as one of the most critical skills shortages that firms face today, it did not appear to be the most pressing. On the other hand, the most pressing skills gap faced by the interview partners, is the ability for learners to direct their own learning on a constant basis. The future of work requires learners to take responsibility for their own self-development and generate a sense of urgency to develop themselves permanently. Learners must be able to identify their own skills gaps and be open to receiving feedback from others as part of their self-development. The interview findings also revealed that, resilience and leadership skills that is in keeping with the times, are tops skills that are highly in-demand at the workplace.

5.3.3 Interchangeable Use of the Terms Skills and Competencies

The terms skills and competencies were used interchangeably in the expert interviews. Knowledge from the literature review differentiated skills as the specific ability that an individual possesses, whereas competencies refer to a broader idea that encompasses a combination of behaviors, skills and knowledge (SpriggHR, 2019; Sturm, 2019). Nevertheless, the findings from the interviews suggest that the difference between both terms often buoys down to a matter of semantics. For instance, an interview partner had used the term 'behavioral competencies' synonymously with the term 'soft skills'. However, the differentiation between the two terms had been more apparent in the existing literature. The three broad categories of competencies, according to Katz (1974), are functional or technical, human and conceptual. Likewise, Tomaszewski (2021) had highlighted that soft skills is one of the four types of professional skills that can help employees perform specific work tasks.

Another point raised during the expert interviews was the frequent use of the phrases "functional skill" and "technical skill," despite the literature referring to these terms as categories of competencies rather than types of professional skills.

5.4 Drivers for Adoption of Microlearning

The third research objective examines the drivers that motivate MNCs to utilize microlearning as a training approach for skills development.

Two drivers for the adoption of microlearning that emerged from both the literature review and from the interview findings are the positively perceived outcomes of this training approach and COVID-19 (Howard, 2021). The existing literature did not elaborate much on both the aforementioned drivers in great depth. The interviews complemented this information by stating that learners' positive experiences with microlearning can contribute to the reinforcement of the use of this training approach. This positive reinforcement will be likely to expand if key members of the company's top management share their own positive experiences with microlearning. COVID-19 also prompted organizations to adopt a more digital and bite-sized training approach in response to the constraints brought on by the pandemic.

Additionally, two learning trends – informal and problem-based learning – were recognized in both the literature and the interview findings as conditions setting the stage for the adoption of microlearning. The need for a more flexible approach to learning has arisen as a result of the rapid pace of change, along with employees' lack of time to commit to formal training (Bersin, 2017; Cournoyer, 2021). According to Bruck et al. (2012), microlearning is often categorized as flexible, self-directed learning that is heavily reliant on the learners' motivation. Hence, this training approach supports informal learning, according to both the literature and the findings of the interviews, by offering learners the freedom to choose what and where they want to learn. Problem-based learning is another learning trend that supports employees in their moment of need. According to the expert interviews, problem-based learning occurs when employees are confronted with a question or a problem that necessitates training to refresh their memory or seek ad-hoc support. The literature revealed that microlearning is equipped to deliver just-in-time training to help employees develop the skills they need to complete a task (Thalheimer, 2017; Torgerson & Iannone, 2019).

The results of the interviews also showed three additional drivers that were mentioned by several interviewees but not brought up in the existing literature. One driver is the need to make training strategically relevant and intentional for learners so that they may make the most of their time. Another driver is that microlearning caters to the unique demands of learners who already have a strong desire

to improve their skills. Lastly, microlearning is seen as a cost- and time-effective training approach by some organizations.

5.5 Features that Distinguish Microlearning as an Effective Training Approach for Skills Development

The fourth and last research objective identifies the features that make microlearning an effective training approach for skills development. The findings from the interviews supplement the literature review while also adding to it by revealing features not previously covered in the literature. In total, five features could be identified that L&D professionals should be aware of when considering adopting microlearning as a training approach for skills development.

5.5.1 Feature 1: Microlearning Harnesses the Power of Bite-sized Videos and Gamification

Videos are inarguably the most preferred modality of microlearning as expressed by learners, both in the literature review and interview findings, as it goes a long way in imparting skills in an effective and engaging manner. According to So et al. (2020), learners preferred visual content over text-based content. Several interviewees agree and add that the popularity of bite-sized videos stems from the fact that they allow content to be presented in a more interactive way. However, developing video-based training content could be more costly than the typical text-based content presented in the form of PowerPoint presentation slides.

Apart from text- and video-based resources, the interview findings revealed the use of simplified forms of gamification to verify if learners have successfully attained the targeted learning objective at the end of the microlearning modules. Points, quizzes, and badges are currently being added into microlearning modules to provide an enjoyable experience for learners. The interviewees also made suggestions for future use of video-based content and gamification, such as incorporating animated videos and games into smartphones to enhance the interactivity of microlearning.

5.5.2 Feature 2: Microlearning Enhances Traditional Instructional Design Models

Another interesting feature that emerged from the literature review is that microlearning provides an optimum experience for L&D professionals in the design and development of training modules. Microlearning has aided L&D professionals in leveraging on the strengths of traditional instructional design models such as ADDIE and SAM while minimizing its drawbacks (Dolasinski & Reynolds,

2020). According to Prasad (2020), microlearning complements agile instructional design by allowing for rapid iterative design, development, as well as efficient deployment of bite-sized training modules.

5.5.3 Feature 3: Microlearning is Optimal for Functional or Technical and Hard Skills Training

The literature review clearly pointed out microlearning as an effective training approach for hard skills training. By concentrating on delivering a single topic as concisely as possible, microlearning increases the likelihood of learners remaining engaged throughout the duration of the training. Furthermore, this training method excludes material that is only tangentially linked to the learning goal, thereby allowing learners to fully concentrate on the primary learning goal without having to worry about filtering out unnecessary information (Howard, 2021). This knowledge directly resonates with the findings from the interviews.

Apart from the fact that microlearning is more theory-based, making it better for hard skills training, the interviewees did not provide any other reasons why microlearning is a better training approach for hard skills training. The data also show that, despite the fact that the interview partners were from a variety of industries, those that used microlearning as a training method in their businesses primarily used it for functional or technical skills training. Workers have the freedom to refresh or check up the training module when the need arises or when confronted with a new assignment due to the short training length.

5.5.4 Feature 4: High Return on Investment with Microlearning

The cost-effectiveness of microlearning as a training approach was only unveiled in the findings of the expert interviews. The findings suggest that due to economies of scale, microlearning is unquestionably less expensive. The number of participants who can participate in an external training course is often restricted by the class size, whereas microlearning can accommodate a far larger number of learners. Another reason for why microlearning boast better return on investment it is because less time- and resource-intensive than traditional training. Training accessibility is often critical for employees who are unable to leave their work sites for training. Since microlearning can provide training to learners who are short on time, at the point and place of their need, it demonstrates that it is less costly and a more practical training approach because learners can immediately apply what they have learnt and get on with their work. Traditional training, on the other hand, is frequently packed with large chunks of information that may or may not be relevant to the learner's job scope, resulting in the learner's inability to apply the skills learnt beyond the training course.

The interview findings also acknowledged that microlearning has enabled businesses to find a balance between time and cost constraints in training by supporting learners in optimizing their learning in a manner that is acceptable by the company.

5.5.5 Feature 5: Microlearning is Useful for Knowledge Retention and Reinforcement

Lastly, the findings from the interviews complement the literature review regarding the use of microlearning for post-training reinforcement. According to Thalheimer (2017), the use of microlearning as an after-course reinforcement can aid learners to strengthen or deepen their learning. This training approach allows learners to refresh their knowledge by presenting them with bite-sized amounts of information (Kapp & Defelice, 2019). It has been said in interviews that, learners do not have a lot of time to invest in long-form reinforcement activities, therefore microlearning is great for post-training reinforcement since they can easily include the bite-sized modules into their workday. Furthermore, training reinforcement through microlearning is meant to be used just-in-time to enable learners to apply what they have learnt in real time. Microlearning is effective for knowledge reinforcement when it focuses on the learner's immediate needs.

Several interview partners also pointed out that knowledge is so vast these days that it has become impractical to commit everything to memory. For this reason, microlearning can be a valuable training approach as a form of preparation prior to a learning activity or as a post-training support. Microlearning was also discussed in the literature as a stand-alone training or performance support, however neither of these uses was highlighted during the expert interviews (Thalheimer, 2017).

6. Conclusion

6.1 Recapitulation

Acute socio-demographic and digital disruption have resulted in employees needing to update their skills continuously. Many employees are also time-pressed to make time for training and their ability to avoid distractions and inattention have decreased. Unfortunately, traditional forms of training for skills development, such as classroom-based training, are not proving to effective and efficient ways of training, since long training processes are required, so work is interrupted; significant time-investment is also required to create content for conventional training with little impact as many traditional training scopes fail to keep up with industry standards. In an attempt to tackle these challenges, this thesis focuses on microlearning, a problem-based or goal-oriented training approach, that intentionally focuses on a single definable, short topic or idea, stating clear learning objectives to elicit a specific outcome from the learner. The purpose of this research is to provide a starting point for a wider discussion about microlearning in future research. This thesis also examines the current state of microlearning via the lens of L&D professionals in MNCs, whose principal task is to manage the organization's workforce capability development and close skills gaps through its training strategy – all while supporting strategic business objectives.

The most critical skills gap that exists within their various workplaces today, according to this research, is continuous self-development. While L&D plays an integral role in preparing employees to excel in their current and future roles to promote organizational effectiveness, the onus is ultimately on learners themselves to put continuous learning principles into practice. The COVID-19 pandemic also brought attention to skills shortages that may have existed within enterprises prior to the outbreak, such as the need to educate staff on digital skills and enhance their leadership and resilience skills in order to create a future-ready workforce.

As microlearning is a new and burgeoning field, many L&D professionals may still be unfamiliar with this training approach. The interview findings demonstrated the interview partners' differing perspectives on the elements that make up microlearning. Microlearning was sometimes viewed as a type of asynchronous digital or online learning (Interview Partner 6, 2021). Other times, it was viewed as a training approach that empowered learners to learn on-the-move and on demand, allowing them to swiftly get back to work (Interview Partner 4, 2021). Other interpretations of the elements that make up microlearning are its clear learning demands and suitability for training certain topics (Interview Partner 5, 2021; Interview Partner 3, 2021).

The findings also revealed that a variety of drivers influenced firms' decision to use microlearning as a training approach for skills development. Two drivers – positive learning experiences and the constraints brought on by COVID-19 – were identified in both the literature review and results from the expert interviews. However, the interview findings revealed three additional drivers not previously highlighted in the literature review: microlearning's strategic and intentional relevance, its capacity to cater to specific learner expectations, and its cost- and time-effectiveness as a training approach. In addition, informal learning and problem-based learning were also recognized as learning trends that set the stage for organizations to adopt microlearning.

While microlearning is still gaining popularity, its benefits have already been extensively documented in both the literature review and the interview findings. Furthermore, the results of the interviews revealed that this training approach has been used in a wide range of industries, particularly in the field of functional or technical skills training. Microlearning help employees quickly adapt to their changing business environment through targeted and continuous training. This training approach also allows learners to learn at their own pace while allowing them to review, strengthen or deepen what they have learnt. Employees have more freedom to customize and choose training content to better meet their learning goals, which invariably leads to higher levels of engagement in the learning experience.

However, there are certain drawbacks to this training approach. Firstly, microlearning is not suitable for training soft skills or complex tasks due to its inability to provide first-hand experience and its focus on a single learning objective, respectively. Furthermore, some learners may view microlearning not as a cost-effective training approach, but rather one that is lower in value when compared to traditional training approaches, like external classroom-based training. Another disadvantage of microlearning is that, while it may be effective in training specific skill sets, it may not be as effective in changing learners' behavior or promoting mindset change because both take time to develop. Certain types of workplace issues may also require more human interactions in order to receive a more personalized response to one's inquiry, which microlearning is unable to provide. Lastly, this training approach has yet to gain widespread acceptance among all types of learners with diverse learning demands.

