

**THE UTILISATION OF ARTIFICIAL
INTELLIGENCE ALGORITHMS IN THE
LEARNING AND DEVELOPMENT SYSTEM
BY HUMAN RESOURCES MANAGEMENT
PRACTITIONERS:
IN THE UAE GOVERNMENT SECTOR**

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Declaration

I hereby certify that the present thesis is the result of my own independent work and original research. All content contained within, unless explicitly referenced or acknowledged in the text, has been conceived, developed, and written by me alone. I affirm that this thesis has not been submitted, in whole or in part, for the award of any other academic degree or professional qualification, except where such submission is clearly and specifically indicated.

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This work is dedicated to the cherished memory of my father—may his soul rest in eternal peace. His wisdom, integrity, and unwavering belief in the power of knowledge have been a guiding light throughout my life. Though he is no longer physically present, his spirit continues to inspire and accompany me in every endeavor and achievement.

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Table of Contents

Abstract.....	1
Introduction.....	2
Literature Review	10
Human Resource Management in Government Sectors	14
The Learning and Development Systems	23
The Technological Affordances of Artificial Intelligence.....	32
Methodology	55
Research Philosophy.....	56
Research Strategy	59
Research Design	60
Ethical Protocols	61
The Pilot Study.....	63
The Main Study.....	71
Data Collection	72
Data Analysis.....	82
Findings.....	90
How Human Resources Management Participants Engaged with Artificial Intelligence.....	90
Artificial Intelligence as A Tool	93
Artificial Intelligence as A Decision-Maker	102
Artificial Intelligence-Algorithms as A Mystery	110
Challenges Human Resources Management Participants Face Engaging with Artificial Intelligence Algorithms, Actions and Suggestions.....	121
Facilitation limitations in Resources in the Systems, Financial and Managerial Barriers	124
Human Resources Management Practitioners' Limitations.....	139
The Participant's Actions Toward Their System Challenges.....	144
Suggestions for Government.....	147
Conclusion	157
Theoretical Contributions	158
Technological Affordances	159
Practical Implications.....	162
The limitations.....	166
Recommendations	167
References.....	173
Appendices.....	219

Figure 1The Percentage of Nationals and non-Nationals in the Government Sector (Data Source: Waxin and Bateman 2016)	3
Table 1: The Pilot Study Participant's details.....	67
Table 2:The Main Study Participants' Details	79
Table 3:The data structure for the analysis of participants' interpretations of AI algorithms with their L&D system.....	91
Table 4: The challenges that HRMPs face in L&D and their actions and suggestions	121

Abstract

The world has witnessed changes in the last century, owing largely to technological advancements and this has impacted government sectors in different countries with increasing adoption of these technologies in various ways. The United Arab Emirates (UAE) has quickly adopted Artificial Intelligence (AI) as a valuable tool for efficient services. A use case of this is in Human Resources Management (HRM), where Human Resources Management Practitioners (HRMPs) are instructed to utilise it, such as in their Learning and Development System(L&DS).

For seven years while working within a government organisation, I explored the technological affordances (TAs) of AI-algorithms within the L&DSs in UAE ministries at a basic level, thus aligning with this research to identify the effectiveness of AI-algorithms on HRMPs' levels of Knowledge, Skills, and Experiences (KSE). It also seeks to determine the current challenges of utilising AI-algorithms in L&DSs, as well as the specific actions HRMPs take towards addressing these challenges in the UAE government.

The result of in-depth, qualitative online interviews is that HRMPs understand AI differently as a tool, or as a decision maker, while Algorithms were regarded as a mystery. Through their engagement with AI in L&DS, they reveal their level of understanding while also sharing the system's limitations. Some of these challenges include separation systems, multiple screens, and slow operations. The real cause, however, lies with the HRMPs who design systems at a basic level. HRMPs in different ministries suggest mitigating these challenges by integrating AI into a unified and standardised system.

The implications of these findings suggest the creation of a Learning Centre, which may reduce the HRMPs' time and effort instead of engaging with different L&DSs. The Centre could help them invest their time by enhancing their KSE and continuing to design and develop the Learning Centre in the future.

Keywords: HRM, HRMPs, L&D, AI, Algorithms, TAs.

Introduction

The United Arab Emirates (UAE) government announced the launch of Artificial Intelligence (AI) at the beginning of this millennium, guided by its leadership's vision to be one of the first countries to implement this project in the government sector (UAE, 2023).

The UAE's vision is to become a global leader in AI by 2031, as its leadership recognises the potential of AI to enhance the country's economy and transform its industries (National Program for Artificial Intelligence, 2020). A key aspect of this vision is to embed AI in the government's Learning and Development (L&D) (Ahammad 2017), system and services (Al-Khouri, 2012); however, the rate of adoption has been low in this sector due to challenges around the design and implementation of the technology.

This research seeks to answer the question, 'Why are there challenges in the adoption of AI in the L&D system (L&DS) of the UAE government sector?' This has become a significant problem, as Human Resources Management Participants (HRMPs) in UAE ministries are burdened by the current government's L&DS, which faces a myriad of challenges. The system is at a basic level, with limited resources for integrating AI-algorithm affordances, thereby consuming HRMPs' time and effort. It is, thus, considered an unhealthy system (Al-Mazrouei 2022).

Most of the problems were uncovered in the pilot study, which helped to explore and develop the research questions (RQs). The pilot study refined the research objectives and questions, highlighting its core focus: how the utilisation of AI-algorithms affects HRMPs' levels of knowledge, skills and experiences (KSE) what challenges the HRMPs currently face when engaging with AI in L&DS, and how they are effectively addressed? Adopting a Technological Affordances (TAs) approach, an analysis was conducted of HRMPs' understanding of AI and algorithms and their engagement with these technologies in L&DS.

This research might help HRMPs to understand their KSE better to achieve their tasks effectively and efficiently (Ramachandran 2003; Alnaqbi 2020) by reducing their effort and cost (Becker et al. 2001) within a limited timeframe (Brandenburg and Ellinger 2003). This chapter introduces the UAE's culture and briefly summarises the research chapters.

The UAE Culture and regulations

In 2019, the UAE established an L&D framework to explore techniques and emerging patterns to illuminate the networks of HRMPs within their communities and the world. The goal is to enhance their capacity for collaboration in solving problems and to encourage the development of a lifelong mindset, which necessitates relevant skills in L&D methods. More specifically, it aims to prepare them for the future since changing people's mindsets requires continuous learning and access to information. "To foster these skills, teachers in the UAE will need to become lifelong learners themselves - role models who continuously update their own skills and knowledge" (OECD 2020, p2). HRMPs can be compared to teachers, as they both conduct learning programmes and possess similar KSE to deliver training courses. Both are required to develop their KSE before developing other KSEs in the UAE.

The UAE accommodates vast numbers of foreign workers. According to the Federal Authority for Government Human Resources (FAHR) (2014), "In the UAE, people from all over the world live and work in a multicultural melting pot" (Bealer and Bhanugopan 2014, p. 297). There are more than 200 nationalities working in the country. The number of migrants exceeds that of citizens. Indians represent the largest group of expatriates in the country, followed by Pakistanis, then Bangladeshis, other Asians, Europeans, and lastly Africans (UAE 2023). Furthermore, government organisations (GOs) contain 46% noncitizens and 54% citizens, according to the 2009 survey (Vazquez Alvarez 2010; Waxin and Bateman 2016). However, no information or studies have discussed the nationalities of HRMPs in the UAE GOs in HRM or L&D functions. Yet, it is important note that culture and regulations are among the core elements driving social growth and diversification in the UAE (TDRA 2024).

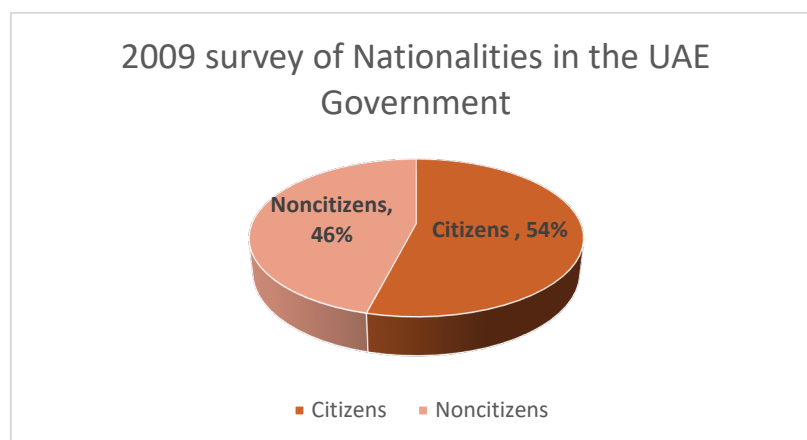


Figure 1 The Percentage of Nationals and non-Nationals in the Government Sector (Data Source: Waxin and Bateman 2016)

Culture plays a significant role in helping non-citizens adapt to life in the UAE. An example of this is how an American operates HRM in Arab countries and adjusts to fit the UAE's cultural context (Anwar 2003). An American must understand the UAE culture, people, and politics in the region to succeed (Saleh and Kleiner 2005), and the philosophies and practices (Vaiman and Brewster 2015). An expatriate who is new to a role without understanding the culture has either not yet adapted or is slowly adapting, relying on the culture he is familiar with as it is more convenient. However, he faces difficulties that impact his performance (Al-Mazrouei and Pech 2015). Harrison and Michailova (2012) stated that some authors differentiate between Arab and Western cultures across most cultural values.

According to Alhadhrami (2013), the positive aspects of the Western style in L&D function can be linked to the gap between Middle Eastern and Western cultures (Branine, 2004, 2010) as culture influences KSE in various ways (Brett et al. 2006; Den Hartog et al. 1999; House et al. 2004; Hunt 2002; Lin and Miller 2003). This affects the cultural values of both Middle Eastern and Western countries. Integrating culture with employees is crucial in ensuring that they possess cultural knowledge and can utilise technical resources to achieve governmental goals effectively (Hofstede 2010; House et al., 2004). In recent times, many Middle Eastern countries have adopted L&D models from Western nations (Budhwar and Mellahi 2018), which now stand in stark contrast to the cultural models prevalent during the golden ages.

The UAE GOs regulations focus on spending time with employees to ensure an understanding of their needs. The GOs structure serves as a logical framework that guarantees transparent information is accessible to all in an orderly format, whilst also updating government systems as data become available. Moreover, they employ anecdotes and stories to illustrate logical arguments through effective communication and inspiration. Thinking objectively and logically, and acting decisively in making independent decisions, necessitates a clear structure and logical flow within the HRM systematic process, as each aspect requires justification and clear explanation (UAE Federal Authority for Government Human Resources 2012) to enhance government employees' KSE.

This section has briefly presented the UAE's vision of becoming a global leader in AI technology by 2031. It has outlined the UAE's culture, regulations, and efforts to enhance services and systems in the sector. Meanwhile, it discusses the L&D framework aimed at improving the skills of government employees. The UAE hosts over 200 nationalities in the

country and employs them in the government sector, with a nearly equal ratio of citizens to non-citizen employees.

Human Resource Management

According to the CEO of Pfizer, HRM is one of the most critical functions in organisations, and the level of professionalism of HRMPs is important within any organisation (Bourla in Harbert, 2021). However, HRMPs need to possess appropriate skills to support their employees. Based on Kropp (Group vice president and chief of research in the HR practice at Gartner, Harbert 2021), a key challenge they face now is how to understand what their employees are facing, whether in or outside work. This results in an inability to manage certain situations effectively and a failure to properly train employees on new models beforehand (Hancock and Weddle, 2023).

Although HRM is an important function in organisations, in the new world of work that involves flexibility and resilience, it is still not defining and developing new skills, nor proceeding to enhance what is expected from them as per (Bourla in Harbert 2021). The core challenge HRMPs commonly face is an extended gap between the required skills of a particular job and existing skills. A survey by Signature Research (2019) found that 56% of HRMPs in the USA reported a moderate to severe lack of skills. In addition, the 2021 Workplace Learning Report from LinkedIn Learning indicates globally that about 60% of HRMPs suffer from a skills gap (Zeidner in Harbert 2021), suggesting that HRMPs are the most challenged in 2021.

Hijazi et al. (2021) claimed that some HRMPs avoid some roles due to inexperience. For instance, an HRM director stated that she took her role from the fun and luxury side of HRM. She prefers to focus on certain roles and overlooks others in HRM. She also does not focus too much on disciplining and punishing employees. While she explained that she avoids certain HRM roles that are not her forte, she, however, finds herself responsible for them. She has a manager who manages employees' payroll, benefits, and some administrative tasks or other 'leg work', as she described it. While she is involved in some strategy plans, there is someone else directing the day-to-day HRM processes.

Surprisingly, this HRM director got her position indirectly after a career in retail jewellery, school teaching, and manufacturing. She taught science in a school before moving to a middle school, then she was hired as an L&D director in a manufacturing environment in New Orleans.

Lastly, she became an HRM director at Big Easy Blends. She holds an MBA and has gained experience both in school and through networking, leveraging her enrollment with the Society for Human Resource Management (SHRM) to learn from other HRM professionals and guide her into roles where she may not have a strong fit (Roth, 2024). Yet, the HRM function is significant in organisations; however, HRMPs face difficulties in managing some situations and implementing the right L&DS, content, or new models for KSE developments. The L&D government system adopted AI from a basic standpoint due to HRMPs' limited KSE, which has led to many challenges in engaging with them.

Artificial Intelligence Algorithms in Human Resources Management Functions

Intelligent cloud computing, applications, and technologies—specifically the emergence of a new technology called Artificial Intelligence (AI)—have become more prominent (Gao et al. 2021). AI depends on algorithms, which have gained increasing popularity worldwide (Goleman et al. 2013; Almarzooqi 2019) due to their ability to analyse vast amounts of data. This, in turn, necessitates the development of relevant systems, particularly in HRM, to transform its functions.

This advancement may enhance and influence skills such as conscientiousness (Cheng and Hackett 2021). Pizurica (2020) explains that AI encompasses various concepts with complex terminologies, like reinforcement learning, smart agents, unsupervised learning, evolutionary algorithms, and knowledge modelling, 'including fuzzy logic and Bayes nets. In this context, the approach to achieving desired results is gradual, developing over time and incorporating utility through optimisation or convergence.

AI can assist in managing vast amounts of general knowledge and information to tackle various L&D questions (Gao et al. 2019a), drawing on the system's experiences and information. The value of AI to L&D lies in using these accumulated experiences and information to analyse existing environments or situations that inform future decisions (Maity 2019). AI enhances these processes by developing systems for interaction with specific prompts until HRMPs memorise particular information, organising accumulated knowledge and providing context through effective summarisation (Gao et al. 2021).

For instance, a speaker at a conference follows the speaker's script while the audience follows the speaker. Neither has to worry about the situation excessively because it is related to the

conference, and they are the only ones present. The new information is updated in the conference script, as the script stores knowledge based on certain situations, such as structural memories (Eğilmez 2015). AI is considered a challenge for HRMPs in L&DSs (Al-Braiki et al. 2020); Alnaqbi (2020) notes that it is restricted to relying on AI memory, as AI cannot perform independently. On the contrary, Maity (2019) claims that AI has limited memory. It may develop certain skills but cannot encompass all skills and knowledge, due to its limitation in L&D. While this conveys the need for a broader set of knowledge and skills (Abaidoo 2015; Hošková-Mayerová and Rosická 2015; Baleni 2015; Arkorful and Abaidoo 2015; Goyal 2012; Alnaqbi 2020), its role in managing huge data (Bhagyalakshmi and Maria 2021) is only a minor component.

It is important to properly integrate AI into the system to manage any resistance or fear of utilising AI at work, as it aids HRMPs in executing HRM functions effectively. It also enables HRMPs to gain a better understanding of AI in the workplace (King 2023). Consequently, the HRM system operates based on AI's capabilities while HRMPs input data from L&D to evaluate outcomes (Faliagka et al. 2012). This fear is reflected in the degree of AI's integration into the system. For instance, Gemma Dale, a lecturer at Liverpool John Moores University, stated that investing in AI was vital for HRM. Gemma said: "AI is already here, and it is only going to get better" (Cholteeva 2023, n.p). This suggests that AI has not yet reached its full potential due to fear. Specifically, AI in L&DS still relies on HRMPs to guide and train employees in the L&D function.

By November 2022, a key AI technology was launched known as Chat Generative Pre-Trained Transformer (ChatGPT). ChatGPT engaged technologists, as it can generate responses through media such as audio, text, and images based on specific prompts and ongoing advancements in the corporation's technology to produce competing systems (Richard Casement internship 2023), which alleviated the fears surrounding the use of AI. L&DS has increasingly adopted AI models in recent years. It has become a significant, effective, and efficient learning approach that is rapidly increasing the use of the internet and smartphones globally, thus supporting the spread of L&DS in every organisation. L&DS practices are developed due to the influence of exchanging TAs of L&DS and their models.