The implications of the research's overall findings for MNCs adopting microlearning as a training strategy will be detailed below through a set of recommendations provided as nine success factors for microlearning for skill development.

6.2 Recommendations for Future Implementation of Microlearning for Skills Development

This research pursued the following research question: *What are the success factors for the implementation of microlearning as a training approach for skills development in MNCs?* The specific recommendations in this chapter are intended to respond directly to the research question using a variety of academic sources gathered throughout the literature study, as well as feedback from interview partners based on the findings of this thesis. These recommendations intend to provide the factors that contribute to the successful implementation of microlearning as a training approach for skills development in MNCs. Each success factor states what should be done and the resources needed, if applicable. The success factors are depicted in Figure 11, as a circular diagram with two levels: first level and second level. The first level indicates success factors that must be established before the following level of success factors can be built upon.

Figure 11 Circular Diagram of the Success Factors for the Implementation of Microlearning in MNCs (Own Creation)

6.2.1 First Level Success Factors

The first level consists of five success factors that are considered to be the most important for laying the groundwork for the successful implementation of microlearning within an organization. They include: (1) top management support, (2) clear link between SHRM and organizational strategy, (3) OL coherent with organization's strategic objectives, (4) fostering a learning culture and (5) invest in an IT ecosystem to support microlearning.

1. Top Management Support

Top management support was commonly cited as a critical aspect in achieving employee buy-in and confidence in any L&D training strategy, according to both the literature review and the findings from the expert interviews. Nevertheless, top management in some organizations still fail to take a holistic approach to managing their employees and regard them as variable costs. This is exacerbated by the fact that some senior executives do not see a connection between OL and organizational performance, resulting in a lack in support for HRD and the promotion of a company-wide learning culture.

Any changes to the absence of top management support must start with a mindset change; employees must be viewed as assets rather than costs. Additionally, HR priorities are critical to the success of an organization. Hence, HR priorities should be decided in close collaboration with top management. Organizations should also consider taking a progressive step forward in adding a HR leader to its board. Such a practice can be potentially beneficial for the organization as HR leaders may be better equipped to strategically align HR priorities with business priorities.

2. Clear Link Between SHRM and Organizational Strategy

The quality of an organization's human capital has the potential to set it apart from its competitors. The main theories of SHRM, such as RBV and human capital theory, as well as the interview findings, all agreed that SHRM can give firms a significant competitive advantage if the organization's HRM policies and practices are strategic and long-term. Unfortunately, the findings also showed that organizational strategy and hiring strategy are occasionally at odds. Even if the company takes a long-term approach to other areas of the business, such as product development, inconsistencies will emerge if the company fails to address the types of roles and skill sets it requires.

In order for an organization's human capital to be a competitive advantage, it must develop a long-term strategic plan to recruit and hire the right talent and connect its business strategy with the skills needed to achieve its strategic objectives. Another recommendation would be for the organization to adopt a

culture where every manager is a HR manager. This involves line managers to hone their people management skills and take ownership of their team's engagement, motivation, learning and career development.

3. OL Coherent with Organization's Strategic Objectives

Organizations need to constantly change and adapt to its business environment. In order to survive in a dynamic business climate, companies must be able to learn quickly on a continuous basis. The interview partners highlighted that OL is not just a competitive advantage for the company, but also a critical component of its survival strategy. The literature also emphasized the significance of maintaining an unmistakable alignment between OL and the organization's strategic objectives.

Facilitating OL within an organization begins with every individual adopting the right mindset to recognize the importance of continuous development. A learning culture will emerge as more employees see the importance of constant self-development. Ultimately, organizations must be able to flexibly adapt their learning culture, as needed, to meet its evolving needs.

4. Fostering a Learning Culture

Organizations need a strong learning culture to respond effectively to their environment and remain competitive. However, defining and cultivating a learning culture is often not a straightforward task. Fostering a learning culture within an organization often start from the top. Top management can start by identifying organizational cultural 'artifacts' that characterizes how it operates on a day-to-day basis and weigh their value against its strategic objectives. Doing so would provide the organization with a blueprint or a metaphorical picture of its own culture. The next step is for top management to identify two or three issues that are impeding the development of the organizational culture. Following which, leaders can convene a taskforce consisting of employees representative from all levels of the organization to provide their feedback on the validity and significance of the issues identified in the previous step. Finally, the taskforce should develop an action plan to flesh out actual measures to address and correct issues that might hinder an organization's learning culture.

Another recommendation for cultivating a learning culture is for board members or key senior leadership personnel to be 'role models' for permanent self-development. Leaders who are committed to continuous learning can be powerful motivators for employees they supervise. They inspire others around them to follow their lead by prioritizing their own self-development, continually examining their skill sets, and reskilling or upskilling themselves.

5. Invest in an IT Ecosystem to Support Microlearning

During the expert interviews, a key theme emerged: training infrastructure that make up the IT ecosystem to support microlearning. A firm must consider investing in the proper tools and platforms that support the deployment of microlearning in order to successfully execute microlearning as a training approach.

An organization's L&D would firstly need to decide which learning platform it would like to use to deploy and manage its microlearning content. Different learning platforms have different compatibility standards in place to address the link between the courseware and the learning platform. Two eLearning standards mentioned by the interview partners are SCORM and xAPI. These standards enable interoperability of standard-compliant microlearning courses or other learning platforms. xAPI is the successor to SCORM. This newer eLearning standard is able to track most learning activities that occur anywhere, through any device giving rise to the power of data-driven analytics to properly evaluate and measure how effective the training is. Data collected on the training effectiveness of microlearning courses and other learning activities will give L&D real data to improve on its training strategies or correlate it with quantifiable measurements, such as training KPIs, to track employees' training progress. Although the fundamental purpose of these platforms is to provide a content repository for all of the microlearning modules generated, different learning platforms boast different features. Some learning platforms may include a recommender system to make the learning process easier, while others may include an authoring tool that allows L&D professionals to design and produce their own content on a single platform. Hence, organizations need to carefully consider which learning platform would best suit their needs.

Next, if the learning platform chosen does not include an in-built rapid content authoring tool, the next step for businesses is to look into microlearning software tools that would allow L&D professionals to create their own microlearning content and upload it on to the learning platform for learners to access.

Finally, L&D professionals must decide if they would like to create their own original microlearning content in-house or incorporate externally developed courses from existing course libraries. MOOC providers such as Udemy and LinkedIn Learning provide a wide range of courses, some of which are short, bite-sized and have a single clearly defined learning objective. If the organization's learning platform allows it, L&D professionals can integrate these courses onto the platform. Otherwise, employees will need to create their own individual accounts directly with the MOOC providers and seek reimbursement afterwards.

6.2.2 Second Level Success Factors

The second level success factors can be built-upon the first level once it has been firmly established. They include: (6) set the right training strategy, (7) L&D as OL champions and change agents, (8) leverage on the features of microlearning for effective skills development, and (9) evaluate and measure the training effectiveness of microlearning.

6. Set the Right Training Strategy

An organization's training strategy helps to define the skills and competencies a business needs in the medium and long term in order to achieve organizational success and effectiveness. In order for the business to stay agile, the organization would have to develop the right training strategy that fulfils its training needs and evolve with the needs of the business. There are three steps in developing a training strategy. To begin, L&D must engage closely with top management to establish strategic training objectives that will act as a guideline for employees to learn what is relevant to them. Then, to give a framework for employees to develop themselves within a set of training parameters, a training implementation plan can be created. Finally, effective training options are chosen to assist the organization in closing the identified skills gaps.

The following recommendations intend to assist L&D professionals in developing the right training strategy for their organization. Firstly, avoid setting strategic training objectives that are too heavy or structured, as this would limit the company's ability to adapt to its changing environment. Secondly, training strategies should not be established in isolation and should be align with the overall strategy of the business. Thirdly, L&D professionals need to carefully select the most appropriate training approaches from a wide range of offerings. If microlearning is selected as the most appropriate training approach, it must demonstrate that it can assist the organization in closing its existing skills gaps with the greatest efficiency and effectiveness.

7. L&D Professionals as OL Champions and Change Agents

First and foremost, L&D professionals are OL champions as they play a crucial role in ensuring that the training strategy is align with the organization's strategy. They often have to facilitate dialogue between the top management and line management to fulfill the training needs of the business. Implementing a new training strategy also involves a well-planned change management process. Both the literature review and the interview findings described the role of L&D professionals as change agents who are often called upon to lead and communicate the benefits of change. L&D professionals

are in a position to effect change as they are perceived as a neutral party whose influence can be felt throughout the organization.

One recommendation for L&D professionals when they communicate a new training strategy is to avoid utilizing overly technical jargons, since hard processes, theoretical tools and formal methodologies might not resonate with employees or may unintentionally intimidate them. Secondly, as employees take time to see the benefits of the training strategy, L&D professionals should take the change management process slowly and cautiously. Finally, in order to acquire stakeholders' trust and confidence, L&D professionals should exhibit attributes such as approachability, self-assurance, and humility when communicating with them.

8. Leverage on the Features of Microlearning for Effective Skills Development

When using microlearning as a training approach, L&D professionals can leverage on the features that make it successful and effective for skills development.

Short video-based content and gamification provide an interactive format of presenting bite-sized knowledge in an effective and engaging manner, making it an excellent modality of choice for microlearning modules for skills development.

Microlearning is also an optimal training approach for hard skills and functional or technical skills, but not for soft skills. This is due to the fact that microlearning modules focus on a single learning objective or skill that the learner needs to learn at that moment. By decluttering unnecessary information, learners are more likely to stay engage, instead of losing sight of what they were meant to learn in the first place.

Another feature that makes microlearning ideal for skills development training is its cost-effectiveness, and its ability to deliver training at the right time, in the right context. This allows time-pressed learners to be able to quickly apply what they have learnt and return to work.

Lastly, microlearning is particularly useful as a post-training reinforcement to help learners deepen their understanding on the topic. When a situation arises that necessitates the use of a specific skill, this training approach enables employees to quickly refresh their knowledge of that skill, which they may have forgotten or are unsure of.

9. Evaluate and Measure the Training Effectiveness of Microlearning

The last success factor is the need to conduct training evaluations to ensure and measure training effectiveness. Regular training evaluations will aid L&D in identifying areas where training may be inadequate or ineffective, allowing employees to get the most out of it and improve their work performance. The Kirkpatrick model was mentioned in the literature review, as well as the interview findings as a method of evaluating the effectiveness of training. The model assesses training and rates it against four levels of evaluation criteria: reaction, learning, behavior and results. The first criterion assesses whether learners find the training engaging, beneficial and relevant to their work. This level is most commonly assessed by using a measurement instrument called the training effectiveness or assessment form. The second criterion assesses each participant's learning by determining whether they have acquired the skills they intended to develop. The literature review recommended utilizing more formal means of assessment, such as exams, but the interview partners indicated that informal, interview-style evaluations with learners' line managers can also assist to obtain input on whether they have gained the necessary skills. The third criterion assesses how well learners are putting what they have learnt into practice on the job. Employees who have completed the microlearning course may be assigned projects, and their line managers may conduct a performance review to see if their subordinates are able to apply what they have learnt. The fourth criterion is devoted to determining direct outcomes. The last level of evaluation compares learning to the organization's business objectives, through its KPIs that set-in place before training is initiated.

One recommendation that L&D should remember is to treat each level of the Kirkpatrick model as equally significant, rather than assuming that the upper levels are more important than the lower levels. Another recommendation for L&D is to avoid making the assumption that learners who initially expressed favorable reactions to training would eventually improve their work performance. There is no guarantee that learners' positive reactions will lead to improved performance, leading to organizational success and effectiveness.

6.2.3 Key Takeaway from Recommendations

Overall, the suggestions include both hard and soft elements that must be met in order for an organization to successfully adopt microlearning as a training approach for the purpose of skill development.

The following are hard elements that pertain to strategy, structure, or systems:

First Level Success Factors

- Success Factor 2: Establish Clear Link Between SHRM and Organizational Strategy
- Success Factor 3: Make OL Coherent with Organization's Strategic Objectives
- Success Factor 5: Invest in IT Ecosystem to Support Microlearning

Second Level Success Factors

- Success Factor 6: Set the Right Training Strategy
- Success Factor 8: Leverage on the Features of Microlearning for Effective Skills Development
- Success Factor 9: Evaluate and Measure the Training Effectiveness of Microlearning

The following are soft elements that pertain to management support, learning culture, or the role of L&D professionals:

First Level Success Factors

- Success Factor 1: Gain Top Management Support
- Success Factor 4: Foster a Learning Culture

Second Level Success Factors

- Success Factor 7: L&D Professionals Play the Role of OL Champions and Change Agents

If a company decides to embrace microlearning, the success factors listed above indicate the multi-dimensional elements and resultant complexity that must be addressed in order for microlearning to be implemented successfully. As illustrated in Figure 11, L&D is not solely responsible for the successful implementation of any training strategy or approach. Although L&D is vital in assisting employees in adopting skill sets that help firms acquire a competitive edge through its human capital, everyone in the organization is responsible for his or her continuous self-development and plays an important role in the effective implementation of any training strategy or approach. As a result, successful microlearning implementation necessitates the buy-in and participation of the top management, line management, and every single learner within the organization.

6.3 Limitations

There are four main limitations to this thesis. Firstly, as microlearning as a training approach for skills development is a young an emerging field, there were a limited number of interview participants, both on the strategic and systems or operational level, that met the qualifying criteria for the selection of the study sample. The lack of available data led to the research having a limited scope of analysis. The goal of this thesis is to initiate an inquiry and present a general direction in which the field of microlearning is evolving, enumerating opportunities for further research.

Secondly, complete objectivity of this study cannot be guaranteed due to the nature of the qualitative interview methodology taken. As a result, it's impossible to completely rule out the researcher's influence during the expert interviews, as well as a certain amount of subjectivity while summarizing the data obtained in the findings. Nonetheless, the qualitative interviews with industry experts chosen methodology is precisely in accordance with the study's objectivity and research gap.

Thirdly, the findings drawn from this thesis examines the current state of microlearning through the eyes of an L&D professionals working in MNCs. Hence, the findings may or may not apply to smaller business settings, such as small and medium enterprises.

Lastly, due to the pandemic related- and time constraints, face-to-face interviews with L&D professionals could not be conducted which could have garnered deeper insights and understanding of the subject matter.

6.4 Further Research

The findings of this thesis concerning the success factors for the implementation of microlearning have not been tested. Hence, future studies should be devoted to test the validity of the success factors. One possibility to assess the success factors is to conduct the same research in smaller business settings, geographies or cultures to validate if the success factors hold true in other contexts as well.

Besides validating the veracity of the current research findings, another direction of research could be how microlearning can help to foster a feedback culture and a culture of continuous learning within MNCs. Future research could look into how social components and feedback mechanisms can be woven into microlearning to build a company-wide learning and feedback culture by allowing learners to produce and share content.

Future research could also investigate the relationship between learners' engagement and learning on-the-move, using mobile microlearning. More studies are needed to understand how the unique characteristics and personalities of adult learners may influence their motivation to take on mobile microlearning to support informal, problem-based learning.

This research findings revealed a range of training infrastructure which supports microlearning. Looking forward, further research to determine how the advancements of digital technologies might impact the development of cost-effective microlearning training modules could prove quite beneficial to the literature as well as provide significant implications for MNCs in the future.

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Appendices

Appendix A: Interview Schedule/Guide – Strategic Level

General Introduction

- Interview partner is thanked for their willingness to participate
- Interview partner is informed that the duration of the interview is 45 minutes
- Interview partner is informed that the interview is anonymous
- Interview partner is informed about the option to end the interview anytime

Research Question

What are the success factors for the implementation of microlearning as a training approach for skills development in MNCs?

Research Objectives

1. How do L&D professionals view SHRM and OL as sources of competitive advantage?

2. What is the role of L&D professionals in helping to develop a training strategy to close skills gaps, as well as the most pressing skills gaps that exist within organizations today?

3. What are the drivers for the adoption of microlearning as a training approach for skills development?

4. What are the features that make microlearning an effective training approach for skills development?

List of Questions

1. Personal Information: Professional background

2. Job-specific Information: Do you have a role in setting out your organization's training strategy? If so, could you kindly elaborate on your role?

3. Could you briefly describe your organization's training strategy?

4. Have your organization ever implemented microlearning, as a training approach for the purpose of skills development?
    a. If so, how was your experience?
    b. If not, would you consider implementing such a training approach? Why or why not?

Microlearning could be understood as a problem-based or goal-oriented training approach, that intentionally focuses on a single definable, short topic or idea, stating clear learning objectives to elicit a specific outcome from the learner.

5. How do you view SHRM as a source of competitive advantage, and the role it plays in helping an organization meet its strategic objectives?

6. How do you view OL as a source of competitive advantage, and the role it plays in helping an organization meet its strategic objectives?

OL can be viewed as an activity or process of learning in organizations through which the acquisition of experiences, both individually and jointly as an organization, results in the creation of knowledge.

7. What role do you see L&D professionals playing to assist in closing the skills gaps that exist within the organization? What is the most pressing skills gap that exists within your organization?

8. What are your views on the drivers for the adoption of microlearning in your organization?

9. Where do you see microlearning used as a training approach, best fitting in your organization's training strategy for the purpose of skills development?

10. What are your views on creating a training implementation plan on the strategic level before rolling out a new training strategy or approach?

Closing Remarks

- Interview partner is informed about the option to receive the results of the research should he or she be interested

- Interview partner is thanked again for his or her time for attending the virtual interview

Appendix B: Interview Schedule/Guide – Systems/Operational Level

General Introduction

- Interview partner is thanked for their willingness to participate
- Interview partner is informed that the duration of the interview is 45 minutes
- Interview partner is informed that the interview is anonymous
- Interview partner is informed about the option to end the interview anytime

Research Question

What are the success factors for the implementation of microlearning as a training approach for skills development in MNCs?

Research Objectives

1. How do L&D professionals view SHRM and OL as sources of competitive advantage?

2. What is the role of L&D professionals in helping to develop a training strategy to close skills gaps, as well as the most pressing skills gaps that exist within organizations today?

3. What are the drivers for the adoption of microlearning as a training approach for skills development?

4. What are the features that make microlearning an effective training approach for skills development?

List of Questions

1. Personal Information: Professional Background

2. General/Platform-specific Information: Could you briefly explain if your organization has incorporated microlearning as a training approach for the purpose of skills development? / Could you briefly explain how your organization has incorporated microlearning into its enterprise learning platform for the purpose of skills development?

   Microlearning could be understood as a problem-based or goal-oriented training approach, that intentionally focuses on a single definable, short topic or idea, stating clear learning objectives to elicit a specific outcome from the learner.

3. From your past experience, what would you say are the factor(s) for the successful implementation of microlearning as a training approach for skills development?

4. From your past experience, which examples/modalities of microlearning *(e.g., text-based resources, eLearning modules, videos, infographics, podcasts, mobile apps, gamified modules and/or social media)* is/are the most preferred by MNCs/your organization for the purpose of skills development? Please explain your answer.

5. In your opinion, what are the main benefits and limitations of microlearning as a training approach for the purpose skills development?

6. From your experience, what have been the most highly demanded content/training areas *(e.g., hard/soft skills training, practical skills training, topical issues and/or domain-neutral topics)* that MNCs/your organization are using microlearning for in the area of skills development?

7. In your view, what are the strengths and shortcomings of traditional instructional design models *(e.g., ADDIE and SAM)*? How has microlearning in the context of Web 2.0, been integrated into traditional instructional design models to leverage on its strengths and minimize its shortcomings?

8. In reference to the adapted instructional design model by Dolasinski and Reynolds (2020) below, how could elements of microlearning be integrated into each stage, from the development stage through to the evaluation stage?

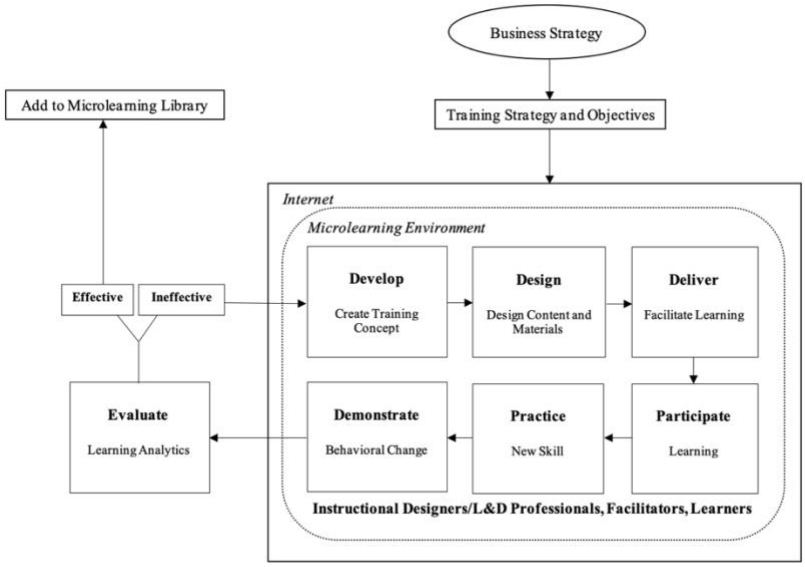

Figure 6 Integration of Microlearning into Traditional Instructional Design Model adapted from Dolasinski and Reynolds (2020)

9. From your past experience, what have been the main reasons for the use(s) of microlearning as a training approach for skills development by MNCs/your organization *(e.g., preparation before a learning activity, follow-up to support a learning activity, stand-alone training and/or performance support)*?

10. How do MNCs/your organization evaluate and measure the change in learning, behavior and/or performance improvement(s) after engaging in microlearning on the learning platform? How do MNCs/your organization evaluate its training/learning development efforts and how organizational learning affects the business? Please specify any evaluation model(s) or framework(s) used.

Closing Remarks

- Interview partner is informed about the option to receive the results of the research should he or she be interested

- Interview partner is thanked again for his or her time for attending the virtual interview

Appendix C: Interview Transcript, Strategic Level Interview, Interview Partner 1, 22.06.2021, 11:00 am (Lachen, Switzerland)

Consent to record the interview: Yes.

The interview was conducted in English via MS Teams and was 49:20 minutes long.

Introduction to the interview.

1. *How long have you been working in HR or L&D?*

I worked now for four years. Exactly in Human Resources or in Learning and Development, I worked for 22 years now.

2. *Do you have a role in setting out your organization's training strategy and policy? If so, could you kindly elaborate on your role?*

OK. So, my role is called a Global Head of Learning and Development. I am responsible for cross-site learning initiatives, which is especially regarding leadership and digital learning. Of course, also the methodology, how to do talent management, succession planning and these things. This is defined centrally on corporate level here. Also, we have a kind of methodology or the competencies we look at in leadership. This is all defined here centrally. Also, career paths, we try to do centrally. This is something that we just started 2-3 years ago to define career paths. That's an ongoing process. We tried to cover the production first because this is most important to us.

3. *Could you briefly describe your company's training strategy?*

Let me start by explaining that when I joined four years ago, there was no Learning and Development on corporate level. There was no LMS, no leadership program. There was an old trainee program. So, the strategy that we then decided to go for was state-of-the-art, nothing advanced just to establish a learning culture. The culture was not very friendly towards learning. The culture was to hire/ recruit the right people so that they don't need learning. After four years, we made some progress but it's very slow. In those four years, we established leadership program, assessment centers for middle management and development centers where they get feedback on their competencies. We established a new training program. We implemented the LMS, and the first eLearning actually went live about three-and-a-half years ago. We started with having career paths. We started with goal and performance and using the software, SuccessFactors as well. We started doing pilots on talent

management and succession planning. That was actually all just within the last three-and-a-half to four years.