Henceforth, L&DS will leverage various applications and services by compressing internet usage, both formally and informally (Gros, and García-Peñalvo, 2023). Indeed, there is a gap

in understanding TA in L&D (Hrastinski et al., 2019; Zawacki-Richter et al., 2019). It has a differing understanding based on interdisciplinary nuances. Authors from education, psychology, neuroscience, and linguistics define and describe TA terms differently (Chen et al, 2020).

This is not a passive process, as technologies are often explored and experimented with (Gaver 1991). It also differs from the discussion of designing these technologies because the focus is not on usage but on potential uses (Conole and Dyke 2004). Therefore, AI-based L&D emerges as a new technology and is ubiquitous in generating new TA. Some L&D practices and designs are continuously changing and evolving. Informative L&D models are utilised based on knowledge transmission, and sometimes those models embody new strategies to develop KSE-regulatory; however, they deliver a traditional form of L&D (Gašević, et al. 2015; Gros, and García-Peñalvo, 2023).

The Structure of the Research

The introductory chapter has presented the research problem and identified the challenges in the UAE government's L&DS. It has briefly discussed the growth of the UAE and its unique strengths that distinguish it from many other countries in the Middle East. It has also drawn out some interesting challenges faced by HRMPs, providing valuable context for exploring the role of AI-algorithms and the utilisation of AI in L&D, before moving to the Literature Review (LR) chapter.

LR chapter will cover the historical and cultural evolution of education till it becomes part of HRM roles. It will discuss HRM roles within the UAE both historically and today. It will briefly introduce various concepts from academic and practical studies, and discuss different perspectives among scholars across all sections, contrasting or comparing them across countries. LR will examine the existing knowledge to address the Research Questions (RQs).

LR consists of three sections: HRM and HRMPs in section one, L&D in section two, and AI and algorithms in section three. Each section contains three sub-sections. These sub-sections will discuss and analyse, in the same sequence, the debates regarding the definitions of the keywords, the roles of those keywords in GOs internationally, and finally, their application in UAE GOs, both practically and academically. The last sub-section will conclude the discussion on the utilisation of AI in L&DS by HRMPs in the UAE and other countries. Therefore, LR

will define the key terms and critically review the existing literature in the field, thus providing a foundation for developing RQs.

The third chapter presents the methodology employed throughout the research for collecting and analysing data to answer RQs. A qualitative method was utilised to gather data through online interviews. This chapter showcases the analysis using Interpretative Phenomenological Analysis (IPA) and the data structured according to the Gioia et al. (2013) approach, which aggregates the codes and themes in relation to the research design. A total of 23 participants from various KSE levels were interviewed. The analysis primarily involved descriptive data concerning the participants' understanding of AI, algorithms, their engagement with AI in L&DSs, and the challenges they encounter. The IPA methodology will elucidate the findings of participants' perspectives from different government sector ministries.

The fourth and fifth chapters will present a combination of the findings and discussion, as both are closely linked to participants' Technological Affordances (TAs), their definitions and engagement with AI in L&DS, and the challenges they encounter within this system. The findings of these chapters will offer an analysis and discussion between authors and practitioners. The fourth chapter will explore how HRMPs define technologies, while the fifth chapter will focus on the challenges that HRMPs face when interacting with AI. The insights into understanding AI and the challenges are part of the LR.

The final chapter will present the research conclusions. It will summarise the findings before engaging in a detailed discussion on how various forms of engagement affect challenges. This chapter will outline the central contributions of the research, followed by practical implications and limitations. Finally, it will offer recommendations and a future directions agenda.

In summary, the research aims to explore the KSE of HRMPs in the UAE government sector concerning the utilisation of AI in L&DS. The research objectives and RQs were refined during the pilot study based on HRMP's understanding of AI and algorithms' terminologies, and their engagement with these technologies in L&DS in the UAE government sector. Furthermore, the research will identify the effectiveness of AI algorithms on HRMPs' KSE and the challenges they face in L&DS when engaging with AI. This research will investigate the utilisation of AI in L&DS within the UAE government, which can be applied practically by HRMPs and academically by HRM authors.

Literature Review

The previous chapter introduced and described how the United Arab Emirates (UAE) government is keen to adopt sophisticated best practices in its Human Resources Management (HRM) systems. The following chapter presents and illustrates the background and foundations of the UAE. It then discusses the definitions of key HRM terms, including Human Resources Management Practitioners (HRMPs), Learning and Development (L&D) (Ahammad 2017), Artificial Intelligence (AI), and algorithms in various sections. Subsequently, the chapter discusses, evaluates, and analyses the key debates surrounding the roles of HRM, L&D, and AI algorithms in several countries worldwide, specifically in the UAE.

The Research Context of The Golden Ages

Historically, the pace of learning and education has fluctuated globally. Several centuries ago, particularly during the Middle Ages, a distinct division existed between the East and the West. This period was distinctly known by two different names: the Dark Ages and the Golden Ages. The term Dark Ages referred to the European Western countries, while Golden Ages was associated with the Eastern countries (Sagadeyev 2002).

Historians illustrate how people struggled against social oppression, prejudice, superstition, and relentless ignorance from their leaders during this period (Katz 1980). European countries' slumber was linked to the "Dark Ages". However, Europe awoke from this slumber in the 16th century when the Enlightenment emerged from the French Revolution, leading to a political shift (Griffel 2011). Historians refer to the period from the fall of the Roman Empire to the revival of literature with the discovery of the Pandects at Amalfi (Mommsen 1942) in Greece as the Dark Ages. In paradox, the 7th and 8th centuries were regarded as the Golden Ages of culture and learning in the Islamic world (Ball 2005).

In contrast, significant advancements characterised the 'Golden Age' of Islamic culture in the realms of material and scientific-philosophical world culture (Sagadeyev 2002). Islamic culture was comprehensive, encompassing various sciences that benefitted humanity, including interdisciplinary fields (Douglass 2021), such as, but not limited to, models of psychology, mathematics, astronomy, and philosophy. Notable philosophers included Ibn-Said Al-Andalusi (d. in 462 AH, Al-Janabi 2002) and Abu Hamid al-Gazali (1058 -1111; Ahmad 2018).

Al-Andalusi emphasised the importance of intellectual skills, self-discipline, and the study of philosophy for scientific advancement. 'The House of Wisdom' in Baghdad became a centre for knowledge and learning, where Muslim scientists learned and made significant contributions to various sciences, including chemistry, medicine, geography, and more (Algeriani and Mohadi 2019).

Furthermore, Jabir Ibn-Hayyan, a prominent chemist, influenced alchemy in Europe and Asia (Lat. Geber, 8th century; Sagadeyev 2002). While the mathematicians converted algebra into a distinct science, it was subsequently developed. The term "algebra" originates from the scientist Al-Jabr. Later, Al-Khorezmi refined and promoted treatises on algebra, composing them into a coherent study. This evolved into the name of a mathematical study by Muhammad Bin Mousaa Al-Khorezmi in the 11th century, which was transformed into Latin to become "Algorithm" (Maigida, 2020).

Therefore, Islamic scientists developed plans and applied algebra and arithmetic to geometry for analysing this discipline. However, the Islamic Golden Ages were destroyed by the Mongol invasion (Khan Academy 2023) in 1258 (Anwar 2023). This provides a significant understanding of the history of algorithms and the fundamentals of this mathematical field that could enable HRMPs to utilise a component of this science in HRM systems and processes, particularly in the L&D System (L&DS).

The history and culture of the sciences developed in the early ages in the region from which the UAE originates, prior to the union. With the establishment of the UAE, the journey of learning began in the 1960s. Following the union, the country enacted laws, regulations, and HRM roles within the UAE government sector to ensure that these regulations are understood, which this research uncovers in the following sub-section.

The History and Contemporary Practices of Human Resource Management Practitioners in Human Resources Management in United Arab Emirates Organisations

In the 1960s, the nature of work in the region witnessed an evolution based on the rapid development of the country's economy (Wirtky et al., 2016; Ashour, 2020). However, the quality of life changed when petrol and gas resources were discovered in the region (Waxin and Bateman 2016) in 1958 (Shihab 2001).

In the early 1970s, the UAE gained independence, which brought inherent harmony among the seven emirates (Al-Sayegh 2002) as Britain withdrew from the UAE (Foley 1999). The seven emirates comprise Abu Dhabi, Dubai, Sharjah, Ajman, Um Al Quwain, Ras Al Khaimah, and Fujairah, located on the Arabian Peninsula (El-Mallakh 2014). It is an Islamic and Arabic country, with Arabic as the official language, while English serves as the business language (Kennetz and Carroll 2018).

The increasing economic development led to heightened citizen education (Ashour 2020) following the union, particularly as the country had also embraced technology (Butts 2002). Technology in the UAE has been utilised more effectively for employees to enhance their KSE as a lifestyle (Mohamed 2006), specifically in HRM. The roles of HRM were traditional manual practices (Armstrong 2006) during the country's growth, which were referred to as personnel practices. These practices were managed through significant centralisation and standardisation, where everything was recorded manually, for example, salaries (Suliman 2006). Recruitment and training inductions were regarded as a single event and were limited to immediate performance.

In the 1990s, HRM worldwide, including the UAE, was established with a focus on personnel management and administrative services (Ahammad 2017). This establishment has enhanced services provided by administrative personnel to add value to the government sector (Ulrich and Dulebohn 2015; Juarez Tarraga et al. 2019), creating numerous jobs and fostering various KSE (El-Ghalayini 2017).

Over the past few decades, the role of Human Resources (HR) has been referred to as Personnel Management or the Personnel Department, where the focus was primarily on transactional processes, such as recruitment. It provided the necessary work-related components, including salary packages, benefits, and other administration (CIPD 2012, p. xiii; Alsuwaidi 2014).

Nowadays, contemporary HRM suggests that different perspectives exist among authors who have identified several gaps in the UAE government sector regarding the advancement of roles in an inappropriate manner, similar to other HRM practices in various countries (Darwish et al., 2022). Specifically, a misalignment exists in the development of KSE (Prabhakar and Brnia, 2016), which does not align with current conditions or organisational performance. A Society for Human Resource Management (SHRM) report duly agrees that “alignment is not easy” (Armstrong and Brown 2019, p. 33). For instance, HRMPs must align with their

respective organisation's goals (Kaufman 2015); however, they struggle to ensure that their practices meet all long-term requirements due to ongoing changes and the necessity for continuous realignment with fluctuating circumstances (Armstrong and Brown 2019).

This difficulty in alignment may also stem from the necessity for ongoing adaptation to regulatory changes. Indeed, HRM was designed to support organisations in achieving their goals, but it can prove challenging if HRMPs do not optimise and organise their practices effectively to assist and develop them in reaching these goals. HRMPs need to regularly review and update changes to ensure they align with organisations (Zimyo Marketing, 2022). This process will be significantly simplified when they utilise a sophisticated system, enabling them to be prepared and developed for potential changes.

The developments have shaped HRM functions as the government has studied and analysed the HRM background in the UAE, as well as the current HRMPs' practices across organisations (Al-Ameri 2017). The SHRM study progressively emphasises the influence of using the HRM system on KSE (Khan 2020). However, some HRMPs in the UAE government have continued to adhere to traditional practices to which they are accustomed (Al-Waqfi and Forstenlechner 2014). HRMPs are still performing routine administrative roles and are often unaware of their roles at macro or strategic levels (Côrtes and Meneses, 2019). This is particularly true, as most HRMPs hold degrees in business, management, or other disciplines, rather than in HRM, which is relatively rare in the UAE. This inevitably influences how the functions are perceived due to the lack of experience in HRM.

For instance, HRM is an active but not proactive function, where it is expected to support the generation of survival skills, develop expertise, and build a network to address possible challenges (Keir and Youssif 2016), and to work effectively within organisations (Al Jawali et al. 2022). In contrast, Nadiv et al. (2017) stated that some HRMPs do not consider future issues, viewing HRM roles as a luxury in their infancy stage. Consequently, they tend to react only when problems arise, which hinders HRMPs' ability to balance their roles between strategic and administrative functions (Bezzina et al. 2017). However, Easa and Orra (2021) disagreed, asserting that HRMPs are more engaged and consider their roles at a macro or strategic level. This indicates that HRMPs possess varying utilities depending on the roles and nature of practices within organisations. Joshi (2017) proposes that HRMPs will adopt a more systematic and proactive approach in the future. This is valuable as it underscores the challenges in implementing their current roles. The research corroborates Easa and Orra (2021) in stating

that HRMPs perform their roles differently based on the organisation's orientation and their academic or professional backgrounds.

LR has introduced the UAE's background and its HRMPs history, highlighting contemporary roles before and after the UAE union. The following section discusses and analyses the debates surrounding the definitions of HRM and HRMPs. It also briefly describes the roles of HRMPs and the practices of HRMPs in GOs, including the UAE government sector.

Human Resource Management in Government Sectors

Over the past decade, HRM has experienced positive shifts from a hard to a soft approach. However, this transition has been gradual. For instance, transferring such practices to government sectors has encountered challenges, and evidence indicates that the adoption of technology in HRM practices remains limited (Kravariti and Johnston 2020). Løkke and Krøtel (2023) and Kruyen et al. (2020) agree that HRMPs' KSE need to be identified in government sectors (Brunetto and Beattie 2020) to align with this adoption.

Indeed, the objectives of government sectors have evolved from merely seeking effective and efficient services (Osborne, 2010; Osborne et al., 2012) to transformed objectives that leverage technology (Azêdo and Alves, 2013; Hiedemann et al., 2016), which may positively influence HRMPs' KSE, and consequently their performance (Vandenabeele, 2009; Hung, 2012). Cooke et al. (2020) concur with others that HRM was designed within a quality-oriented government framework to develop high-quality services and systems, which could result in a significant impact (Gürlek and Uygur 2021) and enhanced performance.

The research aligns with the authors in asserting that technology aids in increasing HRMPs' KSE due to their engagement with technological advancements. Glaister et al. (2018) underscored that one of the roles of HRM is to design functions that transform environments. HRM is structured for a responsible, supportive, and healthy environment (Karam et al. 2017) through the use of technologies. While HRMPs are influenced by factors that operate at various levels within an organisation, which shape their roles, authorities, and positions (Sheppeck and Militello 2000). These positions are filled by HRMPs (Roper and Higgins 2020).

Critically, challenges with HRMPs have been conceptually ingrained for some time, as there have been extensive debates between practitioners and academics regarding HRMPs' roles in organisations. HRM researchers and practitioners should identify new approaches to becoming

the ‘employee’s champion’ rather than a ‘rubber stamp’ for their management (Brunetto and Beattie 2020).

Most importantly, authors have reported that HRM has become a model for best practices (Von Glinow et al. 2002; Al Jawali et al. 2022). Armstrong and Brown (2019), however, believe that a universal “best fit” is better, as it is more realistic than the best practice in GOs. Alternatively, Pfeffer (1994) sought to determine the universal best practices that HRM could follow. However, best practice seems more realistic, as similar organisations could learn these practices when facing similar challenges (CIPD 2023) by exchanging knowledge and experiences and using universal advanced systems.

There is an increasing discussion about HRM roles being tailored to specific circumstances and the organisational context, or whether the best universal HRM practices can be adapted to situations to enhance organisational performance (Armstrong and Brown 2019). According to Haar et al. (2022), HRMPs are more interested in identifying what fits best for their organisations rather than adhering to universal best practices. They assert that HRM does not utilise advanced innovation systems; therefore, their practices are not universal. The contextual best practices model aligns with the Pfeffer and CIPD studies, as it may engage in unofficial routines to address various challenges faced by organisations (Scott et al. 1989) and can be utilised to enhance organisational incomes (Kok and Uhlaner 2001; Kotey and Slade 2005) through the exchange of knowledge and experiences and using universal advanced systems.

The research contradicts Haar et al. (2022), who assert that HRMPs adopt the best fit in GOs due to their KSE gaps in utilising universal advanced systems and associated challenges, as noted in the introduction chapter. It suggests that embracing best practices could benefit individuals and their organisations by encompassing a wide range of HRM practices and fostering the development of high-level skills. Some empirical studies suggest that HRMPs can influence the entire organisation if they understand how to manage HRM functions effectively (Takeuchi et al., 2007; Alpan et al., 2010).

Overall, the duration of HRM practices is currently regarded as the duration of high performance, an important function in GOs (Bailey et al. 2017) for aligning the desired KSE with an organisation’s goals. Recent developments have introduced multiple goals to identify and enhance the KSE efficiency of HRMPs (Alzbeidi and Abdisamad 2021). The next sub-

section reviews various definitions of HRM and HRMPs, thereby identifying the most applicable to this research.