4. *Was the term digital training, which you mentioned earlier, in reference to eLearning?*

In reference to what you classically called eLearning. In the pharma industry, we are highly regulated even more than the banks. Every person has to be trained, especially production people. This used to be managed on paper, in excel sheets, until three years ago before we studied the LMS. There was a lot of skepticism to use a software for this. But now, we slowly see the benefits. Less errors, less mistakes are made and there is only one source of truth. I took the opportunity to introduce also the LMS for personal skills. I could not rely on any feedback on what topics we need. So, I just took an entire catalogue of things. We bought 60 topics. From finance for non-financial people to well-being at the workplace, et cetera. These 60 topics, usually have four to seven elements. It can be a quiz, poster, video and it can also be some interactive learning. You can spend from two minutes to half-an-hour. You can brush up or dig in, whatever you want to do. You can also choose the topic, and you can choose from six different languages. We Swedish there as well, because we have a big production site in Stockholm. This was the start to say that people can learn on-the-go, they can learn on-the-fly. They can say, I need to do the performance appraisal. Let's have a quick look how do I do this. I need to have a difficult conversation. Let's quickly look at how can I prepare this. I need to do my budget. Let me get the basics. How do I calculate a budget? The start was two years ago, and it was a bit slow, sluggish. We have at the moment; we only have Europe in the LMS which is about 4900 profiles. We have 20% of people who don't have access to a company device which is another issue. In the first one-and-a-half years, we had about 400 users, so 10%. I know from colleagues that 10% of this kind of catalogue is not so bad of usage. But my CFO was not happy. So, the communication department and I, we did a campaign earlier this year. Now, at least more than 600 people are using it. 600 out of 4000, okay we are at 25%. I hope to increase this even further and it's not only more people but more people who use more of the content. I don't have the statistics at hand, at the moment. I need to create that at end of the year, but with this promotion campaign through the intranet, it really helped, because we really targeted on certain topics. How can I enhance my project management skills, et cetera? We have testimonials and stories and apparently this helped. What I saw is once the people see what's available, they like it, and they go there. Without the initial impetus, they don't even start looking at the portfolio, which is a pity because then they don't see that it can help with daily work life. At the moment, we are talking about extending that catalogue, maybe with more topics with language things or Microsoft office suite. People can get ad hoc help or input when they need it. Actually, this is the only thing where I would say my company scratches on the surface of microlearning.

5. *With regards to the training catalogue that you mentioned, are the modules delivered in bite-sized form? As your company have only just begun to implement microlearning, could you see this training approach being widely used in your organization some years down the road?*

For topics like preparing for difficult conversations, you have several options from a poster with the main things you need to prepare to interactive learning. So, it's up to you if you have one minute or 10 minutes. This is the size of those modules and of course, this also triggered some thinking in other departments. In marketing and sales, we have sales and marketing training. Up until two years ago, this training was a classroom training from four people from all around the world. 50 people came to Switzerland twice a year. It costs a lot of money, and they all got a one-size-fits-all training for five days, 1'000 slides. This methodically was a horror because they have different backgrounds and learning needs, et cetera. So, this was something we discussed for two years. I really refuse to do this again. Now, during corona, we finally came up with a concept, very modular. Some modules are available online. They are also not just one block, one hour. They are modular. You can say, 'I start with the basic information' or focus on functional skills like, 'I only want to know about labelling'. This is one element but also, we said each site needs to have a champion. The champions will get train-the-trainer, and they have the online modules. They can come to Lachen for networking days, and they can also call in the experts that we have here at headquarters. They can then decide which elements of the online training they will recommend for their new hires. This serves the needs better than we did in the past. I try to translate this strategy into a more flexible and digital approach. People get more aware that with less effort, we can get the same result or even better results in learning. I need to do this very carefully and people need to see the benefits, and then go slow.

6. *Do employees search for these training modules as a result of a problem that they face at work or to develop skills in order to solve a certain task? Do these training modules focus on a single topic or idea and have clearly stated learning objectives?*

This is the long-term goal that employees experience when they have a problem or a question. When I go there, I probably find the answer. You know, at my last employer Buhler, we have already tried to establish a knowledge sharing platform where we say, you put your knowledge there and you can something back. So, if you have an answered question, you can get the answer. But this platform could not really come to life because you need more experience than you give. This is a process that is very difficult to bring to life because you need to be patient. I guess it will take some years to see that with the LMS, I'm thinking of having a little section on the platform at one point for work specific problems. If I'm an expert, I can show that I have my expert knowledge on the platform by recommending solutions to problems. People can download this, or watch it, et cetera. This can be kind of an exchange form, but this will take a long time I'm afraid. There is kind of tipping

point, probably. You know, when you reach the critical mass and people say yes, like YouTube or eBay. But I don't have any illusions that we will get there in the next two years.

7. *I would now like to ask some questions regarding Strategic Human Resource Management (SHRM). How do you view SHRM as a source of competitive advantage, and the role it plays in helping an organization meet its strategic objectives?*

My boss was the vice president Human Resources and she tried to establish a Human Resource Management long-term. It was not understood. You know, we hire people when we see we need them. To say that 'let's analyze where can we want to be in three years or in 10 years, and what skills do we need?'. This kind of thinking was not understood because of this old mindset. So, it is not happening here. I think the benefits of having career paths, key positions, successors are very limited if you don't do strategic resource planning long-term. We have an idea of what kind of products we want to produce in three years or five years, but we don't analyze what that means for the kind of roles that we need to fill. It's all quite a gut decision, at this moment.

8. *In your view, do you see that SHRM can be a source of competitive advantage for the organization?*

It would be a huge advantage because we know that the technology is available to all companies, sooner or later, that's not the problem. The area where you can distinguish yourself from other companies is the quality of the human factor. If you plan this long term, strategically, then you have a huge advantage. If HR is part of the executive board, this the main leverage you have. I understand that sales are always the most important thing. If you don't sell, yeah that's understood. I had this discussion in every company I worked for, food processing industry, heavy machinery industry and now for pharma. It is always the same; sales, sales, sales, everything else doesn't count and HR is just a cost. But it is the people that matter. Some companies have very close relationship between HR, Head of HR and the CEO. This gives an advantage over other companies because in the end, as we know, the labor market gets a bit tighter. I wouldn't call it 'war for talent', that was what I think we called it ten years ago. I don't it needs a label. It's not important how you label it but it's very clear that as a company, you need to do something to be attractive, not just the salary. It is also, do you have interesting prospects for the people, does the company think long-term and does it have a strategy? Do they have a plan? Is the plan about the people or the machines? It takes a whole package for the company to stay attractive. It's not only about attractiveness, but Human Resource planning is also about success in the market. I had a boss that was younger than me. She said, 'You know, there is this model to analyze the competencies of a person to match it with the position, and then you have a gap analyses'. I told her, 'Yes, that would be nice, but we're not there

yet'. But actually, we should not develop them to fill a gap. We should develop people that they are able to learn how to learn. They should be able to learn how to identify gaps because gaps will open not only every two years, but gaps in knowledge might also be there constantly. You constantly need to react, and the people need to have the skills to develop themselves permanently. The skills are not about being a good listener or dealing with ambiguity. The skill is to analyze your skills, competencies and capabilities and to say, 'ok, I need to do something here and there'. Doing a gap analysis was done twenty years ago, it's ok but it's not enough. You need to be dynamic in this learning process. The skill that people need to develop, is how to develop themselves. There are lots of issues around that. How do I analyze my skills? How do I see what's available? How can I analyze what is needed in one or two years in my position, or in my next position? How can I qualify, if I want to get promoted, without creating expectations?

9. *Linking to my previous question, how do you view Organizational Learning (OL) as a source of competitive advantage, and the role it plays in helping an organization to meet its strategic objectives?*

On the one hand, what I just said of decentralizing learning for the individual, on the other hand, the organization needs to establish a learning culture and to have the portfolio for people to learn what they need to learn. While things still have to be organized centrally, in the end, it is still much more a cultural topic. As you know, culture is best developed top-down or from both sides. But this is where I struggle because the top doesn't see that the culture has anything to do with how we perform as a company. They don't see any connection there. In reality, of course, and for successful companies, the board should be a role model for this. They should also maybe exercise flexibility just to show people that it's normal. Nobody is perfect anyway. It is about how we deal with mistakes and how do we learn? For HR, it's important to look at what we are offering potential talents and employees. If learning is centralized, is there an option for every individual? You can bite-sized a lot of things, not everything of course. We can offer a platform; we can also animate things but in the end, HR also needs to manage it. I would hope that (...), in Latin I would say 'autopoiesis' or 'self-creation', with the need within the company. When we can see what's needed, we can take care of it.

10. *What role do you see L&D professionals playing to assist in closing the skills gaps that exist within the organization? What is the most pressing skills gap that exists within your organization?*

I would say that L&D should move away from making 'ready meals', you know, concepts and getting people to follow those concepts, like leadership training et cetera. We should

become more like facilitators to support people, to start discussions with managers to find out what are their learning goals. I know that not all employees are made this way. So will say, 'I'm doing my job, what do you want from me?'. In certain positions like the IT service desk, we want don't want high potentials because high potentials are very demanding.

With regards to what is needed? Where I see the biggest need is actually the competency to take care of my own development. To be aware of it and take care of it. To analyze my own behavior, to coach myself. That is the biggest future need. The first competency is actually to analyze my own behavior, to get feedback from others. Having a feedback culture is something that is a bit missing as well. It is normal to tell other people that something went well or what did not well go well, in a constructive way.

11. *What are your views are on the drivers for the adoption of microlearning in your organization?*

I think it's positive experience that is positively reinforcing itself. If key people in the company have positive experience, it does not have to be the CEO, it can also be the head of production, if they have positive experience with it, then they multiply that and then the culture spreads. I think from seeing competitors, we don't see too much detail to know what they are doing internally to be able to judge that. I also think microlearning is also like an avalanche. You know, it starts very slowly and then it picks up the momentum, and more and more people see the benefits of it.

12. *Where do you see microlearning used as a training approach, best fitting in your organization's training strategy for the purpose of skills development?*

I think when it comes to functional skills, like in production, certain techniques or also in administration, like in finance. There are certain things that I need and that I quickly need to look check again, look up, refresh again et ectera. There microlearning is very important. I think when it comes to behavior, like how to deal with a difficult situation, I guess there you usually have also more time to prepare, to have other sources et cetera. There may be, also the personal exchange, let's say with an HR business partner might be beneficial with the human contact to have an individualized response to my needs. This approach could be better than having just a standard micro thing that might be helpful, but not fit exactly my question.

11. *What are your views on creating a training implementation plan on the strategic level before rolling out a new training strategy or approach?*

Honestly, I made this plan more for myself. You know, I wrote in the first six weeks when I was here, 80 PowerPoint slides as a synthesis of my experience over the last 20 years. It was only a platform to discuss with my boss and also to show the CFO so that he knows what's coming. I did not communicate this to employees. This was only discussed with those people who were affected. I just did. With the support of the CFO, there were several things we just did. The leadership program, our CEO said, 'ok, I want to do this'. I work with people who want to do something. If in Manchester, the local general manager says, 'I want to do a pilot on succession planning', I do it. I hope this spread by word of mouth that the good news spreads and more and more people will come onboard. For learning, I would say just start somewhere. You don't need to have a big plan. Slowly, with more and more people coming onboard, you can have close to 90% of the organization joining.

Greetings.

Appendix D: Interview Transcript, Strategic Level Interview, Interview Partner 2, 09.07.2021, 8:00 am (Zurich, Switzerland)

Consent to record the interview: Yes.

The interview was conducted in English via MS Teams and was 30:41 minutes long.

Introduction to the interview.

1. *How long have you been working in HR or L&D?*

20 years. In my current organization just four years.

2. *Do you have a role in setting out your organization's training strategy? If so, could you kindly elaborate on your role?*

Yes, I am currently the Global Head of Talent and Learning for EL, it stands for electrification, which is one of the four businesses within the organization, which has about 55,000 people. Yes, I'm more or less responsible for learning strategy.

3. *Could you briefly describe your organization's training strategy?*

Currently, we have let me say three areas. When it comes to functional training, when it comes to technical training, you know we have the approach that we have a yearly process with a performance review and a gap analysis based on the competencies. Based on that then we try to identify what areas the functional competencies, and as well as the soft skills or behavioral competencies should be developed. And then based on that, we have a variety of offerings that you can use to close the gap. So, that is one part.

The other part, let me say, is a leadership, soft skill area where we are having more top-down approach. So, to see where is the strategy? Where are we regarding the strategy? What are the top topics? What are the priorities? And then based on that, we're going to develop and deliver learning content that helps our people to create skills to support our overall strategy. But then, certainly going to more less nominate the colleagues that are going through that. So large populations of managers or experts or people or whatever, so that's more top-down.

The third area is more or less the talent development part. This is more or less based on analysis that we're doing internally to understand where do we have our talents? Where do we have our successors?

And then certainly based on a clear career development, precisely and specifically developing talent for a potentially new role. This is also a bit more top-down. Because in the beginning, we have to look at where are the critical roles? And where are the critical roles that we cannot refill easily? Where are successors that we have to build now, or potentially in the future? So, these are the three elements actually that we used to more or less strategically develop or talent.

4. *Just a follow-up question, as you mentioned the term 'top-down', is there a centralized approach to L&D at your organization?*

Yes, top-down more or less. It's always top-down, yes absolutely.

5. *Have your organization ever implemented microlearning, as a training approach for the purpose of skills development?*
   a. *If so, how was your experience?*
   b. *If not, would you consider implementing such a training approach? Why or why not?*

Yes, absolutely. I think we have established a lot of microlearning, yes. For example, what we've now established. Let me just pick out one example. I think there's so many of them. So, what we have put in place for example, let me go back again to functional training. We have what we call the EL Academy on electrification. There you know we have a competency matrix for functional skills. Then based on that, you can assess yourself to see where you are and what kind of elements you specifically have to develop. There we used microlearning. So, we put together specific learning elements that are focusing on one competency development and just should help you to develop that and change your behavior and mindset. Mindset change is always a bit difficult I have to admit with microlearning. Having this combination of several microlearning, focusing on specific competencies actually should help to create appropriate knowledge, and from time-to-time change behavior.

Just for clarity, may I ask if the employees at your organization are able to learn anytime at their own convenience? Are they able to access a learning platform and learn through bit-sized modules?
Yes, it is up to them to pick and choose the timing. Obviously, we have a time range. So, we give them say half-a-year to say, 'Look in next half year you should upskill yourself in this area'. So, it's not totally without the time pressure. Other than that, they are totally open, they can do it whenever they want. However, they want to do it. How fast they wanted to it or slow? That's absolutely totally up them. I strongly believe that for good learning, the learner must be in the driver seat. You know, it's a bit our philosophy, whether it is in talent or leadership development. We want to encourage every single one to be, more less, the master of his or her learning plan.

6. *How do you view strategic human resource management (SHRM) as a source of competitive advantage, and the role it plays in helping an organization meet its strategic objectives?*

Yes, hopefully. I am absolutely certain it does. I think we need to make sure that from the outset, we have all the elements in place that will create a strategic advantage or competitive advantage. So, that starts with hiring the right people, developing them strategically, having a solid leadership planning, as I said before, in place, to really identify where are critical roles? Where we need great successors? But as well, being an attractive employer out there that people see us as a very attractive company to work for. It goes into the retention of our existing people. We have great people internally. I think there are many aspects on HR that can create a competitive advantage as well. For instance, if we have a great learning culture. Perhaps you heard about my organization, you know we transformed ourselves a little bit over the last couple of years. So, we went to from a rather conservative industrial company into a digital company, and there you need a great learning culture. You need to have the right mindset and learning culture as the company is changing constantly and exploring new ways, et cetera. So yes, I think HR is a huge factor.

There is one thing perhaps, and I don't want to be too philosophical here, but it's not the HR department. I'm a strong believer that HR is done by every single manager. The HR department provides just the appropriate processes, guidance, policies and tools. But HR has to be done by every single manager.

7. *Do you see any barriers that would hinder the strategic role of human resource management?*

Yes, a lot of the times. Absolutely, yes.

8. *Do you mind elaborating on one or two?*

Basically, I think that we must have a common understanding. So, I think that this common understanding, this consistency, in our case at our organization where we have more than 100,000 people worldwide, everyone defines great HR skills, managerial skills and leadership skills differently. To bring that altogether that we have certain consistency, certain quality and professionalism is not so easy to establish. We are human beings; therefore, I think the interpretation of everyone is a bit different. That is certainly a challenge. I wouldn't call it a barrier but a challenge. In addition, you have tones of things that you have to do in HR. As I said before, you have to have to be very attractive for external colleagues. You have to create processes to onboard people. You have to identify the great people out there. You have to do executive search. You have to do training internally. Long story short, you have a lot of activities and no company in the world can do everything perfectly or invest in everything perfectly. So the barrier is always having to have a permanent communication and collaboration with

the management to understand what are the priorities? Where should invest more? Where a bit less? So, it is this balancing or finding the perfect balance in investing into the right areas.

9. *How do you view organizational learning (OL) as a source of competitive advantage, and the role it plays in helping an organization to meet its strategic objectives?*

I certainly see it as a strong competitive advantage. Especially because we live in the era of digital transformation. We live in an environment that change is very fast and frequently. I don't understand dramatic here, but I wouldn't even see it just as a competitive advantage it is more or less a survival strategy. So, if you don't learn, if you don't change, if you don't adapt, if you're not open to all these kinds of elements, I think it's going to be rather risky. And organizations will be not able to survive in this market. If we want to compete with all the other great companies, like Siemens and Schneider, I think we need to adapt and learn all the time.
It's not just the organizational development for me. It's more like to create in this learning culture. I believe that there is one element that I can do, together with all my colleagues, teams and managers, top-down, motivate and provide a platform for doing microlearning, et cetera. But again, we need to create this culture where everyone sees the need or necessity to permanently developed. I think that is something we have to establish.

10. *What role do you see L&D professionals playing to assist in closing the skills gaps that exist within the organization?*

That's a great question. It is really to understand the needs that are out there, from top-down, from the management, from the strategy but as well, from bottom-up. To understand where are the gaps? Where currently are the competencies that are not in place? Where do we have to change? Where do we have to unlearn? I'm a big fan of this kind of learning agility aspect of learning and unlearning things. So, where are things that currently we have in place that we need to get rid of? And learn things in a different way. So, it's really to support the organization and to understand the organization first a hundred percent. We have to make sure that we can support our employees to strategically develop them. That is our role.

11. *What is/are the most pressing skill(s) gap that exists within your organization?*

I think we're moving away from traditional kind of learning aspect. So, we don't have any more that classroom sessions and then we invite everyone, et cetera. Create a learning culture, that's for me is the key to everything, that's the base. My organization is currently still in this digital transformation and related to that, I see so many topics with regards to the learner's personality, adaptability, openness or mindset on how to approach things. So, there are many things that we have to establish. For me, it goes as well into the fact that we were going to face a new way of working rather soon. We are already in the middle of it. We have for example, a programme called 'Future of work', where we're trying to create a certain sensitivity in people and an urgency to again develop themselves permanently. They should be competitive as a company, but also competitive as an employee. We talk about the gig economy and the issue of employability, for example. I think these are topics where we should have certain sense of urgency on an individual basis, but as well on the organizational level to permanently develop our people. I have to admit that there are many topics out there to focus on.

12. *What are your views on the drivers for the adoption of microlearning in your organization?*

I think one of the biggest drivers is strategic at the moment. What is funny to observe, at least for me, I'm now 20 years in this area. You know twenty years ago, you had to read books. This entire virtual offering was not there. These days, we have a 'self-initiated' kind of learning culture. But on the other side, we have to make sure that the people are learning the right things. There is so much nonsense on the market that will not really help you to develop in the right direction. Especially on the microlearning, I have to say there are so many companies that developed a lot of microlearning elements and offering that. I think really there, the biggest driver is really to make it strategically relevant to both the individual, and as well the organization. That is going to be key because otherwise we're learning the wrong things. That sounds a bit stupid, you know. I know that 10 to 20 years ago, I always said you know you can't learn something wrong. These days I have to say, 'well, try to find a way to spend your time efficiently and effectively'. Then of course, put the right people in place, do the analysis. You have to do a proper analysis on what the competency gap is. Last but not least, for me, I still believe we are in the learning phase of microlearning. So, I'm still not always a hundred percent sure, and we have to always double check on the real impact of microlearning. For some colleagues, that's good, that's fine. I think we still think that we are not there yet where that one-size-fits-all. I think human beings learn differently. For some people microlearning is fantastic. They like it, they have an appetite, and they're willing to change. But what we found out, going back as well to your one of your question regarding barriers, looking back interestingly microlearning, very often when we have to self-registration on microlearning, we saw that people who already have great skills and are already interested in topics, they had a strong

leverage on microlearning. But the people who aren't active in training themselves were a bit missed. The differentiation between those two groups was intensified even more with microlearning. So, the driver is really everyone needing to find his or her own way to learn. Microlearning is one way.

13. *Where do you see microlearning used as a training approach, best fitting in your organization's training strategy for the purpose of skills development?*

I'm pretty proud of what we have currently, especially in some areas when it comes to these assessments. So, when you can take the strategy on the top element and combine it with a very specific assessment, so that everyone can really see learning based on these strategic competencies, 'where am I?' or even 'my manager can help me to assess where am I'. Based on that, you automatically get a proposal on what should be the development steps using microlearning or other elements. As I said, microlearning could be purpose orchestrated. But sometimes, it can be other things like, job rotation, job enrichment, job enlargement assignments or whatever. All these in combination can create the biggest efficiency and effectiveness.

12. *What are your views on creating a training implementation plan on the strategic level before rolling out a new training strategy or approach?*

Yes, whenever possible we create an implementation plan. I think really what I had to learn a little bit when I join this organization is that we really value collaboration. And that's always with the management. What we do every single year, is having our six or eight strategic top topics. This is where we say 'look, these are the elements that we want to establish'. Based on that, we see what are competency gaps that we currently have. Then, we start to work on what should we design, develop and then establish or deliver to fill these competency gaps. The strategic alignment should be always there.

This also translate through our organizational structure. The money is within the divisions. It's not on a corporate level. Whenever we want to establish some learning activity, the division has to decide if they are willing to spend money on that. Therefore, this strategic alignment is always in place. Otherwise, you won't get the money. So, I can tell my colleagues that I would love to do some microlearning here. They would tell me, 'OK, great! For what?'. So, what is the purpose?

I don't want to sound too spectacular, don't get me wrong. But when it comes to top-down strategically, I think we have that. The thing today is that individual learning has increase dramatically. In the past 20 years ago, you know there were limited classroom training. If you want to go external, you very often have to ask your boss, 'Can I have the money? Will you pay something?'. Everything was more

transparent and there was not a high amount of activity. These days, you have a million of offerings and I can't say that everyone's going the right direction. Perhaps some are learning things that I would say are not so relevant. But you can’t create a learning culture and go to people and tell them that they are learning the wrong things. That is just not doable. I think people have to develop and we have try to give them guidance. That's what we're doing with this strategic element. To give them guidance and try to set up a guideline on what they should focus on. These days, you can’t control learning. Everyone learns in different ways. And that’s good. You can try to influence it and steer it a little bit through attractive programs and offerings, et cetera.

Greetings.

Appendix E: Interview Transcript, Strategic Level Interview, Interview Partner 3, 16.07.2021, 9.15 am (Bad Zurzach, Switzerland)

Consent to record the interview: Yes.

The interview was conducted in English via MS Teams and was 32:12 minutes long.

Introduction to the interview.