Human Resource Management and Human Resource Management Practitioners' Key Definitions

Despite how the HRM term was defined, O'Donovan (2019) states that the engagement of HRM functions should be considered as long as there is any form of employment in organisations where employees are recruited, waged, or trained. Regardless of the name given to these functions by organisations such as "organisational management", "human capital management", "talent management", "workforce management", "manpower management", "people management", or "personnel management". These are all "HRM" synonymous (Katiyar and Sachan 2023) based on the nature of their roles. However, HRM functions may not be fully fledged in some organisations, thereby causing them to be referred to by different terms rather than HRM, and a good example of such is 'personnel management' (Armstrong 2006).

According to Storey (1995), there are widely repeated definitions of the term HRM, which aligns with Haslinda (2009) that different authors' perspectives offer either differing or similar definitions. Alternatively, Marler and Boudreau (2017) argued that there is no existing uniform or agreed-upon definition of HRM. They claimed that the term HRM is merely common terminology used among individuals. This view is supported by Storey (1995) and O'Donovan's (2019) perspectives that this term lacks a definitive meaning, as they believe HRM is a term that does not carry any intrinsic meaning. Consequently, these definitions were formed based on the objective of HRM to shape its functions, as the nature of HRM activities influences how they are defined, rather than according to Storey and O'Donovan's perspectives.

Anwar and Abdullah (2021) indicate that HRM roles are defined as a set of bundles of activities and processes aimed at developing and maintaining processes (Lado and Wilson 1994) with appropriate skills for performance (Jackson and Schuler 1995; Rastetter 2006). Meanwhile, Teece et al. (1997) and Babío and Rodríguez (2010) assert that HRM is the capacity to adapt and develop an accurate system to achieve organisational objectives (Collings and Wood 2009) for better development (McCardle 2007). This illustrates that most authors define HRM as an operational process that manages various tasks to achieve the organisation's goals.

The definition of HRMPS aligns with that of HRM. HRMPs have been viewed from various perspectives due to the limitations in studies that have defined them. HRMPs pertain to specific employees who engage in HRM functions to improve and enhance the quality of their practices (Alfes et al. 2012). Others concur that HRMPs are tasked with investing in organisations (Rahman et al. 2018) and involving employees, as numerous organisations illustrate that considerable success derives from HRMPs' KSE in HRM (Al Jawali et al. 2022). They play a crucial role in developing and maintaining organisational assets (Nigam et al., 2020), addressing and evolving HRM roles (Richardson, 1994; Lopes et al., 2019), and managing the system's costs (Zhang et al., 2020).

Raid and Alzoubi (2021) also observe that HRMPs must invest their KSE in developing HRM functions towards best practices through professional procedures designed to be the most effective (Wolf and Hughes 2019) for employees within organisations, utilising potential and specific KSE (Roper and Higgins 2020) to access various facilities in operating systems (Boxall and Purcell 2011; Caruso 2017). They represent the human capital pool working under the organisation's control (Wright and McMahan, 1992). The definition of HRMPs in the UAE differs from general definitions. In the UAE, HRMPs are defined as system designers who deliver models through a system, run government authority initiatives and enact GOs' policies and procedures (P&P) (FAHR 2022). This authorisation comes from the senior level of the emirate or the UAE government.

In conclusion, a common theme among authors is that HRMPs provide services and develop HRM practices. HRMPs are developing and implementing HRM, investing in KSE, and offering services to other departments within organisations through a decentralised or centralised operational system, where they receive directions from a macro level.

Hence, there are various ways to interpret these definitions. Although HRMPs consist of a specific group of employees, they can be divided into two categories. The first category includes designers responsible for investing in organisations and employees, whereas the second category operates the HRM system under organisational control. These types of HRMPs are present in the UAE. The first type has the authority to design the organisation's system to develop KSE, which comes from the strategic planning office (FAHR 2022). The second type functions under the organisation's control (Wright and McMahan 1992). Those HRMP definitions are appropriate for the current research since HRMPs in the UAE have different practices from general HRMPs due to the previously mentioned reasons. Anwar and

Abdullah (2021) define HRM as a set of bundles of activities and processes that aim to develop and maintain processes. Consequently, these definitions are identified as the most suitable for this research context. They are sufficiently broad to encompass variations of HRMPs' roles in different organisations within the UAE government.

The Roles of Human Resource Management Practitioners within Organisations

The previous sub-section has discussed and selected the appropriate definitions for this research, which looks at HRM as a collection of bundled activities and processes (Anwar and Abdullah 2021). It views HRMPs as designers of systems that implement models through initiatives run by government authorities (FAHR 2022), and as pools of human capital, operating under the organisation's control (Wright and McMahan 1992) since these are more comprehensive definitions. This sub-section narrows the focus to the practices of HRMPs within the HRM functions. HRM philosophies have been developed in GOs, as they believe that aligning KSE with organisational goals can assist organisations in their growth (Leidner et al. 2019).

Haddock-Millar et al. (2016) claimed that HRM roles across European organisations were misaligned and inconsistent in practice, which disagrees with the research because in Europe, 'The DigComp Framework' is one of the organisations that massively utilises technology frameworks (Bartolome and Garaizar, 2022; Mattar et al., 2022; Barboutidis and Stiakakis, 2023), involving citizen employees who work safely and confidently with these technology frameworks (Thornton, 2022; Van Audenhove et al., 2024). This demonstrates that HRM practices and HRMPs' KSE are aligned with the organisational goals in Europe. However, in the USA, the alignment is insufficient (Leidner et al., 2019).

For instance, the rapid changes in the world increased the demand for employees in other sectors, creating an opening for capable and skilled employees in the US government in 2006. The US government, therefore, realised and forecasted that 30% of their experts and skilled employees could be lost if they couldn't be retained (Pynes, 2004; Posthuma et al., 2013) through the development of their KSE, which agrees with the research. It notes that HRMPs apply different practices, which may not always align with the organisation's goals according to Haddock-Millar et al., (2016) and Leidner et al. (2019).

The academia in France, HRM in Australia and police services in the UK are part of 'Third Way' policy. The ambiguous challenge they face is focusing on professionalism and

organisation (Noordegraaf 2015). HRM was able to apply some practices; however, it failed to reduce employees' workloads, unlike employee 'champion' roles. Academia, HRM, and police services share similarities in their legal practices, operating in a structured manner.

Indeed, the primary difference in HRMPs' roles lies in the strategies devised within a country, as most organisations are compelled to utilise their resources to execute their tasks, yet they remain hesitant to advance HRM policies and practices. Consequently, governmental organisations encounter challenges in effectively developing these practices and roles (Waxin and Bateman 2016). This is supported by Haak-Saheem (2016); Haak-Saheem and Festing (2020); Haddock-Millar et al. (2016), Leidner et al. (2019), and AL Kahtani et al. (2016), who assert that discrepancies in HRM roles are often due to a lack of experience.

For instance, Theresa Georges, a cleaner at a company who attended a training course, was shocked by the approach with which it was conducted. The trainer asked the audience to shout out and use the most derogatory and offensive words. She further encouraged them to write down all the terms they could think of on a flipchart. Georges felt uncomfortable with these repeated words and noted them. Such offensive terms should not be used in the workplace. Following the training, Georges took annual leave and did not report to work. By the following day, she complained to her line manager about her discomfort during the training event, and then she filed a complaint to HRM. As she was stressed, she took a sick leave. However, HRM investigated the complaint and did not find the words used during the training offensive. Georges was unsatisfied with the HRM's investigation and the decision they made and complained to the employment tribunal. The tribunal unanimously ruled in favour of the claimant, Georges, and condemned the language used during the training session, based on the evidence presented by Georges (Baska 2019).

It could be argued that HRM has certain appropriate processes and discrepancies; however, this is not always the case (Haak-Saheem 2016; Kahtani, et al. 2016; Haak-Saheem and Festing 2020). The discrepancies indicate that HRM needs to develop its practices. This reveals that some governments' P&Ps are misaligned and not adhered to by every organisation within a country due to various discrepancies and differences in application.

Such HRM influences may be managed appropriately in organisations. It oversees training, evaluation, and recruitment, and provides a safe and healthy work environment (Hijazi et al. 2021), while also addressing discrepancies. However, the current status of HRM GOs in Iran,

as claimed by Soltani et al. (2018), is that the stability of the political environment and the impact of HRM practices are the main elements in designing the development of HRM in their organisations, which categorises HRM as conventional personnel management (Tayeb 2001; Namazie and Pahlavnejad 2016).

Yet Waheed et al. (2020) emphasise that contemporary HRM has been embraced by organisations due to its ease of accessibility and availability. Most countries in the Middle East adopt HRM; however, its practices differ and require investment in KSE to sustain the economic growth of these nations (Budhwar and Mellahi 2018). HRMPs' systematic processes have evolved over a considerable period (Swanson and Holton 2001). While some articles have focused on general external factors, particularly socioeconomic aspects and parental influence on HRM practices, HRM continues to play an important role in the Middle East (Cooke et al. 2020). This is relevant for this research as the discussion highlights the significant roles of HRM; there are, however, some discrepancies.

This research agrees with Wayne et al., (1997) that managerial support affects exchanges among HRMPs, helps them to understand their roles (Bakker et al., 2004), and builds confidence in making decisions (Macey and Schneider, 2008). Hence, similar HRM practices have similar effects in different countries (Huang and Van de Vliert, 2003; Matheson and Kwon, 2003; Brunetto et al., 2013; Hu, 2014; Liden et al., 2014; Chordiya et al., 2017), which agrees with this research because of best practices. The research also agrees with Ostroff and Bowen (2016) that HRM practices are not the main cause of influencing the KSE; it's the HRMPs' approach.

Overall, this research aligns with the authors' perspectives on some points while disagreeing on others. It affirms that certain HRM practices are inconsistent across organisations (Björkman and Lervik 2007). Beatson (2019) claims that it's a best fit, rather than a best practice, due to discrepancies and differences in HRM systems among organisations. In contrast, a best practice is based on exchanging knowledge and experiences and utilising universal, advanced systems.

Next, this research discusses the current HRMPs' practices in HRM functions within several organisations in the UAE, aiming to understand the key debates between authors, both practically and academically, in relation to the HRMPs' current practices in UAE GOs from

different perspectives (Den Hartog et al. 2004) to enhance the quality of work. This is explored further in the following sub-section.

The Practices of Human Resource Management Practitioners in the United Arab Emirates Organisations

The previous sub-section presented the key debates between authors and highlighted certain HRMPs' practices across various HRM aspects worldwide. This sub-section applies the selected 'FAHR Initiatives (2022) and Wright and McMahan (1992) definitions as they effectively elucidate the HRMPs' practices in the GOs, revealing that some act as designers of the HRM system, while others operate under the organisation's control.

These definitions could facilitate the utilisation of operational plans across organisations (Alharbi et al. 2022) within the UAE government (Ribeaux and Poppleton 1978). The authors examined the developments that could influence HRM functions, briefly addressing the current HRMPs' practices (Markus and Zajonc 1985) within organisations in the UAE. Hence, it presents the arguments among authors to discuss HRMPs' practical positions in some of the UAE GOs.

The UAE GOs aim to boost productivity, which directly impacts the economy through a central government authority responsible for designing and executing the HRM system, enacting and updating HRM P&Ps for all UAE GOs to align with the country's innovation-oriented vision (Chaudhry et al. 2021). HRMPs can be supported in their pursuit of excellence (Markel and Elia 2016). "We focused on collaborative activities to reflect the knowledge sharing and information exchange necessary for alliances" (Lepak and Snell 1999; Lepak and Snell 2002, p. 537). For instance, Dubai GOs adhere to the best practices of networking through experience exchange and information sharing. Generally, the government supports and provides various types of facilities.

Critically, some HRMPs oppose the sharing or exchanging of knowledge in this region. Some resist the idea of deepening communication to build trust, facilitate empirical learning, and achieve semantic alignment in the Arab Middle East region (Afiouni et al. 2013). Meanwhile, some organisations are missing the strategic aim, which reveals the risks present in UAE organisations (Haak-Saheem 2016). This lack of support will hinder these organisations' growth, as their HRMPs do not possess sufficient experience and knowledge to effectively employ different roles in line with best practices.

Al-Aina and Atan (2020) state that HRMPs can perform their roles effectively by emphasising the significant requirements of KSE, as they depend on KSE (Dirani et al. 2018). HRMPs in the UAE are tasked with developing KSE through professional L&D and providing canvass management with the L&D process based on performance results (HR Policy 2011). This contrasts with the argument presented in this research; however, it aligns with Afiouni et al. (2013) and Haak-Saheem (2016) that some HRMPs in the UAE resist sharing and exchanging KSE because they lack appropriate KSE.

Furthermore, HRM roles are not developed adequately in the UAE, both practically and academically. This is due to some HRMPs being unfamiliar with implementing best practices, which necessitates that they focus on and enhance the effectiveness of the HRM process (Suliman 2006; Zahi and Khanfar 2009; Zahi 2013; Al Ariss 2014). Such essential KSEs are lacking in HRMPs, which hinders their ability to perform their functions effectively (Hammad et al., 2011; Karam et al., 2017). Iles et al. (2012) stated that some literature describes HRM practices in the government sector as unprofessional. Mello (2006) claimed that the effectiveness of HRM practices drives KSE and organisational success, which aligns with this research. This may be due to some HRMPs having low levels of KSE (Raj and Kothai 2014). A study by Scott-Jackson et al. (2014a) found that HRMPs in the Gulf Cooperation Council (GCC), particularly in the UAE, lack relevant educational backgrounds and experience. The GCC comprises the UAE, Kuwait, Saudi Arabia, Bahrain, Qatar, and Oman, all situated in the Arabian Gulf (Chen et al. 2024).

Nevertheless, there exists a network of over 300 HRMPs with sufficient knowledge and experience, founded in the 1970s, who are always seeking professional development and sharing experiences across the UAE network (Waxin and Bateman 2016). This indicates that HRMPs in the country do not align with their roles in practising functions across their positions. In contrast, there is a lack of studies that adequately examine and analyse HRMPs' practices to bridge this gap with their practices and existing studies (Kohut and Roth 2015; Rezaei and Beyerlein 2018).

This sub-section has briefly discussed the debates surrounding HRMPs' practices within HRM functions in UAE GOs, highlighting their similarities to HRM practices across GCC. It has presented arguments regarding agreements and disagreements about HRMPs' KSE while performing their roles, supported by examples. It illustrates various perspectives and

acknowledges the lack of comprehensive academic studies and limited practical examples, all of which have constrained the scope of these studies.

Those studies provide diverse viewpoints on HRM in organisations. The research indicates that HRM is in a nascent academic state, gaining momentum and visibility for HRM studies in the region (Etukudo 2019). Although these studies, at times, fail to present a comprehensive and conclusive image of HRM (Afiouni et al. 2014) in the UAE to properly understand the utilisation of HRM functions, most studies have highlighted limited challenges.

In conclusion, this section has selected the relevant definitions of HRMPs by Wright and McMahan (1992), FAHR Initiatives (2022), and HRM by Anwar and Abdullah (2021) for the research. It has discussed the current HRM practices in GOs internationally and within the UAE government, briefly outlining some key challenges of HRM that HRMPs need to address to enhance the quality of work and certain skills adequately. HRMs take a long time to finalise and implement appropriate HRM practices, while HRMPs are required to invest their time in developing these functions due to inadequate training, resulting in an unfair and unhealthy environment (Kelloway and Day 2005).

According to Pandya (2019), HRMPs need to be revisited because some practitioners and authors face inconsistent results, which generate various and irrelevant cases. Few clear studies have examined HRM practices regarding the development of organisations as a consequence of the skills gap. Hence, if HRMPs utilise HRM practices effectively, employees' performance will improve (Gürlek and Uygur 2021). The following section discusses in detail L&D definitions and highlights some challenges in L&D, and the current practices of L&D both generally and specifically in the UAE, to understand how HRMPs utilise the sophisticated system in their functions.

The Learning and Development Systems

The previous section discussed the general HRMP practices in HRM across various GOs, specifically in the UAE. Some authors have claimed that the practices of HRMPs face certain challenges that affect the implementation of L&D initiatives due to the insufficient strength of some HRMPs' KSE (Lepak et al., 2006) to perform their roles effectively. It has been briefly noted that practical studies on HRMPS are rare and contradictory (Shipton et al. 2017) within the UAE government sector (Parameswaran 2020). This section outlines the common

definitions of L&D and selects the most relevant definition for this research. Furthermore, it discusses the L&D processes in different countries. Lastly, it highlights and discusses the challenges of the L&D function in GOs in the UAE and other similar countries.

Learning and Development Key Definitions

HRM and HRMPs' practices can develop KSE through effective L&D (Boxall et al. 2007). L&D is a widely used term in HRM (Haslinda 2009). It has various definitions (Abele et al. 2019) and is referred to by different terms, notably: HRM Development, Learning & Development (Ahammad 2017), Professional learning (Alvunger and Grahn Johansson 2018), Professional & Organisational Development (Kelley 2006b) or knowledge of learning. It also encompasses instructional planning and evaluation of KSEs as it relates to "vocational" subjects translated to 'didactic ability' (Alvunger and Grahn Johansson 2018, p.37). It is one of the critical factors that HRM could influence organisations through (Wright et al. 1998). Recently, it has transitioned from training service to Learning and Professional Development (L&D) as a new terminology (Ostinelli and Crescentini 2024).

L&D is one of the HRM functions designed to measure the current and future KSE while performing jobs (Elnaga and Imran 2013; Nassazi 2013). It serves as a function for implementing a tailored system to enhance KSE through L&DS (Burhan Ismael et al., 2021), in a short-term educational process that organises systematic procedures to acquire technical skills and generate new knowledge around specific goals (Grönqvist and Lindqvist, 2015). It is a function that includes on- and off-job training (Chris-Madu 2020), monitoring, measuring, and the utilisation of other important L&D aspects to enhance the adoption of new skills (Ahammad 2017). It also improves potential benefits and mitigates dysfunctional actions (Glaveli and Karassavidou 2011). Aktar and Pangil (2018) stated that L&D is a development function that enhances KSE (Buntinx et al., 2018) for current and future challenging jobs (Kadiresan et al., 2015) to improve job performance and achieve the organisation's goals.

Other authors, however, have defined L&D as a traditional training engagement with a long-term preparation process and an ordinary style (Buckley et al., 2015) within official, structured models (Doran, 2015) and specific activities (Lee, 2013). Notably, orientation, coaching, counselling work (Harrison and Weiss 1998), sharing experience, and exchanging knowledge alongside other developments through effective systems (Wantland et al. 2004) and quality methods. Yet, Bailey et al. (2016) stated that L&D is not a method, but an opportunity for

creating new skills to enhance job performance. Koondhar et al. (2021) believe that job performance naturally births the development of new skills based on experience and not L&D. They claim that L&D is insignificant to emphasise skills to perform jobs but only to develop a healthy workplace.

However, L&DS may yield negative outcomes if not executed appropriately by HRMPs. The results could be inefficient according to Djibo and Moumouni (2022) because they may exhibit complexity, which may lead to various impacts (Williams, 1999; Vickery et al., 2016; Ajmal et al., 2019). For instance, a lack of KSE and an unclear vision for an L&DS may hinder the achievement of objectives (Kumari and Pillai, 2014; Ajmal et al., 2019).

This challenge leads to gaps in developing KSE according to practical studies (Hale and Xu 2016; Alalshiekh 2016). The research aligns with these authors because L&D directly enhances KSE through frequent practice of these new and developed skills and generates more knowledge and experience to achieve organisations' goals, which opposes the view of Koondhar et al. (2021). Adil et al. (2021) state that well-designed L&D could enhance professional skills in all aspects. Therefore, L&D investment is significant in developing KSE (Albrecht et al. 2015).

Hence, there are two competing interpretations of L&D definitions. The first posits that L&D enhances progress and mitigates adverse outcomes. The second perspective views L&D as a traditional training engagement that utilises a long-term conventional format. This implies that, based on the author's recurring themes, the most fitting definition for this research is Buckley et al. (2015), which states that L&D is a traditional training engagement characterised by a long-term, conventional approach. This definition corresponds with the HRM and HRMPs' definitions, as models and initiatives are considered from a long-term, conventional standpoint based on L&DSs that HRMPs' KSEs have designed and engaged with.

The research suggests this definition because it concentrates on a range of GOs. It highlights that the L&D process is a traditional style that takes a significant amount of time to implement its models and initiatives, while its results also require some time to materialise. This enhances the understanding of the roles within the L&D function. However, many definitions present limited challenges in L&D, apart from the selected definition. The following sub-section discusses the importance of processing the L&D function, regardless of whether it faces limited or unlimited challenges.

The Importance of Processing Learning and Development in Organisations

The previous sub-section discussed various definitions and selected the L&D definition that best aligns with this research, as defined by Buckley et al. (2015). It represents a traditional training engagement characterised by a long-term, conventional style, with L&D outcomes not evident in the short term. This current sub-section discusses the importance of L&D, its implementation in GOs, and the challenges they encounter. Examples from similar cultures have also been noted.

L&D is a significant function in HRM, not only for employees but also for HRMPs to fulfil their roles, regardless of whether they have experience or not. It can develop the necessary KSE to fit the jobs. It has evolved into a more elaborate function due to its maturity (Pauli, 2020). It can occur within a group or be conducted individually through planned (Sheeba and Christopher 2019) or unplanned L&D models. Rather, the primary purpose of GOs is to ensure survival by designing systems (Azizi et al. 2021) and promoting effective practices to enhance the L&D (Nangia and Mohsin 2020) system (Ali et al. 2019). It is essential to focus on professional development (Vecchi et al. 2021) and highlight L&D, as it is the most effective function of consciousness (Yusoff et al. 2020). According to the perspectives of Srivastava and Tang (2021), L&D can provide appropriate L&D models, select the right skills for organisations, and create equity and fairness through HRMPs.

For instance, Marchington and Wilkinson (2008) claimed that some distinctions exist between soft and hard versions of L&D. The hard version is regarded as a cost that must be minimised. It concentrates on the limitations of investment in flexibility techniques of L&D, and flexibility techniques themselves (Beardwell and Claydon 2007). Hard skills are essential for effective job performance (Grisi, 2014; Cimatti, 2016). This encompasses engineering, general computer and associated products, and marketing skills (Lyu and Liu, 2021).

Hence, such jobs require the availability of certain KSE to perform them efficiently and effectively (Ibrahim et al., 2017), due to the nature of the business, particularly when some complicated jobs require L&D (Schulz and Roßnagel, 2010) for optimal job performance. This includes managing diverse cultures within organisations, which further leads to complex organisations that necessitate L&D to be refined (Kruse et al. 2018).

In contrast, the soft version reflects the recognition that should be developed through highly engaging L&DS (Ahammad 2017). This differs from the hard version by Bratton and Gold

(2007), which posits that HRMPs must invest, acknowledge, and regard employees as valuable to organisations by eliminating task-based methods and focusing on developing skills through L&DS (Noel and Mary Anne 1984; Ellmer and Reichel 2018).

Some organisations focus on soft skills (Jacobs 2002), such as project management, people management, customer service, and cognitive and social skills (Lyu and Liu 2021). They assert that soft skills represent the application and expression of the distinctions between interpersonal skills and self-oriented skills, such as self-awareness (Engelberg, 2015). Therefore, HRMPs require both soft and hard skills. Soft skills will aid them in developing management abilities and self-awareness, while hard skills will enhance their general computer proficiencies, which could facilitate the appropriate performance of their roles in utilising KSE to develop and execute systems.

The current L&D is somewhat unrelated to the requirements of KSE, which fails to provide employees with opportunities to grow financially, thus revealing poor L&D investments (Chew, 2004; Chris-Madu 2020). Investment in L&D can be achieved through the progression of skills and the improvement of knowledge (Ahmed 2017), which could foster an appropriate environment (Aburumman et al. 2020). The research concurs with Chew, 2004; Chris-Madu (2020); Ahmed (2017); and Aburumman et al. (2020) that effective L&D could directly impact KSE and lead to a healthy environment.

Furthermore, Brunetti et al. (2020) assert that investing in an L&DS is preferable to investing in developing the necessary KSE skills, as it will lead to skill development anyway, contrary to the research. The system will remain undeveloped if the HRMPs who designed it possess inadequate KSE. Prioritising KSE investment is essential in system development, as HRMPs often demonstrate their inability to further enhance their roles. They fail to provide themselves with opportunities to study or comprehend the challenges that arise from designing and operating effective methods to address these issues (Al Jawali, et al. 2022). For instance, some HRMPs are poorly trained and not suited for their fields (Rana and Kaur 2023).

Simon (2013) disagreed and claimed that the skills gap does not affect organisational performance or cause any failure if employees are untrained. While it may reduce or diminish the performance of an organisation, or the organisation's performance may remain average, it does not lead to organisational failure. This research disagrees with Simon's viewpoint as it maintains that developing the KSE is essential.

Alternatively, enhancing the existing KSE is important because it directly impacts an organisation's performance, as the skills gap could inevitably result in the closure or merging of organisations. Indeed, hiring skilled employees from the market is also vital for urgent needs to address the skills gap. As noted by Nkwanyana and Mutereko (2019), a lack of practice with L&D leads to frustration regarding their knowledge levels. For instance, GOs in Pakistan do not implement L&D (Mahmood et al. 2021) in a professional or effective manner due to poor utilisation of L&D practices, which results in a deficiency of efficient employees internally to accomplish their significant tasks (De-Cenzo et al. 2016).

Governments in the Middle East have begun to pay attention to the system's challenges, which include the inappropriate execution of L&D (Budhwar and Mellahi 2016). For instance, the Iranian government has not performed well in investing in HRMPs, nor do they support their development. Their current skill and knowledge levels are insufficient to compete in the market. This is why the government has recently concentrated on the potential and significant strategy to align it with HRMs.

The key challenge of L&D is that Iranian GOs are slowly developing L&DS, due to shortcomings in HRM as an internal factor and the rapid development and changes in the market as external factors. Kim and Alghamdi (2021) state that Arabs are very much interested in L&D. The identification of Arabs within the rest of the region stems from the significant similarities in their civil service systems, including legislation, establishment, and development. These states prioritise efficiency in human development levels across Arab countries and GCC, as reflected in the United Nations Human Development Report (United Nations Development Programme 2013).

L&D in Jordan, however, exacerbates issues with KSE; this includes a deficiency in knowledge, access to adequate information, and essential skills resulting from ineffective L&DS (Bataineh 2014), which causes unintentional consequences of dysfunctional KSE and undermines the potential benefits of L&DS (Sung and Choi 2018). This is quite unfortunate, as several reliable studies have highlighted these challenges (Fernandez and Gallardo-Gallardo 2020), including the use of outdated methods, a lack of efficient L&D evaluation processes (Al-Ayed 2021), and lengthy preparation times (Brinkerhoff 2006) that may lead to undesirable KSEs and hinder the development of the techniques and skills necessary for effective L&DS design (Al-Ayed 2021).

Understanding L&DS requires ongoing practices of the emerging KSE to produce several factors that translate into real outcomes on the ground, based on the debates (Tafvelin et al. 2019), which reveal some gaps in the current studies and practices (Jain et al. 2021). Additionally, some studies now advocate differentiating between developing and identifiable talented KSE to ensure that such differences can be integrated into their current and future jobs (Ibrahim and Daniel 2018).

This is, however, irrelevant to this research, as the objective is the development of HRMPs' KSE for enhanced L&DS. The agreement is that some HRMPs are considered as "educators not trainers" (Basit, et al. 2015, p.1007), even though they have made some progress in the field (Pandita and Ray 2018). However, it is argued that HRMPs fail to understand the L&D technical practices, as they are neither trained nor experts in this field. Therefore, the research aligns with some authors who state that HRMPs have not developed pedagogically or practically based on the previous studies. The next sub-section focuses on L&DS in the UAE government as a central focus of the present research.

The Current Practice Learning and Development Systems in the United Arab Emirates

The previous sub-section discussed the significance of HRMP practices in L&D functions and the challenges of L&D in certain GOs from various countries. This final L&D sub-section discusses and centres on debates regarding the current HRMP practices of L&D in UAE organisations.

L&D aims to foster and support the quality of L&DS in the UAE GOs to reform this system to align with the training goals (Goe, et al. 2020). Bandar (2013) claimed that the GOs are fully integrated with technology, as they utilise data storage and servers, which are core elements of software used to deliver learning content. It focuses on developing skills for decision-making and enhancing knowledge to solve problems (Al Arood, et al. 2020), which primarily focuses on their general abilities.

According to Ghufli's (2013) surveys, participants recognised the significance of the L&D function in the UAE GOs. It assists in preparing plans and designing L&DS that support modern developments. This system also aids in identifying areas for improvement and necessary KSEs. This indicates that participants comprehend and acknowledge the value of L&D. Indeed, the insight revolves around utilising technology in L&DSs in the UAE (Jackson et al. 2014), as L&D is a highly successful function in UAE organisations (Al-Amiri and Abu-

Shawali 2021). The UAE government offers various opportunities in L&D, as it consistently supports organisations across all aspects (Parameswaran, 2020), thereby illuminating the sector (Shamsan and Samikon, 2022).

Al-Awadhi (2018) agrees with these authors that organisations in the UAE are willing to utilise their best L&D practices and experiences. For instance, HRMPs could create a work environment that invests in and develops KSE (Somu et al. 2020), launch new activities or expand their organisations' systems. Indeed, HRMPS have recently launched activities and practices that may assist in developing their organisations by integrating L&DSs across the organisation (Brassey et al. 2019), facilitating and delivering L&DS through a platform with appropriate resources (Mukhuty et al. 2022).

Furthermore, various challenges arose in different GCC countries. In Kuwait, employees lack the necessary training for their positions and are unqualified. As a result, the current L&DS and models are both incomplete and inefficient (Karam, 2007; Aljassar and Altammar 2020). There are also unqualified HRMPs who focus on quick returns from short-term investments (Elakouri 2018). Other challenges in developing KSE (Lowe et al. 2019) appear in the context of Saudi Arabia's government. Here, HRMPs encounter difficulties in providing quality services, which are evidenced by their KSE levels.

Whereas Oman's organisations consider their employees to be significant assets to the organisations; however, their L&DS is also traditional. Their evaluation system processes are measured as low quality due to the lack of HRMPs' KSE (Albalushi et al. 2019). It requires certain KSE to fit into current jobs and emerging KSE for future success by identifying those KSE that distinguish high skills from moderate and available skills within an organisation (De Beeck and Hondeghem 2010; Albalushi et al. 2019). L&DS in some countries, as indicated, has been designed inappropriately (Khan et al., 2019), which poses serious challenges to entire HRM functions (Waxin and Bateman 2016).

Challenges such as weak techniques and practices are not retaining skilled employees (Al-Aina and Atan 2020), which aligns with Albalushi et al. and supports the research. Furthermore, Skalka and Drlík (2018) concur that the system can evaluate and assess L&D data, which can equip HRMPs for both current and future roles that HRMPs seek in that profession.

Stavrou et al. (2004) and Khan et al. (2016) confirmed that the first challenge HRMPs face in the 21st century is the L&D domain. The L&D aims to retain and develop existing skills to remain qualified in the region (Aldarmaki 2017) because L&D helps to build trust within an organisation (Sung and Choi 2018). The second challenge is significantly related to some HRMPs' practices in L&D (Scott-Jackson et al. 2014a). These practices lack the necessary corporate culture, resulting in inadequate L&DS (Dirani et al., 2018).

Yet, acquiring skills and expanding knowledge can be achieved through L&DS (Blaique et al. 2022); however, there are some weaknesses in understanding the benefits and importance of Technological Affordances (TAs), as noted in numerous practical and theoretical studies (Oliveira et al. 2021). This research concurs with Blaique et al. that TAs are often misunderstood due to a lack of KSE.

Al-Qirim et al. (2018) and Bridi and Al Hosani (2022) focused their studies on developing technologies in L&DSs based on the UAE's unique orientation. A few studies have also identified challenges in the L&D process to address the issue of poor KSE. Consequently, the limitations of HRMPs' practices and their KSE are pertinent to this research. This matter has yet to be fully addressed academically (Waxin and Bateman 2016).

Therefore, some organisations regularly fail to follow the L&D process to retain their employees (Scott-Jackson et al. 2014a) due to HRMPs' practices in the L&D function. HRMPs must take serious steps to change the actions and elements of interaction as part of training (Marks et al., 2001; Mathieu and Rapp 2009), because L&D steps could be reviewed as emergent processes and repeated states in complex dynamics. Additionally, HRMPs could adopt a workplace to invest in KSE by developing (Somu et al. 2020), practising and launching new activities by governing and determining L&DS (UAE 2024) in a short-term, sophisticated way.

This sub-section has discussed how the current L&DS in the UAE government can build confidence in the workplace and lead to a high level of efficiency (Kozhakhmet et al. 2020). It could be built by identifying the current and future KSE (Elnaga and Imran 2013; Nassazi 2013). However, this system cannot be developed through different L&D channels (Mdhlalose 2020). To some extent, the acquisition of knowledge and skills through L&DS in the UAE poses a challenge due to the lack of quality system content.

These are some examples drawn from similar cultures, but different GCC countries, which share some similar challenges. The common theme of the current L&DS is that they are incomplete and inefficient. The processes of L&D are slow, contain long-term preparation, low-quality models and systems, lack of efficient L&D evaluating processes and lack of investment in L&D. The investment in L&D should be appropriate to meet international standards and enhance the quality of L&D by assigning a professional agency (Karam 2007; Aljassar and Altammar 2020) as best practices.