1. *How long have you been working in HR or L&D?*

I would say, probably more or less, all my career. So, I started 22 years ago, and I had a dual career. I started as a management graduate, then consultant and eventually HR professional. But in my career, both as graduates and consultant, a big part of my work was about people and organization development. This is really, I would say, my area of expertise through different aspects. Sometimes, mainly through mergers and acquisitions, for acquisitions of skills or specialized skills, for example, in technology where I started my career or in business transformation. I also managed several development programmed for consultants, like fast-track talent programs. Then I moved fully to an in-house HR career in 2010. This was really when I moved from consulting in organization and people development, into an in-house HR role.

2. *Do you have a role in setting out your organization's training strategy? If so, could you kindly elaborate on your role?*

Yes, today I am the Chief Human Resource Officer (CHRO). I'm also the board member for my company for all HR topics and this also includes the people development strategy.

3. *Could you briefly describe your organization's training strategy?*

Of course, the last two years have been very special years because of the COVID-19 situation. Our company comes from a long journey. This is a company that is more than 150 years old, and this is a company that went through a lot of evolution over the years. It's an extremely international company which is as big in Asia, as it is in Europe, even though it's a European company originally. We also have presence in the Americas. Therefore, when we set the strategy, we have to really think about the fact that we are a company that has evolved constantly. So, whatever strategy we set, it must be evolving with the needs of the consumers and business. It must be quite agile. Therefore, we do not set things which are too heavy and too structured, because we want to be able to evolve them. We are also a

company with a strong heritage. This heritage also comes with owners still working in the company. This is a very special culture. Originally the culture in HR was very much set up in the entities and managed by general managers in each country. Therefore, we also must adapt our learning strategy to become more global. When I joined in the company eleven years ago, the company was not really global when it came to HR matters. So, we had to think about that and build, let's say, a global learning strategy from scratch. This learning strategy should also be international – something that is very important for us – because we must really reflect and think about different ways of learning preferences. Culturally, there are some different aspects due to different cultures. I'm French originally, I've worked around the world and spent ten years in the UK for example, and I can see how different the education system is in different parts of the world. This influences how people prefer to learn. Our company's philosophy has always been to set up an infrastructure or basis in the company to enable people to learn and develop. It has always been something very holistic and focused on learning and not training per say. Training is a component of learning, but I don't center everything around training. So, what I mean by that is, we build processes around how people can request development. What should they think about or discuss, and with whom, when they want to develop themselves? And what are the developmental measures we offer, be it an assignment or it could be a training, it could be a certification or an education. Experts in my team, we look into our academy. We do have a training academy, which is very centered around interpersonal skills. One of the things that we created, as part of our learning strategy was the core competencies because the company did not have a global appraisal system. Hence, we created from scratch a performance management system. As part of that, we created clear expectations, in terms of behaviors which were around basically seven core competencies. Therefore, what we called the academy for us is basically built around these seven core competencies. For example, one of our core competencies is around 'deliver' and 'deliver' is broken down into five expectations. So, it's about focus for people, not delivering what they want, but delivering what the company and the strategy needs. It is also a lot about effective delivery and so on. In the back of that, we deliver different training courses which backup these core competencies. One of these training courses could be, setting goals and key performance indicators (KPIs) so that there are clear expectations for delivery. This is the way it works: somebody can at any point in time raise a development request. That development request is discussed together with HRBPs, the manager of the person, the person him- or her-self, around what are the goals of development. Basically, my team either locally or globally, depending on the level of the post, look at the best learning solution for that person, so that it's really holistic. We have regular reviews. For example, if we offer somebody a management coaching, we will start with a 360 feedback and then we have recurrent 360 feedback to cross-check how the person is evolving. We also look at how we can readapt the coaching or the goals. It's really all about self-management. People are really drivers of their learning. We don't go and get people to get trained unless it's a compliance training, of course. We strongly encourage managers and leaders to follow certain training. We sometimes do make certain training for leaders compulsory, like giving feedback for example. This is

a compulsory training for all the managers because it's part of our culture. The rest is really self-managed, so people have to be proactive. We provide the infrastructure and support them and that's how we do it. I have a team of 150 HR professionals and today we have 21,000 employees. Those employees work in many different fields from production of garments, sales in stores, design to finance and IT. So, there is a strong diversification of jobs and nationalities in the company. We have people with many different levels of education. Therefore, I cannot just develop everything centrally in a vacuum. My global leadership team plus a couple of key talent from the global HR team, formed a learning council where we can work together to develop work we do globally. So, we don't operate in isolation in Switzerland with my global team. We also have workshops with the business. For example, our appraisal system was developed in collaboration with the business with workshops in Japan in Asia, and in Europe. I always try to merge everything I do, bottom-up and top-down so that we try to be as fit-for-purpose as possible.

4. *Have your organization ever implemented microlearning, as a training approach for the purpose of skills development?*

Yes, we do. We did it quite a lot in production management. At one point in time, we had a very extensive number of factories in-house, more than 15 globally. We had specific problems we needed to resolve. For our leadership program or development program, there were specific assignments that were based on specific areas of the business which was strategically in line with our global strategy. For example, how to digitalize the experience in our stores, to ensure that the experience of our consumers is really 360 no matter where they shop. These were specific topics where we wanted to first solve an issue but also upskill people in terms of approaching certain topics. We don't really call it microlearning. We work a lot through workshops especially when it comes to developing our strategy annually. We do a mid-term planning review and besides top management, we have around 200 people were involved in one aspect or another in our continuous development or mid-term planning. This is also one way in which employees can upskill themselves, in terms of how they we will get shared understanding, but also learning new skills. Therefore, a lot of our L&D is quite organic, I would say.

5. *How do you view strategic human resource management (SHRM) as a source of competitive advantage, and the role it plays in helping an organization meet its strategic objectives?*

I think it's very important that any HR department or any strategic department are really in tune with the business. This requires an evolution in the HR function. This is something I've tried to do at least throughout my career, to ensure that people think how they can be the best at what they do in HR, but always in connection with the business. We try to move away from pure theoretical HR tools or approaches. That's why sometimes we might not call it microlearning. What I found out in my career

is that, sometimes by naming things too technically in HR, we end up scaring people away. Then it's something that just belongs to HR and business doesn't really own it. So, we try to use a set of very simple approaches. I think we're really an enabler, business oriented and have a good financial acumen, as well as the people sensitivity so that's why I like to recruit people from very different career in HR because I don't just recruit only HR professionals, I like to bring people who have learnt other things. I think in the end you know we are all about enabling organizations and people. We don't do so by leading from the front. Therefore, I need people who are quite humble and I'm quite happy to share this perfect blend of business, financial acumen, and each other skills. To a certain extend its all about psychology as well, to get the best out of the organization and the people. I think you know we are there to enhance, to enable, to connect, sometimes because it's also about creating connections beyond our department. We have a chance in HR because we are neutral, and we work pan-organization. Hence, if HR is done properly, it can be a true strategic enabler in terms of creating this connection beyond top management. Top management cannot manage everything, and people might not be as open as they can be with HR. In HR, people can be hopefully, quite open and this is what I tried to create in my company. HR is not seen as a police, a blocker or as bureaucratic. Of course, we have to do what we have to do, and sometimes we have to be tough, and we have to follow processes. But I try to ensure that we also seen as a safe haven where people can come. I see that also with my team. Maybe people prefer to approach my Human Resource Business Partner (HRBP) rather than myself for HR because I'm the manager. We always have to differentiate between the role, and the person. I might be very open as a person, but I'm still the head of HR, and if this might create a barrier for certain people.

6. *How do you view organizational learning (OL) as a source of competitive advantage, and the role it plays in helping an organization to meet its strategic objectives?*

All of us, personally but also at work have to develop new skills almost every day. This is really important for individuals and for companies to survive. Beyond the competitive advantage, I think an organization with people who do not want to learn and develop goes nowhere. The world is moving faster and faster, I also believe the challenges we all face, and we saw it in the last two years require very strong resilience and very strong ability to learn fast. Therefore, I believe that it has to be a competitive advantage. But I believe that it has to be built organically, rather than, too artificially. This is challenging to do in many organizations. If it's organic, you may not see it as obviously as if you built a very hard process or a visible academy. Therefore, for the HR function, it also requires a lot of self-confidence and again humbleness to say, 'Ok, what we do might not be visible but it's actually driving a certain culture'. Learning is a lot about the culture you set in your company and the type of people you recruit.

7. *What role do you see L&D professionals playing to assist in closing the skills gaps that exist within the organization?*

I think we have to challenge and support at the same time. On the one hand, we have to be a source of positive challenge to see what other organizations are doing, providing insights, providing some thought leadership. Sometimes we need to look at different areas. Instead of looking at traditional competition, we need to look at different industries. For us, we produce and sell something which is very close to the skin. Hence, the garment industry might not always be our best inspiration. Maybe the medical world can be our inspiration. On the one hand, we have to continuously open the eyes of our organization, challenge them, and bring insights. Then, we have to support and say, 'Ok, what do you need to get there? What skills gap do you really?'. We have to conduct skills gaps analysis, training needs analysis and reviewing where we stand. I think the appraisal system is also fundamental to always understanding the gap between expectations and capability, at both the individual level and team level. I think this is what we can do, setting infrastructure and processes.

8. *What is/are the most pressing skill(s) gap that exists within your organization?*

It sounds a bit standard as an answer, but I think, digital. It's very broad, but it can be from someone not knowing how to use excel, to somebody not being at ease when they have to use teams. If you can't use all the features of teams today, or another similar application, you are lost. You can't even contribute to your normal job. I see a massive gap between the new generation, who is born with digital and do not even have to be trained or ask themselves how to do certain things, and people from 35 years old upwards who learned it at school. I'm 45. I started to learn about IT very young because I was lucky, but I learned at school. I was lucky enough that my parents supported me from a young age. At six years old, I had a computer, but we were two people in my class with a computer. If I would show you the computer, you would laugh, because they don't exist anymore. So, I think digital is really a challenge especially for us. Everything is becoming digital. From the stores, sales, or fashion advisors, they have to use iPads and create orders automatically online. The systems that they use become more and more sophisticated. Therefore, there are certain things we have to do to prepare our employees, from training them on certain applications to enabling them to feel at ease with technology. I see a big gap between nationalities. Countries which have invested a lot in technology, we don't have this issue. For example, Singapore has invested tremendously in the education of people. You can see a difference, between Singapore and other nations in Asia, but even in the rest of the world. Other skills are probably resilience and leadership. The way we lead people now is not the same as the way we led in the past. People have different expectations. The way that people interact with their bosses might be changing. Therefore, we really need to learn to lead people in a very different way. Also, many matters have gained importance, like sustainability. Everything we do now reflects on us as a leader. For example, you have

to think, ‘Okay, do I bring my team for this workshop? This is expensive and the flight is not very ecologically friendly, yet there is value in being face-to-face or do I do things differently, maybe virtually with my team.’ These things may seem really normal, but they have become really problematic issues in leadership. I still have many of my colleagues with whom I have to have constant discussion with regarding how they can connect with their people, create a rapport and trust without travelling. I also think we need to help our people develop strong resilience. We were quite lucky that for many years, life in general was quite easy. The last few years have shown that people need to be strong at home and at work. They need to have strong mental health, good stability, be conscious and mindful. They need to know when they need to stop, when they need to take care of their minds and bodies. I think this is also a new topic for organizations. Before, a lot of companies would not even have wanted to talk to their people about mindfulness. And of course, there are the hard skills gap. But they are the easy ones. If somebody doesn't know how to do something, as long as they have the potential and the right attitude, there will always be someone in the world who can teach that technical skills and we will always find a way to learn.

9. *What are your views on the drivers for the adoption of microlearning in your organization?*

I think the drivers might not always be the right reasons, but in the end, it serves a purpose. Sometimes people do it because they see cheaper and more pragmatic. Cheaper because they get immediately something for their money. For training you invest a lot of money, but it might take a long time before the company see the return on investment. They may never see it, in fact, if people do not really expand beyond the training course in how they apply the skill. That's why I don't really believe in pure training or one-shot training. I believe that this is not very good value for the individuals and for the company. It has to be something that requires you to prepare for a training or follow-up after the training to ensure that the skills taught are really anchored and applied on-the-job. Therefore, microlearning has given organizations a chance to do more learning in a way that the business accepts it. Businesses have pressures on cost and time. Whenever HR comes with yet another initiative, the business says, ‘Well, we don't have time and we don't have the budgets for it and why should we do this?’ Therefore, microlearning is a great way to open up the power of learning without creating fears of cost, or waste of time or lack of return of investment.