This section has discussed and selected the relevant L&D definitions that L&D is a traditional training engagement that involves a long-term preparatory process and an ordinary style. It has provided some cases from different countries showing the challenges in organisations. There was a failure to properly execute the L&D requirements by concentrating on the environments within organisations (Tlaiss 2014). A lack of understanding of the L&D process, market competition, and a shortage of skilled employees lead some organisations to consider how to retain their employees (Gallardo-Gallardo et al., 2013; Dirani et al., 2018).

Although L&D has begun to drive innovation services in the UAE government (Alosani et al. 2020) due to its intention to develop innovative activities, numerous challenges result in a reluctance or dismissal of innovative work (EL SAID 2017). This reflects an indirect hesitance to enhance KSE for the development or application of new skills and knowledge within organisations, stemming from a lack of proper formulation within those innovative systems (Pollok et al. 2019). Therefore, the evolution of technology cannot be accomplished without a solid understanding of L&DS, as it aids flexibility and facilitates innovation efficiency (Pandita and Ray 2018). For instance, adopting TAs of Artificial Intelligence (AI) could assist in gaining more knowledge on soft and hard skills by recording L&D models automatically, and this discusses in the next section.

The Technological Affordances of Artificial Intelligence

The previous section has discussed the practices and challenges in L&D and its systems, according to various reasons indicated by different authors, including the lack of KSE development by formulated L&DSs in the use of technological resources (Lengnick-Hall et al. 2018). This section narrows the focus to TAs. It investigates the utilisation of TAs in L&DS to identify the effectiveness of this utilisation on HRMPs' KSE (Aboramadan 2020), determines the current challenges of AI algorithms in L&DSs, and assesses HRMPs' actual actions

towards these challenges. It discusses the key debates surrounding some similar GOs to the UAE GOs, the UAE GOs themselves, and the support that the UAE government provides to GOs across all aspects.

Technological Affordances

TAs represent a way of thinking about the properties of both the technology and the actor, such as HRMPs, as well as the interactions between them and the outcomes that can be achieved with a given technology (Gaver 1991). The concept of affordances was developed to examine HRMPs' perceptions and to understand the potential actions of their KSE. This distinction is important because the mere possibility of an action fundamentally differs from its actual execution, necessitating an understanding of TAs in various ways to explain the interactions between HRMPs and AI (Oliver 2005).

The term "affordance" is used to describe how certain features of a system make specific actions possible. In the context of AI and HRMPs, affordance refers to the potential actions that AI can enable or support for HRMPs (Nye and Silverman, 2012). This means that AI offer affordances that can help HRMPs carry out their tasks more effectively. However, when AI operates without TAs, which are specialized L&DS designed to perform specific tasks, it often struggles to handle the complexity and unpredictability of real-world environments (Maes, 1993; Nye and Silverman, 2012). This shows the importance of TAs in enabling AI to L&DS properly. In this context, affordances relate specifically to TAs that enable certain actions and processes. These actions help HRMPs meet their goals through L&DS (Fedorková and Gott, 2020).

A common example is that stairs are perceived and used in terms of their 'climbability', although this may be experienced differently, for example, by someone with a disability. This approach, therefore, provides a means for considering how people perceive a technology, how they engage with it and the challenges they may face.

Many studies contend that these technologies have been designed based on affordances that fit the requirements (Daft and Lengel 1986, Zigurs and Buckland 1998, DeRosa et al. 2004, Maruping and Agarwal 2004) because it leads to automating services and digital processes in GOs by analysis (Trocin, 2021). For instance, some HRMPs utilise TAs to design L&DSs and

achieve the organisation's GOs, while others use it to support them in processing L&D procedures to reduce time and effort under organisation controls.

TAs can be achieved in various ways depending on different mathematical (Nye and Silverman 2012) and computational contexts (Stoffregen 2003), as TAs provide a straightforward method to define the actions present in a system, serving as a powerful means to abstract the potential for actions. TAs may manifest in different ways that facilitate learning of the L&D requirements to infer, which may be engineered to aid in decision-making for adaptation and simulate spatial challenges such as approach-finding (Raubal 2001).

This may involve a different understanding of what can be achieved with technology or finding a new use. In the case of technology such as AI, this can also involve a fear of the technology (Zhan et al. 2023). Authors have therefore highlighted the importance of studying the affordances and challenges of AI (Wang et al. 2024), in terms of its implementation in GOs (Maragano et al. 2023). The research agrees with Zhan et al. (2023) that some HRMPs have differing understandings of what can be achieved with technology or new applications as a result of differing KSE, which leads to varying levels of understanding.

Definitions of Artificial Intelligence and Algorithms

There are different perspectives, interpretations, and definitions of AI, which may be confusing for human minds to interpret (Wang 2008). Based on Kaplan (2016), some people interpret AI as a robot that mimics humans. AI, however, is not solely robotics; it's intelligent and automation support aids processes widely among organisations (Franken and Wattenberg 2019).

AI is “an artificial creation of human-like intelligence that can learn, reason, plan, perceive, or process natural language” (Guenole and Feinzig 2018, p.114). AI is a process of inserting data into a machine to enable it to act and think in a human-like manner, and it involves consciousness (Wang, 2008). AI is defined as a computer's ability to predict KSE autonomously (Strohmeier 2020). Sinha (2017) claimed that AI reacts to some situations because it has been created and prepared to solve problems, recognise speech/ sounds and obtain massive and aggressive data to operate in environments through its decisions. For instance, it can perform various tasks and falls in diverse interdisciplinary areas, notably

‘Context Awareness’, ‘Deep Learning’, ‘Data Security and Privacy’, and ‘Natural Language Processing and Machine Learning’ (Prasad and Reddemma 2022).

Stuart and Peter (2016) affirmed that AI is a modern evolutionary approach, not a traditional one. It has become widespread in recent years and affects people's lives whether they like it or not (Kingsman et al., 2022). It is a powerful technology (Pedro et al. 2019), aligning with Qingyang and White's (2019) perspective that AI is an intelligent agent, which impacts the landscape and alters L&DS radically. A powerful tool across online tutoring and capability development (Keles and Ali 2011; Alnaqbi 2020). It can accelerate progress and deliver customised L&D content based on TAs (Alnaqbi 2020). This supports rapid development by relying on an individual employee's profile as data to recommend relevant L&D opportunities. It also helps fill individual skills gaps for those who need mentors (Chernova and Chernova 2019; Malik and Mishra 2020).

However, Franken and Wattenberg (2019) criticise the current AI definitions because some organisations apply AI in their own way; hence, its usage remains ambiguous, not meeting the requirements of KSE and resources. Different definitions would require organisations to practically understand the AI roles (Bloom 2020) and TAs between HRMPs and AI for effective implementation. It is somewhat difficult to grasp accurately, as it is still in the initial phase of GOs (Andersson et al. 2016).

Despite the various definitions of AI, the definitions in this research are interconnected. Therefore, the research adopts Franken and Wattenberg's (2019) definition, which states that AI does not refer solely to robotics; it is rather an intelligent and automated assistant that can effectively manage processes widely across organisations, including those of the UAE government. This definition has been chosen because it encompasses TAs that facilitate its application in diverse areas while sharing experiences as best practices, similar to examples from different countries. This research context is relevant because TAs influence the KSE and enable HRMPs to implement AI. This definition is more comprehensive and broader enough to encompass variations of TAs.

Alternatively, algorithms are a mixture of a set of constraints and metrics (John Joseph et al. 2020). This term refers to a set of reliable rules based on realistic data or evidence (Anwar and Abdullah 2021). These rules must be interpreted to generate results (Chacón-Gómez, et al.

2024). It is also regarded as a collection of rules designed to distinguish between relevant and irrelevant data (Neyland and Möllers 2019), while also serving as digital data that employs relevant software to process information (Bondarouk et al. 2017; Strohmeier 2020).

It selects specific data to prepare particular points (Kang et al., 2020) and extracts information from various sources to merge and subsequently transform it into results, with or without human intervention (Meijerink et al., 2021). This is achieved through a series of steps to complete tasks (Strohmeier and Citation 2020a; Cheng et al. 2021; Meijerink et al. 2021), which help to build L&DSs (Hidalgo et al. 2020) and enhance acquisition skills (Davenport 2018). This includes computer-programmed steps to execute tasks automatically (Bondarouk et al. 2017; Strohmeier 2020).

Algorithms denote a combination of specific features and rules designed to fulfil the purpose of systems (Mahé et al. 2005). They form a foundation of mathematics and computer science, revealing computers' mathematical patterns and abstract machines (Bondarouk et al. 2017; Strohmeier 2020). For example, robustness, interpretability, precision in physics computation, and visualisation. Furthermore, there is an emphasis on speed and time, as these are considered significant features (Suresh et al. 2024).

Critically, Skalka and Drlik (2018) defined algorithms as a mystery. They claimed that L&DSs remain unaccountable, unclear, and have a poor understanding of coding (Gorwa, et al. 2020). Decherchi et al. (2013) stated that algorithms are complex problems that require some sort of context for their use. They provide highly complex suggestions through a system that HRMPs may not completely understand, anticipate, or tackle during deployment (Lum and Chowdhury 2021).

The research agrees that algorithms could confuse HRMPs in understanding its processes and rules. However, it is essential to recognise that algorithms form the foundation of AI (Hidalgo et al., 2020). They can be trained to develop different workflows and identify functional sequences that derive complex measurements (Bimastianto et al. 2020), which aligns with this research indicating that algorithms should be trained to meet HRMPs' requirements.

This provides significant access to L&DS in organisations for reskilling, enabling the integration of algorithms into highly skilled professionals' roles. Organisations consistently seek to influence the existing algorithms within their L&DSs (The Cabinet 2022).

This sub-section has presented various perspectives on defining AI and its types. It has outlined a TAs for understanding these technologies in use, particularly in relation to the focus on HRMPs' KSE in this research. It has put forward different definitions of Algorithms and selected Neyland and Möllers (2019)'s definition, which describes it as a set of rules designed to differentiate between relevant and irrelevant data.

This definition is suitable for this research because it is broad enough to encompass the common themes from previous studies. It distinguishes between relevant and irrelevant data for UAE systems according to needs. However, developing a platform based on insufficient knowledge would lead to inappropriate results. This definition aligns with the current reality in UAE organisations regarding HRM roles, which are divided into two distinct types of HRMPs. It captures the key elements from various authors' definitions and variations to facilitate the understanding of how L&DS is constructed.

Lastly, Gaver's (1991) definition of TAs was selected as a framework for considering the properties of both the technology and HRMPs, and the interactions between them, when reflecting on what can be achieved with a given technology. This is relevant because it encompasses different ways of thinking based on the KSE of HRMPS, their perspectives, and their interactions with technology.

These three definitions are well-suited for this research. It is significant to know that TAs do not mean understanding AI solely, as AI has several affordances and uses for different purposes (Gibson et al. 2022). The next subsection discusses current key debates surrounding AI, analyses and evaluates those debates to understand the utilisation of AI algorithms in the GOs, and applies the selected definitions theoretically and practically in this research for further understanding.

Artificial Intelligence and Learning and Development: Key Debates

The previous sub-section has selected Franken and Wattenberg's (2019) definition that AI is not just robotics; it is intelligent, and automation assistance predominates processes widely among organisations. Neyland and Möllers (2019) define algorithms as a set of rules designed to distinguish relevant from irrelevant data, and Gaver's (1991) definition of TAs represents a way of contemplating the properties of both the technology and HRMPs, as well as the interactions between them when considering what can be achieved with a given technology. It

has discussed the effectiveness of the challenges in L&D and its systems due to various reasons indicated by different authors, such as the lack of development of KSE through formulated L&DSs to utilise TAs (Lengnick-Hall et al. 2018).

Additionally, the utilisation of AI within L&DS may yield numerous benefits, such as increased effectiveness of KSE, more accurate data, improved L&DS, streamlined processes (Arora and Mittal 2024), and enhanced deep developmental learning (Leus 2022). For instance, well-developed KSE indicates that L&D will effectively establish the process (Gibson et al. 2022). AI encompasses rules related to leveraging the existing system and designing or developing a new L&DS by utilising available technology (Bobsin et al. 2019). This is relevant to this research, as the effectiveness of TAs when HRMPs engage with L&DS can advance their KSE (Ikhida et al. 2023) based on their perceptions (Chemero, 2003).

AI can help save time and resources by swiftly interpreting data for HRMPs' attention in critical situations (Houlton 2018). It can alleviate some of the screening load (Ting et al. 2017). They can concentrate more on complex tasks that cannot be performed by AI but only by HRMPs (Aung, et al. 2021). AI can lower the cost of extensive screening services (Tufail et al. 2017). It can partially generate reports and eliminate redundant data (Saifi et al. 2013), which underpins this research. Jones et al. (2018) regard HRMPs as facing immense stress and workload that may lead to mistakes. Their involvement also defines AI, illustrating how AI supports HRMPs and reduces errors through the precision of algorithms.

This potential consequently made access actions available and enhanced the relationship between (Markus and Silver 2008) HRMPs and AI artifacts in the system to achieve their objectives. One approach that HRMPs can use to understand AI is by exploring TAs associated (Achmat 2023). For instance, when HRMPs talk about AI, they perceive and understand it as a supporting technology that will help them reduce their time and effort. It is now understood to be perfectly perceivable and real (Chemero, 2003).

Cheng and Hackett (2021) state that AI can establish a framework for L&D to function and generate automated results, predict (Garg et al. 2021), and understand various skills. AI can also make decisions and provide updated recommendations and guidance on L&D guidelines or developments in line with the latest policies and suggestions (Jones et al. 2018). It can analyse the inputs and outputs throughout the data acquisition process for rapid

recommendations (Cheng and Hackett 2021) to relevant L&D (Chen et al. 2007; Garg et al. 2021), which aligns with functional roles (Rosenbaum 2019; Garg et al. 2021). This illustrates the correlation between HRMPs' practices and skills acquisition (Phillips 2019).

AI enables dialogue to address individual differences, compensating for the deficiencies of HRMPs (Goyal 2012; Abaidoo 2015; Hošková-Mayerová and Rosická 2015; Baleni 2015; Arkorful and Abaidoo 2015; Alnaqbi 2020). Indeed, Malik and Mishra (2020) and Al-Braiki et al. (2020) concur that AI should propose L&D models to support HRMPs. For instance, AI could excel in L&D activities, transforming these experiences into enjoyable and engaging encounters while cultivating new and comprehensive KSE (Algahtani 2011; Alnaqbi 2020).

AI algorithms could streamline HRMPs' efforts, such as determining their work through specific steps. Lupton and Jutel (2018) suggest providing smartphone applications to tailor their KSE online, which can offer suggestions. For instance, AI facilitates the transfer of the L&D process to electronic formats and suggests relevant L&D models (Chen et al., 2007; Garg et al. 2021), such as deploying chatbots. Chatbots serve as career instructors for employees, suggesting relevant readings and training courses to HRMPs (Castellanos, 2019; Garg et al., 2021). It is essential to note that the current process of utilising AI is comprehensive.

Another new technology that has been discussed recently is ChatGPT, or 'Generative Pre-trained Transformer' (Yukadhirza and Muslem 2023). ChatGPT is a digital technology (Prananta et al. 2023). It is a generative form of AI that serves as a tool for HRMPs to input data and obtain videos, images, and texts produced in L&D by AI (Dwivedi et al. 2023). This technology employs natural language processing to respond to questions and create conversational dialogue through various types of written content, such as emails, code, reports, and L&D models (Taecharungroj 2023).

Moreover, ChatGPT utilises deep learning and machine learning to generate similar text to HRMPs' through neural networks that derive text based on typical sequence training data (Tang et al., 2023). Rudolph et al. (2023) claim that an unlimited amount of data is available to pose different questions. For instance, ChatGPT's results were generated based on existing data derived from conducting training models to understand the context and questions, which add value in various fields, such as research, language skills development, and learning (Prananta

et al. 2023). However, Prananta et al. assert that the data in ChatGPT became effective after 2021, meaning that no events or historical data were uploaded before that year.

GPT presents some challenges for HRMPs due to the limited information available based on existing data, which also incorporates subjective data. It contains some accurate and relevant results because Yukadhirza and Muslem (2023) compare the interaction between HRMPs and GPT, and between HRMPs and HRMPs in terms of knowledge provision. They claim GPT has difficulty formulating questions and provides less relevant answers.

This indicates that Rudolph et al.'s statement is more aligned with the research because it incorporates unlimited data, whereas GPT has recorded training prior to 2021, which conflicts with Yukadhirza and Muslem and Prananta et al.'s assertion, since each new technology faces challenges, whether minor or major. GPT regards this as a minor challenge due to its extensive data, which enables many users to obtain information quickly with less effort.

Algorithms, alternatively, lead to a specific prediction for suggestions (Sun and Medaglia 2018), focusing on developing efficient L&D operations. They can guide HRMPs in designing a rapid response and effective system with embedded AI (Nye and Silverman, 2012). The responsibility is more significant than merely considering AI, which aims to enhance HRMPs' outputs when things go awry. Thus, it remains unclear who is responsible for the mistakes in L&DS. HRMPs are accountable for developing the system, but not for algorithms, nor for controlling it in any way. This sub-section narrows the focus to the critical area of TAs.

1. Technological Affordances of Artificial Intelligence in Learning and Development Systems

Technologies are useful these days as they influence L&DSs, and these technologies affect HRMPs' KSEs (Khalid 2023). This effectiveness enables HRMPs to excel in general KSE based on internal and external conditions that assist them in achieving high skill standards. However, they cannot guarantee those skills indefinitely, so they must continue developing them in the future (Kenny, et al., 2007). Skills development is essential to continue utilising the affordances of AI in L&D (Frögéli et al. 2023), which aligns with their views.

It is important to note that TAs are the main process of designing the online activities that integrate possible learning opportunities and HRMPs' KSE and their perceptions with the contextual factors, which build an interface between these two agents (HRMPs' Designers) and

(HRMP's Followers) (HRMPDs) and (HRMPFs). Badia et al. (2011) and Al-Maawali (2020) state that AI is considered a pattern of digital interaction enhanced for L&DS purposes, including assessment, communication, instrumental cognitive, collaborative, and content HRMPDs.

Duan, et al. (2024) support Al-Maawali's view that HRMPs' decision-making, coordination, knowledge sharing and communication can enhance TAs. TAs help to understand the interactions between HRMPs and the environment and the environmental characteristics due to technological artifacts that offer certain possibilities under certain circumstances of each organisational context, appreciating the use of technology socio-dynamics under different circumstances. Such as Chatbots and ChatGPT.

There is a similarity between L&DS and traditional distance L&D approaches in focusing on "any time, any place", assuming HRMPFs are distant from the HRMPDs. Instead, L&DS tends to design short textual, virtual, and audio L&D models as insights through suitable content for intelligent L&D. These insights inform and develop the system (contextual and technical), highlighting the requirements for interaction and communication, and fully automating the learning processes and delivering L&D models, while HRMPs are not required to be present at the same venue and time (Gros and García-Peñalvo, 2023). This is irrelevant because it centres on designing L&DS and not TAs in L&D.

While Wu et al. (2022) discuss the importance of focusing on TAs to achieve L&D goals by providing valuable insights for designing L&DS effectively, involving digital developments in L&DS, and executing it successfully through comparisons of HRMPs' practices across different sectors. This research concurs with the study that TAs can positively influence the design of L&DS; however, it does not address the effectiveness of TAs on HRMPs' KSE. Wu et al. note that developing a platform is viewed as a challenging step due to the uncertainty related to HRMPs' KSE. KSE requires guidance to outline their requirements before engaging in any development process to gather accurate data and design a platform based on those requirements, which is pertinent to this research regarding the challenges in system design.

Adopting TAs provides opportunities to gain a better understanding of digital AI. This adoption emphasises the digital TAs for specific possibilities to achieve an HRMP goal, which suggests that the usage of AI relies on the relationship between an HRMP goal and its characteristics. Increasing the use of AI requires more flexible, contingent, and widespread work arrangements

between organisations and HRMPs, leading to the broad adoption of digital processes, which aids in comprehending the influence of AI on critical KSE (Duan, et al. 2024). This study examines the impact of TAs on job performance, which is somewhat relevant as it does not directly affect KSE.

Mao (2014) supported the view that utilising information and communication technology can influence L&DS by providing direction in designing the system. This perspective may seem irrelevant, as the research focuses on the effect of TAs on KSE. However, it is relevant because TAs create opportunities through e-interactivity that facilitate interactions between HRMPs and L&DS for learning purposes.

Li, and Chen, (2021) concur with Mao and Brown that TAs contexts emphasise the affordances of e-interactivity, as these features are present in nearly every user interaction with internet communication technologies. Therefore, Wu et al. (2022) summarise TAs as a multidimensional construct comprising three signals: user control, two-way communication, and synchronicity (Lu et al., 2019; Yoo et al., 2010), which implicitly supports the research due to the interactions.

The HRMPDs provided opportunities for utilising AI from the HRMPFs' perspectives. The interface between TAs and collective HRMPs has often been neglected. The learning possibilities created by HRMPDs and the subsequent opportunities for HRMPFs are interconnected.

Consequently, the extent to which HRMPDs can generate opportunities to address the requirements of HRMPFs while effectively conveying the value of those opportunities depends on how these affordances for collaboration and learning can be utilised. Canter (2012) suggested that engagement with L&DS requires HRMPFs to enhance their KSE to become more self-directed and autonomous, as rapid development in Oman necessitates changes in HRMPs' practices. (Al-Maawali 2020). This is relevant due to the interactions.

Therefore, the HRMPFs in online opportunities and affordances are contextualised for action, which leads to their growth and learning (Pols, 2012), while HRMPDs require the refinement of those actions to create opportunities for designing AI task-based L&D (Amerian and Mehri, 2014). However, the influence of the HRMPDs' perspective on affordances regarding HRMPFs' perceptions remains unclear. This interrelation is not distinctly identified in the

definition of TAs, particularly for agents (Al-Maawali, 2020); although the study focuses on the roles of HRMPs, it concurs that the interrelation is not well-defined.

Despite the significance of TAs in L&D, they are steadily understood differently (Laursen and Foss, 2014; Lertxundi et al., 2019). Different HRMPs employ different methods for utilising AI to develop KSE (Almarzooqi 2019) while they are engaging with AI. It determines whether the system yields positive or negative outputs when engaged immediately, implying that TAs can be used differently (Gibson 1977; Ikhida et al. 2023).

Interestingly, the more data is fed into algorithms and trained, the more algorithms are developed through mechanical feedback to ensure high precision at every step (Dilsizian and Siegel 2018). This process helps to predict any risks that could occur (Stewart 2018). AI can increase KSE because it holds great promise in classifying and analysing data that is extremely adept at making inferences from complex income (Dias and Torkamani 2019). Hence, TAs are significant in identifying the roles of HRMPs and L&D opportunities because their roles are at the core of the AI-based L&D domain, which provides a rich interactive learning space (Schrader, 2015; Al-Maawali, 2020).

In creating specific KSEs for AI, it could provide different TAs based on different (Fedorková and Gott 2020) HRMPs' KSE since it has multiple affordances for different purposes based on their perceptions. However, AI stated that no comprehensive set of TAs fits all contexts (Gibson et al. 2022). Thus, the research agrees that AI could support HRMPs in developing L&DS, regardless of how different HRMPs' KSE levels are, which might affect and drive them to understand and practice TAs to achieve their goals.

Nevertheless, Pillai and Sivathanu (2020); Bhagyalakshmi and Maria (2021) disagree with this statement. They claim that utilising AI in L&D has limited effectiveness in selecting suitable systems to acquire skills. AI helps to make decisions as a service function in L&D (Nozari et al. 2022). However, it may also lead to poor decisions (Alexopoulos, et al. 2020). Thus, the research aligns with Alexopoulos that AI may produce poor data due to the lack of data provided.

The current debates among authors focus on how organisations manage their online systems and digital activities to explore new TA (Alrawi 2022). The research aligns with Duan et al. (2024) that the utilisation of AI for digital work impacts the development of both HRMPs-roles

and L&DS by enhancing KSE and L&D approaches, such as knowledge sharing and information exchange, which can be relevant in countries with similar cultures and organisational orientations.

This study agrees with the notion that the opportunities created by HRMPDs may have a positive impact on the engagement with new platform opportunities among HRMPFs. Comparing HRMPDs' and HRMPFs' perceptions of the impact of L&DS with their awareness of internal L&DS revealed a strong relationship. It requires HRMPDs to raise awareness about the L&DS' TAs and expedite the launch of a platform that supports collective HRMP roles based on TAs. (Al-Maawali, 2020).

Wu et al. (2022) discuss Constructivist learning as both a theoretical and practical paradigm in education. Consequently, the platform will differ from traditional L&D due to face-to-face interaction and collaborative approaches (Patak et al., 2016), enabling a space for exchanging eye contact and body language. L&DS does not provide adequate resources to meet HRMPs' requirements; for example, accessing various relevant models and engaging in group discussions on specific subjects is challenging due to insufficient resources, as agreed upon in this respect.

Gros and García-Peñalvo (2023) identify HRMPs' KSE and engagement as factors that may lead to a successful platform. There are numerous impacts on HRMPs' goals. This study highlights the design of an L&DS based on HRMPs' needs, emphasising that providing personalised feedback that is formative and timely presents significant challenges in aligning L&DS with other recent studies, which have underscored similar challenges to effectively support L&D.

Consequently, all the authors concur with the research on utilising TAs in L&DS, as it aids them in achieving their goals while reducing their time and effort. The design of an AI-based L&DS relies on TAs. However, they did not explicitly discuss the effectiveness of TAs on HRMPs' KSE in L&DS. The research concurs with Al-Maawali that the roles of TAs by AI remain a mystery in achieving HRMP's goals. This mystery necessitates further clarification to enhance the understanding of TAs to support them in their work.

2. The Challenges of Utilising AI within Learning and Development System

There are several challenges to the successful adoption of TAs in L&DS across various aspects, such as ethical issues, technology data acquisition, and others (Aung, et al. 2021). Ethical challenges have been closely tied to AI from the outset, primarily concerning data safety and privacy, including accountability (Ting et al. 2017), as poor decisions can have significant consequences; thus some HRMPs must bear responsibility. Treem and Leonardi (2013) and Siegert and Löwstedt (2019) concurred that data security is at risk online due to the potential for misinterpretation, and there is no mechanism to revoke this. This is regarded as a high risk, particularly in GOs, as they typically handle sensitive and critical data within the system.

The challenge involves a complicated guideline on utilising AI ethically, as there are no international standards on how to implement AI within the system, and the adoption of AI in the system remains ethically ambiguous. Nevertheless, one of the US industries has established guidelines for evaluating the efficacy and safety of AI in these systems (Jiang et al., 2017). AI challenges shape L&DS design (Al-Maawali 2020). Meanwhile, the UK has defined a code of guidelines on how to substantiate the efficacy of AI-driven technology (GOV.UK. 2018).

Despite the importance of size and high-quality L&D data for achieving L&D objectives (Kavzoglu, 2009), a significant challenge remains due to the lack or insufficiency of current data (Ho et al., 1994). Gathering relevant information is often time-consuming, complex, and inconsistent (Kent et al., 2021). To overcome this, data should be collected from multiple sources and modalities, and the dataset should be regularly updated (Kavzoglu, 2009).

Additionally, this process demands substantial effort and computational resources to fine-tune the data for L&D purposes (Kavzoglu, 2001). Kent et al. also propose using computational methods to unify data sources, enabling the automatic identification and categorisation of KSE. Such automation could facilitate the design and evaluation of L&D models without requiring human intervention. I agree that achieving L&D goals requires significant time and effort due to these data-related challenges.

Also, L&D requires a scientific and unbiased approach to interpreting L&D strategies involving AI and defining L&D needs through online training methods, while paying attention to L&D objectives and cost-effectiveness (Zahra et al. 2014; Maity 2019). It has high implementation costs (AlGhanem et al. 2020), particularly when adopting new technologies;

in line with the UAE cost-cutting policy (UAE FAGHR 2012), which reinforces the necessity of a scientific and unbiased approach for the reasons mentioned.

Another challenge that HRMPs face is describing objects and artifacts to explain their practices and the effects of TAs on their KSE (Ivaldi, et al. 2022), while AI is not integrated within the validation of HRMPs' practices and artifacts affordances by matching professional KSE with existing KSE standards in a system that HRMPs can understand the uses of AI (Fahrenbach, et al., 2020), however, artifacts affordances are based on the practices of HRMPs, whether they are HRMPDs to have the freedom to design the system or HRMPFs to follow fixed processes in L&DS (Janlert and Stolterman, 2017). Each has different practices that affect artifacts affordances.

Third, Russell (2019) claims that AI presents threats to humanity, both directly and indirectly, to achieve more thorough, efficient, and clear goals. However, AI will not undermine HRMP's values, because these do not empirically cause risks to HRMPs. AI has no innate desire to protect itself, nor does it have an aim of its own, as it is uncertain about HRMP's values.

According to Roy et al. (2023), KSE could be expected to be positive when sharing knowledge; however, sometimes this knowledge sharing is reluctant when recognising that TAs facilitate the action, perceiving it as time-consuming and fearing the loss of their jobs by failing to add value (Nguyen et al., 2019; Ouakouak et al., 2021). Some HRMPs consider AI to be intimidating (Woodruff et al., 2018). HRMPs lack accurate knowledge about the types of data collected and how this data is used in L&DS (Felzmann et al., 2019). They are aware or assume the methods of processing personal information and income during their engagement with AI in the system; however, they fear not understanding how AI handles their data (Baskaran and Mathew, 2022).

This threat fosters distrust and aversion towards AI interventions, which are fundamentally based on their understanding of TAs in various forms. Some HRMPs fail to recognise that AI will re-engineer their roles (Topol 2019), aligning with research indicating that AI will assist HRMPs rather than pose a threat. HRM is unpredictable and inherently human, but it is not defined by structured and linear algorithms (Meskó et al. 2018), which impacts their trust in embracing AI. A different understanding of TAs results in unrealistic expectations regarding

its efficacy and outcomes. These outcomes contribute to disappointment and a reluctance to trust any technology (Aung et al. 2021).

The purpose is to simplify adoption and innovation in verifying processes that remain underdeveloped and to address the challenges posed to the consent of AI-based interventions by regulatory bodies and courts. Thus, it is significant to consider international ethical standards that promote the adoption of AI benefiting HRMPs (Aung, et al.). The authors express concern regarding AI in HRM and the fear of replacing HRMPs' jobs (Sun and Medaglia 2018). Kronblad (2020) concurs that automation is reframing the system by minimising reliance on HRMPs' KSE. This suggests that reliance on TAs is increasing while HRMPs' KSE diminishes to a lower level, which contradicts the research that shows AI is enhancing HRMPs' KSE, enabling them to better utilise L&DS. Therefore, AI does not pose a threat to HRMPs if it is implemented appropriately.

It will not threaten HRMPs if they acquire the right KSE. Rather, it can support them because AI has been designed to assist HRMPs in various services. For example, online services can deliver the required clear and efficient services, while it is crucial to understand the causes of delayed services (Bakker, et al. 2016), which contradicts Russell's viewpoint. Therefore, TAs are the expectation of HRMPs' outcomes based on their KSE in the government sector, and this depends on HRMPs' perception and engagement.

Aung et al. (2021) believe that HRMPs still require more complex emotional and cognitive tasks, while the processes of summarising and generating reports are automated. The authors suggest that AI should critically concentrate on the KSE of HRMPs, rather than eliminate their roles. These KSE will optimise their contributions, as AI has limitations or may not function in certain contexts (Verghese et al. 2018). It is crucial not to be fearful of AI, although some HRMPs may not comprehend how to utilise AI algorithms; however, they are familiar with operating L&DSs (Sun and Medaglia 2018).

Aung et al. (2021) state that there are some shortcomings, such as the need for HRMP to understand precise AI mechanisms and a lack of transparency in AI algorithms, which may be acceptable, provided the algorithm's efficacy is demonstrated. HRMPs should compare the AI results of the internal L&DS with those of the government system to identify mistakes, rather than holding AI to a standard of either no results or perfect outcomes (Ninov et al. 2024).

Therefore, there are challenges, such as a lack of consensus in AI governance within the government to effectively frame AI whose algorithms could be generated across L&D government systems (Wiens and Shenoy 2018). AI-based L&DS must be competent and safe to use.

Yet, AI is used in Middle Eastern governments (Stirling and Miller 2019); however, technology remains one of the biggest challenges in this region (Schwab 2019). L&D sources of knowledge within particular organisations are not always accessible (Malik and Mishra, 2020). In contrast, HRMP practices in the Middle East present an unclear picture in the studies (Afiouni et al. 2013). Zahra (2011), alongside Afiouni et al. (2014), stated that most studies in the region remain anecdotal, conceptual, and normative. This diversity reflects studies that are conceptual and fragmented, making generalisations difficult (Afiouni et al. 2013). There is, however, a significant lack of increasing studies (Crompton et al., 2024), as there are limited studies on the effectiveness of TAs and AI in KSE. For instance, TAs are not sufficiently represented in some studies (Achmat 2023), along with the weak theoretical grounding of many studies (Rapp, 2019).