10. *Where do you see microlearning used as a training approach, best fitting in your organization’s training strategy for the purpose of skills development?*

For us, at the moment, where microlearning works the best is in our annual review cycle. By getting people onto the strategy and mid-term plan, getting them engaged in it so that they know what to do and how to implement it. This is probably the most efficient way for us. There's been specific functions

where we found training in functional or technical skills quite helpful, like manufacturing or more process driven. I would say more process driven functions. For example, design, manufacturing, maybe logistics. So, either very strategic or very operational.

11. *What are your views on creating a training implementation plan on the strategic level before rolling out a new training strategy or approach?*

We always did this. So, when we created the academy, for example. We develop things cross-section of our organization. Before we develop something, we get endorsement from the board. I am also very fortunate to be one of the board members. I'm part of the holding directly to with our CFO and our owners. I'm part of five people really driving the company together with the business. The business belongs to the extended board. From that perspective, anything we do in HR is probably treated at the highest level possible in terms of strategy. That's the positive side. The downside is that it is very visible. This means that maybe some of my colleagues in other companies, who do not have a role like mine, might be able to run certain things below the radar or because they get budgets. I will not do that. Whatever I do will be endorsed at the highest level possible to ensure that this is really owned by everybody in the company.

Greetings.

Appendix F: Interview Transcript, Systems or Operational Level Interview, Interview Partner 4, 06.07.2021, 7:30 pm (Singapore)

Consent to record the interview: Yes.

The interview was conducted in English via MS Teams and was 38:01 minutes long.

Introduction to the interview.

1. *How long have you been working in HR and L&D?*

I have been working in HR for approximately 10 years. I started as a generalist in HR at Keppel Corporation in Singapore for one year. Then, I went over to the Middle East, and I was there for three years. After that I switched over to Talent Management and Compensation and Benefits for the next three years in the Middle East. After that, I left Keppel Corporation and went over to Mount Alvernia Hospital in Singapore where I was doing L&D for a year. Then, I moved over to my current organization for around five years in Talent Management and L&D. Recently, I took up the whole HR portfolio in Singapore.

2. *Could you briefly explain if your organization has incorporated microlearning as a training approach for the purpose of skills development?*

For microlearning, it is currently going by phases. To keep up with the competition and industry standards in the semi-conductor industry, we must always keep up with the changing needs of our customers. Right now, we have started with subjects that involve more general knowledge. For example, topics on safety, lean management and ten quality golden rules. These are basic topics that employees need to know. So, they can first learn the topic, and afterwards use microlearning to reinforce what they learn. At any point of time should they forget, they can actually just go and look up the microlearning courses to refresh their memory. With regards to the particular tools and platform used, my organization uses Articulate 360 as the authoring tool to author the microlearning, and the LMS that we will be using is Cornerstone. Right now, the SCORM file sits in Articulate 360, and we are currently using it to view the content. But in the future, the SCORM file will be sitting in Cornerstone. Cornerstone is a LMS, while Articulate 360 is a course authoring system. To give you a clear idea, I would use the analogy of a library. Articulate 360 is the books in the library, while the LMS, in this case Cornerstone, is the library. Within the LMS, there may be a recommender system for microlearning, which facilitates and simplifies the learning experience. The LMS uses a way to make the whole learning experience smoother and easier. It has nothing to do with the content, the content is authored using Articulate 360.

On top of what we are currently doing, we are actually having a conversation with LinkedIn learning and Udemy to see if we can purchase content. So, currently content that have been authored in-house have been created for the purpose of reinforcement. However, for training of new competencies, like programming or coding, employees can look for content from MOOC providers like Udemy. My organization is currently reviewing how we want to utilize this platform. Currently, we are facilitating this by asking employees to sign up their own individual accounts and we reimburse them. Employees can actually subscribe to MOOCs like LinkedIn Learning for say a period of three months and we pay them through expense claim. The good thing about online learning is that employees are accountable to further enhance their knowledge and competencies through these platforms. They also have an ownership to learn and are accountable for their own performances. In the future, HR will have lesser involvement in terms of going to search for the courses, sending employees for these courses and administrative work like course registration. All these tasks will be eliminated as the employees will do it themselves.

3. *From your past experience, what would you say are the factor(s) for the successful implementation of microlearning as a training approach for skills development?*

The success factor is really based on the change management that HR actually contributes. If you were to just implement something without proper communication and without proper selling, then it will be a problem. So, for example if you were to implement an online learning platform and you don't really advocate it, and you still send employees for external training, then this will kill your online platform. Instead, if employees can address certain competency gaps through online learning, HR should advocate that they should use online learning instead of going through external training. So, making employees used to these platforms is one of the ways to making the implementation of microlearning successful. So, it is important to communicate to employees on the different platforms in which they can learn, and HR should advocate it strongly. But what is most important is the management buy-in. So, for example the internal created courses, I have an attendance tracking sheet to make it mandatory for employees to attend and the management can push employees to participate in these courses.

4. *I would like to clarify the term online learning. May I know if you are referring to microlearning as I have defined earlier?*

Yes. Actually MOOCs, like LinkedIn Learning and Udemy, utilizes microlearning concepts. They may be extensive courses of 16, 20 or even 24 hours but they are broken down into bits and pieces that allow learners to consume the content in five-minute intervals. So, in a way, Udemy, LinkedIn Learning and Articulate 360 fall under the umbrella of microlearning.

5. *In this case, would you use the term online learning and microlearning interchangeably?*

No. For example, schools are currently adopting online learning in which students attend virtual class taught by a teacher. There is also scheduled lessons. I would not consider these online learning. So, online learning is microlearning, as long as, there is no scheduled time for learners to learn. Learners must be able to learn at any point of time, then I would consider that as microlearning.

6. *From your past experience, which examples/modalities of microlearning (e.g., text-based resources, eLearning modules, videos, infographics, podcasts, mobile apps, gamified modules and/or social media) is/are the most preferred by MNCs/your organization for the purpose of skills development? Please explain your answer.*

Text-based, definitely but if it is too wordy, people will not read. Videos are more popular. Through the feedback of employees, usually they would comment such as 'this video is good'. If they comment on something about the content, usually it is related to the interactiveness of the courses. With regards to gamification, we are not using very complex games to learn, but rather, we use simplified games such as points, quizzes and badges at the end of the module to check if learners achieved the learning objective. It is a simplified version of gamification.

7. *In your opinion, what are the main benefits and limitations of microlearning as a training approach for the purpose skills development?*

For skills development, employees can learn at their own pace and microlearning helps to reinforce learning as well. For example, if they forget, they can go back to the microlearning course and run through it again. This is unlike when you go for external training, once it ends, the teacher is gone, and you have thrown away all the reading materials. But with microlearning, the content is always there, in the cloud and you can access it anytime. Hence, it reinforces learning. For example, if I want to refresh my memory on the appropriate password length or cybersecurity topics, I can simply go to the learning platform to get all these information. This is unlike traditional forms of learning using books and notes, that I would most likely have thrown away by now.

The limitation lies in how it is being perceived. People will view microlearning as something that is cheaper in value. It is definitely cheaper because of the economies of scale. One course might be able to house maybe a hundred users, whereas for external learning, the participant size is limited to the size of the class. That is why microlearning is definitely cheaper due to the reasons of economies of scale, but the perception remains that microlearning is of a poorer quality or a 'poor man's learning resource'.

This perception exists even till now. Unless this perception is gone, it will always remain a problem. Unfortunately, people still put a premium on physical training, like external learning.

8. *From your experience, what have been the most highly demanded content/training areas (e.g., hard/soft skills training, practical-skills training, topical issues and/or domain-neutral topics) that MNCs/your organization are using microlearning for, in the area of skills development?*

To be honest, for soft skills, microlearning might not be the best platform to learn. So, for example which we were talking about leadership, you can watch a TED Talk for leadership to reinforce something. But the interaction with the facilitator through external learning is very important. Learners can ask the facilitator questions on how he or she excels as a leader and practice case-studies. For soft skills like leadership, it is important that training is conducted externally. For example, when I set up team building courses, which is also a soft skill, we make it such a way that the course includes games and some physical activities. You can learn team building theoretically but to actually have a hands-on experience, it is more useful to have more practical lessons than microlearning. Microlearning buoys down to just theory. For soft skills, you can do microlearning, but it should be blended. For instance, with regards to functional or technical skills like programming and artificial intelligence, to be honest, my opinion is that you don't need external training. I recently took a specialist diploma in artificial intelligence. If you asked me if I learnt more at home, looking at my notes and listening to the lecturers at school or experimenting? I think I learn more at home by learning online. So, some things are more catered towards online learning, like microlearning. While some things are more catered towards external training. It all depends on the content itself. In terms of programming languages like Python, all these technical skills are better taught through online learning, like microlearning.

9. *In your view, what are the strengths and shortcomings of traditional instructional design models (e.g., ADDIE and SAM)? How has microlearning in the context of Web 2.0, been integrated into traditional instructional design models to leverage on its strengths and minimize its shortcomings?*

Microlearning leverages on the strengths of these models through retention of knowledge. So, when it comes to on-the-job training and blended learning, microlearning comes in to reinforce the knowledge. Microlearning serves as a very powerful tool to refresh learners' memory. To be honest, if you ask me to write a program, do up a recommender system or do an AI to predict something, I will not be able to do that right away. I will still fall back on YouTube and the internet to look up the codes. Right now, due to the nature of learning itself, microlearning is always there. This is especially so for IT programming. All the information is found on the internet. It is not like in the past where learners have to memorize codes. In simpler terms, knowledge was limited in the past. Hence, learners can still

commit things to memory. But knowledge is so vast these days. This is why microlearning has become a necessity because it refreshes your memory by delivering only the most important information in real time.

I'll give you an example from Republic Polytechnic in Singapore where I earned my specialist diploma in artificial intelligence. My course had ten lessons. We had six to seven lessons through physical instruction or teaching, and three or four lessons taught through online learning. I believe they also used Articulate 360. So how this changes the way the course is delivered is that there is an additional platform to enforce knowledge using online learning. When it comes to training itself, you don't have to rely on physical training alone.

10. *In reference to the adapted instructional design model by Dolasinski and Reynolds (2020) below, how could elements of microlearning be integrated into each stage, from the development stage through to the evaluation stage?*

As a trainer, if you are told to train learners on for example, the 5S system, and you need to develop the curriculum, at that point in time you will have to decide if you want to conduct physical training or utilize an online learning platform. Trainers will have to explore what are the platforms which they would like to conduct the training. Microlearning is one such platform. In my opinion, microlearning can come into play after a physical course itself to reinforce certain knowledge. For example, I conducted a physical training entitled 'Manager's Essentials' for all managers but I also gave them this microlearning platform where I created microlearning courses that correspond to this course. At any point of time the managers want to reinforce the knowledge, they can go in and review the course in short, bite-sized modules without taking a lot of time away from work.

11. *From your past experience, what have been the main reasons for the use(s) of microlearning as a training approach for skills development by MNCs/your organization (e.g., preparation before a learning activity, follow-up to support a learning activity, stand-alone training and/or performance support)?*

Microlearning is used a lot for the reinforcement of learning after the main learning activity, such as a workshop or webinar in my organization. For other trainings such as lean management and 5S, we have already communicated one way or another through plant communications and through training workshops.

12. *How do MNCs/your organization evaluate and measure the change in learning, behavior and/or performance improvement(s) after engaging in microlearning on the learning*

experience/learning management platform? How do MNCs/your organization evaluate its training/learning development efforts and how organizational learning affects the business? Please specify any evaluation model(s) or framework(s) used.