In summary, the studies included minor predictive and not descriptive elements. The authors argue that the value of AI can be diminished by penalising employees through the withdrawal of training. However, forecasting punishment among others can be challenging as it often lacks evidence due to limitations in predictions. They did not describe much about the effectiveness of AI algorithms in L&D on KSE, nor did they explicitly explain the use of TAs in L&D in GOs, which highlights the limitations of these studies. Still, AI has made various adjustments that influence KSE, as it allows for the acceleration of progression and the delivery of customised L&DS based on TAs (Alnaqbi 2020).

AI algorithms incorporate HRMPs' feedback to enhance initiatives in L&DS (Maity 2019), guiding HRMPs towards appropriate L&D processes. This powerful tool utilises online tutorials to conveniently build capability and acquire knowledge (Jing 2016; Jing Huang 2016; Alnaqbi 2020). Consequently, L&DS becomes interactive and proactive in GOs (Siau and Ma 2018; Alnaqbi 2020), whilst recognising the potential effectiveness of KSE, which is essential for developing the current system (Goodman 2022). This may enable HRMPs to gain profound new knowledge and develop soft skills through effective scoring skills. The authors advocate for the deep integration of AI within the system to enhance the quality of processes and alleviate

workload. The final sub-section discusses and illustrates AI in L&DS within the UAE and similar GOs utilised by HRMPs, exploring the research aim and identifying challenges.

Artificial Intelligence in the Learning and Development System in the United Arab Emirates

Previously, the research discussed the key debates surrounding the use of AI in L&DS. HRMPs play a significant role in adopting AI to support the development of L&DS, which enhances KSE. This final sub-section discusses AI in L&DS within the specific context of UAE GOs. While investing in AI in UAE organisations is important, the investment does not yield positive outcomes and presents certain challenges. It identifies these challenges and actions addressed by HRMPs, identifying the effectiveness of utilising AI algorithms on HRMP's KSE by understanding HRMPs' engagement in L&DS. It is not essential to grasp all the technical developments and networking behind AI algorithms, but it is significant to know how TAs are utilised (Almarzooqi 2019).

The government sector has several fundamental roles, including, but not limited to, monitoring economic, cultural, and social activities within a country, enacting regulations and supervision, ensuring that laws and regulations are adhered to by citizens and non-citizens, and playing a pivotal role in the organisations and management of a country (Brooks n.d). Furthermore, the government sector provides essential services to citizens and non-citizens, including, but not limited to, education, healthcare, infrastructure, transportation, and security, which are vital for enhancing the quality of life (Mintzberg 1996).

The UAE is one of the pioneering countries to adopt AI (Tegon 2021) and has made commitments by allocating substantial budgets for this purpose (Alnaqbi 2020), focusing on AI as they regard L&DS officials as best practices (Abadzi and ElAsad 2021). In 2017, the UAE government established an AI strategy as the first development project to deliver the Centennial objectives plan in the UAE, which aims to make UAE GOs 100% dependent on AI by 2031 to enhance the quality of work (Almarzooqi 2019). This growth seeks to align GOs employees' skills with organisational objectives. This alignment can be achieved by developing various hard and soft skills efficiency (Alkhaleej Times 2017; Alnaqbi 2020).

The UAE government has invested considerable time and a substantial budget in developing skills, enhancing knowledge, and raising awareness of inherent obstacles. In 2020, it allocated

14.8% of the federal budget to develop the system and provide quality L&D models to enhance knowledge (No Poverty-The Official Portal of the UAE Government 2024). The UAE has commenced teaching AI to raise awareness among people and enhance their understanding, as AI is viewed as a new tool within the UAE GOs – ones requiring specific skills for understanding and successful operation. This may necessitate that HRMPs comprehend the terminology to design and process the system based on their understanding. It is a less time-consuming and tedious process, as they are less inclined to engage with detailed procedures through just one click (Sarker 2022).

AI in the UAE plays a core role in designing L&DS and models based on standard data (National Program for Artificial Intelligence 2022). In contrast, Almarzooqi (2019) argues that AI in the UAE has certain roles to fulfil in L&DS. Each role possesses its own data that follows a series of steps, while the networks can seamlessly deliver L&DS by representing a high level and testing various data based on TAs. AI can facilitate the recognition and pre-processing of these systems, incorporating a database to develop better and more reliable systems (Juang et al. 2021) of informative L&D rapidly.

Although vast amounts of data are processed through the power that has emerged to initiate a new world of AI potentials, there are still some challenges in developing AI within the system. For instance, there is a lack of relevant standards and a shortage of regulations in L&D data; additionally, the existing systems are inadequate. Some employees and management find it difficult to adapt, and others claim they won't use it (Aydin and Turan 2023). In terms of management, there is abusive management (Ashforth 1994; Tepper 2000), which has given insufficient attention to minor explicit management support, such as poor posture (Rooney and Gottlieb 2007). They often fail to adhere to the L&D process (Scott-Jackson et al. 2014b). However, Cappetta and Paolino (2015) argued that management supports the development of the L&D processes with high-quality strategic roles.

This is significant for employees because it motivates them both extrinsically and intrinsically to perform their work better (Al-Jubari et al. 2019), allowing them to adopt a more positive perspective towards their workplace (Kurtessis et al. 2015). However, the actions taken and accepted by management to support HRMPs, aligning with the HRM strategy, are particularly crucial if senior HRM clearly states the importance of developing HRM roles (CCH Incorporated, 1995); nonetheless, management did not sufficiently recognise the actions of

HRMPs. For example, a critique of certain mainstream management practices indicates that the process of implementing their actions is either wilfully misleading or they choose to remain silent on specific issues (Clegg and Ross-Smith 2003). The research aligns with previous studies indicating that some managements support the development of L&DS and processes, while others do not.

It presents a valuable opportunity to advance the L&D models within UAE GOs (Mehr 2017; Almarzooqi 2019). However, the use of AI in L&D remains insignificant and has negative implications (Singh and Shaurya, 2021) due to its utilisation by certain HRMPs lacking appropriate KSE, which leads to failures and can generate greater challenges in applying relevant skills for AI (Almesafri and Habes, 2023). UAE studies in AI are minimal according to the research. For instance, Dubai GOs continue to offer a range of L&D models through one of the world's top institutions, which can add value (Budhwar and Mellahi, 2016). However, Zahi and Khanfar (2009) claimed that HRMPs are not involved in the L&D institutions' process due to a lack of confidence and knowledge regarding AI. Additionally, there is a lack of information security, which leads to unclear or inaccurate data from AI, potentially resulting in the creation of unreliable reports.

Moreover, there is fear and resistance to change. For instance, some are still utilising traditional approaches to practice HRM roles, which poses a significant challenge for the UAE government as it represents a waste of time and effort. Indeed, the UAE government instructs HRMPs to collaborate with L&D institutions to learn from their experiences and adopt best practices (Jose and Chacko 2017), thereby highlighting the skills gap. Although the country seeks to develop innovative activities, various obstacles and challenges deter employees from working innovatively (EL-SAID 2017). For instance, the system evaluates the duration spent processing L&D transactions through multiple outdated systems, requiring HRMPs' interaction at each step via numerous screens (Lukonin et al., 2021).

It is a dependent system that does not eliminate the need for HRMP practices; rather, it merely processes the entries of the HRMPs and transfers information from one computer to another. Occasionally, it encounters challenges during transactions or loses all data entries due to hacker attacks, technical issues, or a slow or unstable internet connection (Akmad and Abatayo 2024), such as a software update by global cybersecurity firm CrowdStrike (Sky news 2024), which

wastes time and effort. Furthermore, it continues to hire HRMPs to operate the manual system (Vyas Yagneshnath et al., 2020), highlighting some of the system's limitations.

In conclusion, these are some pitfalls in L&DS, far from a sophisticated approach that undermines AI in all fields and leads to negative impacts. AI presents a challenge for HRMPs, as they oversee AI in HRM operations (PwC report, 2018), yet the HRM infrastructure is weak (Almesafri and Habes, 2023). Hence, there are two core pitfalls associated with utilising AI in L&DS. Although the government of Dubai strives to provide the right resources to develop L&DS, the first pitfall is that HRMPs lack KSE in utilising AI. The second pitfall is a lack of security information and unclear or inaccurate data, which may result in erroneous reports.

HRMPs in the UAE believe that developing KSE through AI is intrinsically linked to their daily practices. They do not consider it a core challenge in L&D for the future because the UAE predicts that AI will be involved in HRM, and HRMPs believe that their main role in L&D will be to deliver and support efficiently (Zimyo 2024). However, there is a lack of HRMPs, such as appropriate KSE, to operate these functions effectively (Hammad et al., 2011; Karam et al., 2017). In addition, Malik and Mishra (2020) strongly agreed with Maity's (2019) perspectives that L&DS are computerised, such as using the Oracle system. The Oracle system is one of the UAE government-HRM systems that transforms ordinary L&D into AI, which is consistent with Bhagyalakshmi and Maria's (2021) viewpoint, as they noted various authors sharing similar views in their studies on developing new skills and identifying knowledge gaps. However, L&D still faces complexities in the UAE sector (Alnaqbi 2020), possibly due to the survey's results.

Accordingly, two surveys are mentioned in this content. The first survey from The Everywhere HR (2019) states that by 2030, AI will influence organisations by 85% on HRMPs' plans, meaning it will be more adaptable. Another survey conducted by PwC (2017) indicates that by 2030, the required skills will be valuable. Meanwhile, it revealed that 40% of HRM functions, including L&D, are currently utilising AI and expect to fully integrate AI with HRMPs' operations and discipline by 2030. This aligns with the UAE 2031 vision to become one of the countries capable of leading others in AI (National Program for Artificial Intelligence 2018). The services and operations will no longer be manual, as HRMPs will utilise L&DS with AI for administrative concepts (Juang 1996; Juang et al. 2021), because it has not followed international standards, there are gaps in its approach. Both surveys indicate that currently, AI

is utilised at the initial or middle stage of vagueness. Moreover, according to the surveys, the requirements for HRMPs' KSE and resources are lacking. Thus, AI can create and enhance awareness (Imran et al. 2014) by providing high-quality services and assisting HRMPs in addressing such challenges. They also assert that using AI may limit opportunities for career advancement, teamwork, and job rotation (Findlay et al., 2017; Bhargava et al., 2021), and may reduce KSE (Chui et al., 2015; West, 2015; Bhargava et al., 2021). Consequently, the more practices HRMPs implement in developing L&D, the more effective and efficient AI algorithms trained and integrated into L&D can be (Garg et al. 2020).

This research aligns with Garg et al.'s view that HRMPs play significant roles in developing L&DS. However, the research disagrees with Duan et al. (2024) and Al-Maawali (2020) because they did not explicitly discuss the effectiveness of AI on KSE in their studies, which could influence TAs in L&DS, nor did they address AI challenges within the system. Understanding the processes of TAs for better AI leverage to develop KSE within the increasingly L&DS framework is significant, which require a better understanding of the actual process of TAs between HRMPs of AI in the L&DS.

This necessitates exploring TAs for developing L&DS, which does not support the research in this aspect. While Gros and García-Peñalvo (2023) discuss how the current L&DS involves young and adult HRMPs and how they can collaborate on their projects online, they only address the challenges that adults face in becoming independent through L&DS activities that emphasise collaboration and social interaction.

Meanwhile, Wu et al. (2022) predominantly propose a design strategy that fully and uniquely incorporates TAs and constructivist learning; however, this is irrelevant to this research, as Gros and García-Peñalvo focus on the generations of HRMPs rather than their KSE, while Wu et al. concentrate on designing AI strategies and constructivist learning. Nevertheless, Al-Maawali disagrees with this research on a few points; however, it is the closest to this research due to the shared cultural context and alignment with the research objectives.

Therefore, the recent debate centres around TAs, which continue to rapidly develop their use in some organisations, specifically in L&DS. AI, however, is widely recognised (Qamar et al., 2021). Other perspectives argue that L&D standards are assertions that lack precision. Despite this, most academic studies discuss HRMPs' practices in L&D; few studies discuss the effectiveness of AI (Yozi 2018) on KSE (Okechukwu 2017). There is also a lack of academic

research on HRM in the Arab world in general (Rees et al. 2007; Forstenlechner, 2010; Waxin and Bateman, 2016).

The studies suggest using AI to design L&DS in GOs by establishing guidelines and standards to promote a positive understanding and avoid unfairness. It also includes dedicated datasets to train AI and its models, enhancing AI awareness based on different authorisations and roles through the introduction of AI sessions. This involves offering an ethical framework for those who design L&DS related to moral issues and fostering collaboration between GOs to benefit KSE and address issues (Isagah and Musabila, 2020).

The action that UAE GOs need to take is to deploy TAs effectively towards their vision (Mikalef, et al, 2019b; Mikalef and Gupta, 2021). In summary, Strohmeier and Piazza (2015) stated that HRMPs have begun to produce AI as a set of various applications. Some authors claim that AI has been successfully utilised in certain HRM functions; however, AI in L&D is still moderately nascent and is progressing (Strohmeier and Piazza 2013; Tambe et al. 2019). This has highlighted the challenges that HRMPs face when utilising AI in specific organisations (Budhwar et al. 2022).

Therefore, the research aims to explore the utilisation of AI algorithms within L&DS in government sector organisations in the UAE to obtain first-hand experience for interpreting the conceptual findings. The objectives and research questions were refined during the pilot study, based on HRMPs' understanding of TAs and their engagement with UAE GOs. To discover the answers from these HRMPs, I have designed the aim and the objectives:

- To identify the effectiveness of utilising AI-Algorithms on HRMPs' experiences, levels of knowledge and skills
- To determine the challenges of the current AI-Algorithms within L&DS and their actual actions towards addressing these challenges in the UAE government sector, whereas the research questions are indicated as follows:
 - What are the technological affordances of AI for HRMPs in L&DS?
 - What are the challenges faced by HRMPs regarding the current AI-Algorithms within L&DS, and how are they addressed?

The next chapter sets out the methodology adopted to address these research questions.

Methodology

The previous chapter has discussed the key terms and selected the most relevant definitions for this research theoretically and practically in The Literature Review (LR). It has discussed and evaluated the current debates on HRMPs' (Human Resources Management Practitioners) practices in Learning and Development (L&D) by utilising Artificial Intelligence (AI) in the United Arab Emirates (UAE) government sector. This chapter presents the method used for data collection and analysis, namely Interpretative Phenomenological Analysis (IPA) (Smith and Nizza, 2022).

It is significant to note that when collecting data, I used the term 'T&D' during the interviews with participants, as it was found to be most relevant to them. However, I have used the term L&D in this research as a new term (Ahammad, 2017; Ostinelli and Crescentini, 2024).

The methodology helps to explain this method as an instrument of data analysis which uses IPA to identify the common themes through categorisation to interpret what needs description. IPA helps in understanding the meanings of integrating AI algorithms in L&DS by identifying the subjective ontology and interpretive epistemology paradigm. I also follow the data structure of Gioia, et al. (2013) to provide clarity and rigor in the presentation of my analysis.

The research used an online interview method. It is a qualitative approach and an indicative reasoning method because HRMPs use predictable characteristics to explain their experiences and knowledge through this mental method, which lends credibility to the method (Azungah, 2018), providing justifiable and evolutionary benefits (Arthur, 1994). Moreover, inductive codes in data analysis are important, essential for determining and formulating patterns for analysis (Azungah 2018), which serves as a guide for my evaluation processes.

The indicative reasoning is that the evaluation helps to know the theoretical positions related to the ontology (nature of reality) of using AI and the challenges of its use in L&DS from different perspectives. While knowing epistemology (nature of knowledge) is based on the interpretation of different perspectives of the use of AI as an intelligent automated process in L&DS. L&D represents a traditional, long-term preparation process and an ordinary system used by HRMPs to interpret the effectiveness of these technologies on their Knowledge, Skills, and Experience (KSE), the challenges they face, the actions they have taken, and the suggestions they have shared.

Research Philosophy

This section explains the research's aim to explore the use of AI within L&DS in government sector ministries in the UAE to obtain first-hand experience to understand the research's design of interpretation and conceptualisation of the findings by exploring more precise ontology, epistemology philosophies, and methodologies to guide the research.

Research philosophy is concerned with what is real or believed to be true knowledge (Hambali et al., 2024). It develops the knowledge itself, and it is natural (Tantray and Dar 2016) to explore how the nature of reality is conveyed through the language (Al-Ababneh 2020) of participants' perceptions. The idea is to clearly understand the research's aim and objectives and then apply it to study the utilisation of AI-algorithms in L&DS explicitly (Ahmad et al. 2021), thereby improving the quality of the research. This research philosophy encompasses a diversity of ontology and epistemology (Bell et al. 2019).