With regards to evaluating learning and performance, we use Kirkpatrick. After the training, we use a training effectiveness form. This form helps to ascertain if employees found the training useful and whether or not they become more competent after they have attended the training. The second level is through the managers. This stage is done more informally during the management meetings, we run through the feedback and comments. If it is a general course, we will just ask generally the Head of Departments (HODs) on whether their employees' behaviors have improved. For more specific courses, for example, SQL training using online learning, we will have projects for them to see if employees can utilize the skills that they have learnt.

We do not have any evaluation for the training development efforts as we consider whether the trainer or the course developer itself, whether or not it is their full-time job or not. If it is their full-time job to develop the course, then of course, there should be an evaluation on the training program itself. But right now, we are leveraging on subject-matter experts which I don't think should be evaluated as their efforts to create the course is much appreciated.

Greetings.

Appendix G: Interview Transcript, Systems or Operational Level Interview, Interview Partner 5, 07.07.2021, 11:30 am (Wiesbaden, Germany)

Consent to record the interview: Yes.

The interview was conducted in English via MS Teams and was 19:27 minutes long.

Introduction to the interview.

1. *May I know more about your professional background? How long have you been working for your organization?*

I have been working for my current organization for the past three years. I'm a Business Development Manager for the DACH region, the German markets.

2. *Could you briefly explain how your organization has incorporated microlearning into its enterprise learning platform for the purpose of skills development?*

Typically, microlearning is used when you have clear learning demands. You can access the platform and search for something, you find something, and you consume it. We combine every learning entity, every learning goal, event, or web-based training, and it's combined with a skill or competency matrix in the backend. Every entity is somehow either combined by data, with an xAPI statement, with a learning record store over this skills matrix. So, this kind of data, we use for example, for personal recommendation. Other relevant or interesting microlearning entities or learning boards for this learner.

3. *May I clarify if the SCORM files, or training content is seated on your organization's learning platform?*

Yes, the platform could be something like a SCORM package which is hosted at our platform. But it could also be a LinkedIn Learning video as well. It is findable by our platform when its integrated. You can integrate every content marketplace into the platform. So, you have one portal to find everything. If I search for example, for 'marketing', I either find this one file or find the YouTube video somebody curated into the platform because of the topic 'marketing'. We leverage the xAPI or Tin Can API for that as well. I don't know if you know it, but SCORM is 20 years old and there is xAPI which is 10 years old. xAPI is the follow up standard for SCORM. It's in our DNA. So, we have a rapid authoring tool which everybody can you use to develop their own learning content like web-based trainings and it full xAPI compliant.

4. *From your past experience, what would you say are the factor(s) for the successful implementation of microlearning as a training approach for skills development?*

Well, it's difficult to say because there are many factors. Of course, you have to have like a great platform which is leveraging user engagement, so people go there. If there is no use for the users or learners, then you invested a lot of stuff top down into like a platform and it's not working. So, I would start with a good UX design from that perspective that you create a valuable platform where users know that they can learn and will be there because they find value there. So, I think this is a crucial factor.

5. *From your past experience, which examples/modalities of microlearning (e.g., text-based resources, eLearning modules, videos, infographics, podcasts, mobile apps, gamified modules and/or social media) is/are the most preferred by MNCs/your organization for the purpose of skills development? Please explain your answer.*

No, I think everybody wants to have videos, of course, but that's expensive. It's still the typical small slide, PowerPoint presentation style, web-based trainings. I don't see any preference, but many tend to go to video. But in multinational corporations, that's expensive. So, a good point is that it is not coming from the entity learning goal, rather, it is coming from the perspective that in every company, there are people who train others. And if you give them the right tools, they don't have to be a full-blown trainer, but simple an employee who mentors or train others. And if you give them the right tools, they can create content and you can measure if it is valuable and used by others, for example. And from that perspective, you create a content repository built by others where you can leverage like the most valuable microlearning.

6. *Would you say that these points that you've just mentioned are the benefits of microlearning?*

I think there's not much benefit of microlearning. I think we are trained to do it because of the digital word. Benefits? I mean, if you have the possibility to find content in a corporate structure, like you do on Google and YouTube? It's perfect. That would be a benefit.

7. *May I clarify if you view trainers authoring their own training content as a benefit of microlearning?*

I mean people do it anyhow. They use PowerPoint to do it or do it and face to face trainings, which you don't call as trainings, but mentorship. If you have a platform where you can give them a value to do it, and you collect that information in the digital repository, and you can track it by data, and you can reuse

it? That would be definitely a benefit. You have to make it trackable. I think a crucial point in our world is data.

8. *Do you see any limitations that users or learners experience using this platform or the approach of learning through microlearning?*

No, not from my experience at the moment. I think if you have like compliance relevant stuff which is complicated, you cannot use microlearning. That is the only thing. There's no way to do it.

9. *From your experience, what have been the most highly demanded content/training areas (e.g., hard/soft skills training, practical-skills training, topical issues and/or domain-neutral topics) that MNCs/your organization are using microlearning for, in the area of skills development?*

Yes, if you have a learning community on certain topics, then I can see that. But if you have like compliance relevant stuff or security or hygiene or whatever, employees have to prove that they have done the training.

10. *In your view, what are the strengths and shortcomings of traditional instructional design models (e.g., ADDIE and SAM)? How has microlearning in the context of Web 2.0, been integrated into traditional instructional design models to leverage on its strengths and minimize its shortcomings?*

Actually, I have never seen it. It is completely new, and I learnt something.

11. *Is there a methodology in developing microlearning modules on this platform?*

No, I think it's completely like learner or company driven. So, we filled the demands of these learners. There is no higher model in it. But I don't know. Maybe you have to talk to the UX designers, but I don't know.

12. *In reference to the adapted instructional design model by Dolasinski and Reynolds (2020) below, how could elements of microlearning be integrated into each stage, from the development stage through to the evaluation stage?*

I think from a practical approach, you have to give like from the first week, access to the instructional designer so that they can pack content in it, accordingly to the content's manager. When you have the right functionalities, for example, parts of a video relevant to your learning demand then it doesn't

matter because in any stage, you can leverage these features to fulfil your need of learning. You have to combine it on a functional level – that you can earn strictly compliant way – but you can also access microlearning based on your learning demands. You have to offer the right functions of this software or this environment to access the content in that way. So that it is not packed in a hundred core slide deck, but you can access these little, tiny pieces. If you have like old videos interviews with engineers, two hours long, there is a lot of knowledge inside, but there's no way to approach it on the microlearning perspective from the learner. So, you have to deliver that functionality and artificial intelligence who will get the context of the spoken words. And if you search by text, you can be pointed on the exact spot of that video.

13. *From your past experience, what have been the main reasons for the use(s) of microlearning as a training approach for skills development by MNCs/your organization (e.g., preparation before a learning activity, follow-up to support a learning activity, stand-alone training and/or performance support)?*

From my own philosophy, I wouldn't build siloed microlearning content somewhere. I would create a platform with a one shop environment where I can fulfil both needs.

14. *Could you elaborate on what you meant by both needs?*

Yes, the classical learning and course work and making certifications. On the other hand, the micro-learners who consume bite-sized packages of content. I wouldn't create two separate silos for that. I would search a unique way to leverage them.

15. *How do MNCs/your organization evaluate and measure the change in learning, behavior and/or performance improvement(s) after engaging in microlearning on the learning experience/learning management platform? How do MNCs/your organization evaluate its training/learning development efforts and how organizational learning affects the business? Please specify any evaluation model(s) or framework(s) used.*

I think you should really have a look at xAPI. We do it based on data, and very detailed data which we collect in their own learning record store, on the platform. So, we have the data on the activities of the learners to a granular level, far beyond what SCORM was capable of. xAPI is the technological answer on this kind of problem. That 80%, or 90% of learning happening in the real world is not trackable. xAPI allows you to expand the data model above the whole learning ecosystem, and you can track if the learner reads a book and marks it in the system or if somebody using a virtual reality simulation learnt something there. You can blend it in one learning path. That is what we do based on the xAPI

model. With this, you can track everything that happens on the platform. In the end, you can create so many data points in your learning ecosystem that you can use this data to a correlated with your KPIs automatically, and practically.

Greetings.

Appendix H: Interview Transcript, Systems or Operational Level Interview, Interview Partner 6, 12.07.2021, 3:30 pm (Ayutthaya, Thailand)

Consent to record the interview: Yes.

The interview was conducted in English via MS Teams and was 15:09 minutes long.

Introduction to the interview.

1. *How long have you been working in HR and L&D?*

I have been working at my current organization for around one year and nine months in the area of people development and employee experience management. I have around 20 years of experience in various companies in Thailand.

2. *Could you briefly explain if your organization has incorporated microlearning as a training approach for the purpose of skills development?*

The offices in Thailand still use traditional training such as classroom training and lectures. I think the culture and the environment of each company matters. In Thailand, people still don't like online learning. I don't know about other countries. In Thailand, employees are taught mainly through classroom training.

We are developing online learning. It is developed by the global HR. We align with global HR.

3. *I would like to clarify the term online learning. May I know if you are referring to microlearning as I have defined earlier?*

My understanding of microlearning is short video training. I see microlearning as part of digital learning or online learning. It is interesting for learners because it takes a short while to learn and is not boring. My understanding is that microlearning is one type of online learning.

4. *As your organization has not rolled out microlearning in Thailand, could you share with me what could be some examples or modalities of microlearning (e.g., text-based resources, eLearning modules, videos, infographics, podcasts, mobile apps, gamified modules and/or social media) that might be preferred by your organization for the purpose of skills development? Please explain your answer.*

I think we should start with bite-sized video-based content with animation which is more interactive for learners. We should not start with a long series of training courses. I should be easy to understand. Maybe we can include videos and games on smartphones.

5. *In your opinion, what are the main benefits and limitations of microlearning as a training approach for the purpose skills development?*

I think it is beneficial to organizations as it helps organizations to save costs. Learners or employees can learn anywhere, anytime.

The limitation of microlearning is the change behavior of learners. It takes time to transform their behavior.

6. *Could you share with me what could be some examples of highly demanded content or training areas (e.g., hard/soft skills training, practical-skills training, topical issues and/or domain-neutral topics) that your organization can use microlearning for, in the area of skills development?*

Many companies forget to develop their employees on soft skills. There are two parts to soft skills training. The first part covers knowledge, and the second covers real-life practice. So, the management of each company can allow their employees to go for knowledge training based through online learning. However, there should be classroom training for practice on soft skills. For example, for communication training, learners are taught about daily communication practices, communication process and other concepts of communication. They can learn these through online learning. Once they have been trained on the knowledge of communication, it does not automatically mean that they are good communicators. Hence, they have to practice more in the classroom.

For hard skills, online training like microlearning, with a focus on knowledge training might be enough.

Online training, such as microlearning, which is more theory focused may be sufficient for hard skills training.

7. *In your view, what are the strengths and shortcomings of traditional instructional design models (e.g., ADDIE and SAM)? How has microlearning in the context of Web 2.0, been integrated into traditional instructional design models to leverage on its strengths and minimize its shortcomings?*

Sorry, I have not heard of these models before.

8. *In reference to the adapted instructional design model by Dolasinski and Reynolds (2020) below, how could elements of microlearning be integrated into each stage, from the development stage through to the evaluation stage?*

Sorry, I don't know.

9. *From your past experience, what have been the main reasons for the use(s) of microlearning as a training approach for skills development by MNCs/your organization (e.g., preparation before a learning activity, follow-up to support a learning activity, stand-alone training and/or performance support)?*

I think microlearning should be combined with online learning and physical workshops in some subjects.

10. *How do MNCs/your organization evaluate and measure the change in learning, behavior and/or performance improvement(s) after engaging in microlearning on the learning experience/learning management platform? How do MNCs/your organization evaluate its training/learning development efforts and how organizational learning affects the business? Please specify any evaluation model(s) or framework(s) used.*

We have a training evaluation or follow-up done after the training. We do conduct training evaluation based on a KPI related to learning and development.

Greetings.