Ontology and Subjectivism

The etymology of ontology is about two words derived from Greek (Patomäki 2020). The first word is 'Onto', which means nature of being, while the second part of the term is 'logos', which means theory. This term, therefore, means the theory of reality. The term is broadly used to refer to what could exist in HRMPs' world (Kotis et al. 2020) and can be understood within this world (Anfara and Mertz, 2014). It helps to describe the structure of nature that exists (Zaouga et al. 2019), which involves using L&DS to study the phenomenon of the nature of reality (Hürlimann 2019) and the challenges of AI in L&DS, as outlined in the research objectives (Ilic et al. 2023).

The ontology assumption is quite subjective and based on different perspectives about participants facing challenges in L&DS when utilising AI. The assumption is that the nature of social reality might be assumed through the subjective dimension. According to Al-Saadi (2014), subjectivism relates to participants' beliefs in work-life, considering the social connections of utilising the system smoothly. These perspectives are called subjectivism. I believe that the social phenomenon arises from HRMPs' perceptions, such as their KSE in continually assessing L&D (Bahari 2010), as if it is real (Hyde 2020). Their perspective is that 'reality' is neither an objective nor an external thing, but instead a realm of social life; thus, in

this research, technological affordances (TAs) have been understood subjectively (Whittle et al., 2023).

This sub-section has illustrated the philosophical ontological perspective on the phenomenon of the challenges when utilising AI in L&DS. The following sub-section shows how philosophical epistemological interpretivism affects research development.

Epistemological Interpretivism

Epistemology etymology is derived from Greek as well. It is about two words that describe the first-word 'Episteme' as knowledge, whereas the second word 'logos' is a theory (Robson 2002), which means understanding, expertise or acquaintance (Atiq 2021). This term implies theory of knowledge (Lemos 2020). It is an old philosophical label that has been used extensively historically in various domains (Confalonieri et al., 2021). It is one of the research philosophies that studies the knowledge (Bahari, 2010; Antwi and Hamza, 2015) of participants to identify the challenges within the L&D system.

The name 'interpretivism' comes from the approach to the phenomenon (Bonache and Festing 2020), which concerns the in-depth phenomenon. It is considered a school of thought that focuses on the meaning of social interactions (Bevir and Hall 2020). For instance, "Interpretivism as a paradigm assumes that reality is subjective, which can differ considering a wide range of individuals" (Alharahsheh and Pius 2020, p.42) when conducting individual online interviews.

Various participants hold different perspectives, which impact the interpretation of the research design aspects. It employs interpretive individual perspectives through the qualitative method as humanistic research in L&DS to understand subjective reality (Hooda, 2018; Rana et al, 2019) by examining their emotions.

The interpretivism assumption is shaped by participants' perspectives (Bevir and Hall 2020) towards the phenomenon; however, it is not a philosophical phenomenology approach (Buriro et al. 2021) because the interpretivism assumption is indirectly constructed based on different criteria such as participants' perspectives and do not only rely on developed my knowledge as a fundamental rule. It is an epistemological assumption that helps interpret the understanding of the differences between participants' KSE, their engagement (Pervin and Mokhtar, 2022), and their perspectives (Kube, 2023).

The utilisation of AI in L&DS serves as a social action in a ministry that involves emotions based on the interpretation by participants in daily practice (Zabala et al., 2022), allowing for the grasping of knowledge from participants' utilisation, which stems from their experiences (Bell et al., 2019). Hence, interpretivism focuses on this aspect in qualitative research (Alharahsheh and Pius, 2020) and is further developed through interviews. Interpretivism, therefore, adopts participants' perspectives and experiences on L&DS as a social construction (Zabala, et al. 2022).

The epistemological position presents how and what I know about reality (Grix 2002; Hürlimann 2019). Maroun (2012) claimed to generate insights into understanding participants' definitions. Hence, it is essential to understand the nature of the realm to answer the research questions (RQs). Indeed, the epistemological assumption could be associated with the nature of their KSE, based on what exists in L&DS, the nature of how they define and engage with the technology, and how my knowledge was built (Cuthbertson et al. 2020).

The paradigm of utilising AI in L&DS, however, stems from collecting and analysing participants' thoughts (Button and Sharrock 1993) about the challenges in L&DS, which necessitates an interpretation of the scope (Hooda 2018; Rana et al. 2019). Critically, the interpretive approach allows me to understand the phenomenon, while (Gal 2023) adds that social reality is constructed linguistically as another realm of social life.

The philosophical research underpinning the relationship between these etymologies contains the current reality of utilising AI in L&DS from participants' perspectives (Cuthbertson et al. 2020) and their experiences with this phenomenon (Prosek and Gibson 2021), aiming to explore and acquire knowledge about the reasons for the occurrence of the challenges in their L&DS. This relationship leads to proper thinking for the reinforcement of this phenomenon (Karami and Gorzynski 2022) to build knowledge through qualitative in-depth online interviews (Correani, et al. 2020).

This illustrates a strong relationship between subjectivism and interpretivism paradigms, which relate to the ontological and epistemological positions for exploring and allocating the meaning of data collection and findings (de Los Reyes, 2023). Interpretivism supports a subjective ontology. Interpretivism operates within a phenomenological framework and is more concerned with subjectively understanding participants' perceptions. Thus, the rationale of the

research is to identify the causes of existing challenges in L&DS, as they are inherent in AI within L&DS.

This section has discussed epistemological interpretivism, which aids in interpretation to gain knowledge based on participants' KSE in social L&D environments. It has discussed the research explorations of ontological subjective, epistemological interpretive philosophies and qualitative research methodology to guide the research. The following section discusses the research strategy, describing the inductive study based on the participants' interpretivism to answer RQs.

Research Strategy

The previous section has outlined the approach of the theory and the nature of the research, which incorporates subjectivism in its ontological considerations and interpretivism in its epistemological philosophical assumptions. This section describes an inductive study based on interpretivism that designs the research to answer RQs.

The implications of the theory are to generate a new theory that may emerge from the data collection, exploring the relationship between participants' KSE and challenges within the system. The new research strategy emerged through the collection and analysis of data (Pajnič and Fattorini 2021). This is because it is essential to understand the challenges associated with utilising AI in L&DS and to enhance the accessibility of feedback on HRMPs' KSE (Minbaeva, 2021). Thus, the research is exploratory an inductive study.

Inductive study

The inductive study entails a research strategy that involves describing a method or pattern within the theory (Proudfoot, 2023). It is based on justifying theory through experiences (Aljaroodi et al., 2020) and perspectives. It is a systematic process of analysing data collection (Kyngäs 2020) through the qualitative method. This method has been determined to be the best-fit approach for answering RQs, which require evaluating and developing theory.

It tests the emerging phenomenon as a confirmatory model and considers it as an accessible approach through rationalisation (Azungah 2018; Hoiruddin and Ulfa 2020). This model was informed by potential guidance from the data for the lead researchers (Schoormann et al., 2021). Additionally, unobserved influences play a role (Price, 2023). For instance, an inductive

study helps to explore and build a framework based on the participants' experiences within the data collection.

It is consistent with being goal-free and describes the current participants' engagement and evaluates their KSE to study the phenomenon by generating theory (Molefe 2020) based on the findings of online interviews, "using primarily inductive methods to explore a concept" (Onwuegbuzie and Leech 2006, p.479) by asking what and how questions to develop generalisations. This is because it explains the nature of the phenomenon and develops the theory. It also predicts a theory to produce desired results through the qualitative method.

The purpose of the research strategy is to determine participants' perspectives (Murrup-Stewart, et al. 2022) to elaborate on their challenges of utilising AI in L&DS within the UAE government sector. It also seeks to understand how the use of AI affects their KSE. What are the challenges that HRMPs face with the current AI within L&DS, and how effectively are they addressing these challenges? These questions will be answered through interviews, while the inductive model can evaluate and justify the analytical theory.

The following section presents the development of the research design, which involves conducting online interviews to explore the research rationale.

Research Design

The research design is a framework of the research method (Bell et al. 2019), which seeks to design the potential research questions (Cronje 2020) and explain the types of data collection and analysis required. It determines the rationale for the research through HRMPs' viewpoints. This requires increasing trust between the participants and me to collect accurate data and decrease bias (Booth et al. 2021).

This research has chosen the UAE government ministries to study (Alnaqbi 2011), even as they have sensitive issues. Being sensitive could also plausibly guide this research's design (Baskarada 2014). To answer RQs, it's important to consider contemporary bound systems such as national culture between different emirates and the working hours between the UAE and the UK. It focused on these questions, leading to accomplishing the objectives until the deeper perceptions (Alghamdi and Rahman 2023).

Overview, I used a qualitative method research design to collect data that contains phenomenology to study HRMPs' live experiences and hermeneutics as the science of interpretation, which made me getting close to them to understand their perspectives about their engagement with AI in L&DS and identify the research problem through their challenges of the system and their suggestions.

I started collecting data by conducting PS. PS helped to design RQs to discover the methodological issues stemming from implementation. The relevant aspects of MS displayed the modification based on PS findings (Kezar 2000). This methodology, therefore, was conducted pre- and post-PS to demonstrate the values of this research (Williams-McBean 2019). It provides the essential details of ethical issues and limitations from data collection and analysis to avoid challenges in MS. Before describing the research undertaken in detail, the following section presents the ethical considerations that were followed while collecting and analysing the data.

Ethical Protocols

This section covers the ethical aspects of protecting the UAE ministries, participants, the university, and myself. I received approval from the Stirling University General University Ethics Panel (GUEP). The potential ethics principles have been discussed in line with reasonable proposals to protect (Nurmi 2018) the health and well-being of participants and my (Bashir 2018) rights without illegally breaching relevant laws (Hiriscu et al. 2014).

The ethical approval obtained from the allowed me to gain access officially to the ministries online before conducting any formal contact (Hamani 2019). It ensured smooth data collection experience without any conflicts of interest. Following the ethics guideline, all participants were anonymised and their personal information kept confidential.

Anonymity was used at the stage of data aggregation, both for the individual ministry and individual participants. Including the responsibilities toward protecting data, the confidentiality and anonymity of personal information (names, marital status, nationalities), ensuring dignity and respecting the participants' rights. This included providing the Organisation Permission Letter (appendix 4) and an Electronic Informed consent form (appendix 3) before conducting

interviews. The anonymity of individual participants was also significant to reassure management of the anonymity of their ministries.

I used a unique identifier number to recognise a particular ministry and a unique identifier number to recognise a participant from those ministries in the research. The anonymised transcripts were used to support the research towards analysing the interviews and were stored securely as PDFs. Transcriptions of the interviews were anonymised, removing identifiable data such as the names of ministries, their logos (Surmiak, 2018), and participants' details. Additionally, the data was managed and protected by following the University's guidance in legal requirements from the secure collection of data to the safe storage of anonymised interview transcripts.

Indeed, some ministries' management requested a report of the collected data, where reports should be provided to present the analysis of wholly anonymised data aggregated across all ministries. This may include brief interview quotes that are also anonymised, following the University's guidance on dignity and the participants' rights, which requires adhering to permission and an Informed consent form before conducting the interviews.

The relevant data in the form of transcriptions and the original audio recordings (until deleted following transcription) were kept private and stored on secure OneDrive cloud storage at the University of Stirling. The data was anonymised, and all identifiers were removed to reduce the chances of identification; however, it cannot be removed completely. For instance, a participant could be identified by people by the specific stories they tell.

I ensured that the data collection exercise followed the General Data Protection Regulation (GDPR) (Rumbold and Pierscionek, 2017), by protecting privacy, security, and participants' anonymity by legal obligations in recordings. Next, the data management access was archived, and the password was protected. It was also locked to prevent anyone from accessing the data by archiving it through the University server. It may only be used for authorised purposes such as preparing reports for some UAE government ministries.

I was aware of and prepared for any potential risks that could occur to eliminate the dilemma (Childress 2000). For example, the used device was charged, the network connections for online interviews were fully functional, powerful, and available with additional wireless and

devices; interviews were conducted decently and on time. Listening without providing or guiding them with answers.

Alternative devices were prepared and made ready. I logged in, accessed the interview links on time and listened to the participants' answers. Additionally, I protected the collected data (Boos et al. 2013) by preventing hackers or destructive parties from accessing it using the University's secure server.

Indeed, there were no criminal or harmful incidents disclosed during the interviews (Coffelt 2017) or a participant's intent to hurt or destroy others' assets, as I followed the procedures to raise and report a case to a particular department's management in case it occurred, also because the interviews were conducted online. Online venues entail the roles and regulations that govern service to protect data accessible to others (Sugiura et al., 2017). The following section presents and describes the pilot study (PS) used to test and refine RQs for the main study (MS).

The Pilot Study

The previous section has discussed the ethical aspects that have helped to protect all parties ethically. This section discusses PS utilised to develop lessons learned. It also discusses MS, which encompasses data collection, data analysis, and the limitations of the used methodology. This understanding, in turn, informs the development of MS, including data collection, data analysis, and the limitations of the used methodology, ultimately leading to a deeper understanding of the research problem. It demonstrated the relationship between studies (Creswell, 2014).

PS was a small-scale study, well-prepared and planned, as a preliminary for MS (Sampson 2004). It was defined as a feasibility study that provided preliminary information about the phenomenon and made estimations for MS (Kinchin et al. 2018). It explored and developed my knowledge to understand MS (Sampson, 2004), including designing interview questions and conducting interviews (Kim, 2011).

PS was used to refine the data collection tools, which included online interviews conducted under specific conditions that allowed for the exploration of the phenomenon (Ismail et al.,

2018). It also reinforced my commitment, self-assessed readiness, and abilities (Lancaster et al., 2004; Beebe, 2007) to conduct online interviews, which enhanced the research's credibility (Padgett, 2008) and revealed the practical issues that could harm the research. For example, it underlined health and safety matters to all parties before conducting interviews (Sampson 2004; Doody and Doody 2015).

It determined the sample size based on the inclusion criteria as a resource for collecting in-depth data. The duration of the interviews was approximately half an hour. It was targeted at the government of Dubai. Developing the research plan and questions helped to know MS process, which PS considered was worth supporting MS. It developed the quality and the efficiency of MS. Modifications were needed in MS. PS examined the feasibility of my intended approach used in MS (Leon, et al. 2011) to produce verifiable research findings with quality data collection procedures. Each participant invited to this research was advised of their rights. This included a full disclosure of the intent and reason for this research for the participants to listen, read and understand (Alase 2017)

The reason for conducting PS was to develop the research instrument (Baker 1994). For instance, PS helped to set up the research protocols as 'workable and realistic' to follow. PS helped select IPA as the best fit for this research, rather than thematic analysis, which was used in PS and highlighted the limitations of MS. This approach helped avoid the risk (De Vaus, 1993).

The study is conducted to determine the HRMPs' role, evaluate their behaviour, and assess the impact of AI on employee skills and potential recruitment. This aims to ensure my familiarity with the study techniques and provide estimates for calculating the sample size. This review focuses on the misuse or misunderstanding of, and the ethical aspects of, PS. It explained the nature of existing AI in L&DSs, which causes unconfident participants (Kalof, et al. 2008). Most of them understood AI as a robot and lacked an understanding of what Algorithms is. However, two participants out of eight understood the terms correctly. Lastly, it presented an introduction of MS on how to decipher the study results (In 2017).

The changes informed by PS helped to design MS, as the research employs a phenomenologically qualitative method. The instrument used for collecting data was online individual interviews, scheduled at the requested times. PS was conducted to explore Thematic

Method (TM) issues that could arise while practising this method, entailing the relevant aspects of MS. These aspects changed based on the results of conducting PS, which evaluated and tested the method because it did not add value to MS.

Due to cultural reasons, I attempted to clarify some questions to obtain comprehensive answers by learning how to effectively merge, delete, and modify interview questions in response to participants' answers. This focused on the effectiveness of AI algorithms on HRMPs' KSE and the challenges they face while engaging with AI in L&DS. For instance, the first question was deleted because the authors covered the answer in the conclusion. The second question was moved to the first position in MS to understand how AI changes the environment indirectly and to identify the effectiveness of AI on the HRMPs' KSE. The third question moved to the fourth question, the fourth question to the third question and the sixth question to the seventh question; however, the fifth question remained unchanged, while the seventh question was modified to the eleventh question.

Questions eight and nine were modified and moved to the fifth and fifteenth positions, while questions ten, eleven, and twelve were consolidated and adjusted to the eighth and sub-question A in the MS. Question thirteen was altered to questions thirteen and seventeen, while the fourteenth was changed to the tenth question, and the final question was posed verbally.

I began the interview by asking about their main roles in L&D and their environmental focus to break the ice. Then the remaining questions allowed the participants to think effectively, logically and creatively while defining technologies and sharing their engagement with these technologies and the challenges they faced by using their experiences, which led them to provide suggestions to the UAE government.

PS reshaped my personal and professional viewpoint, as I gained insights that helped me to follow the interview questions by translating, explaining and providing examples to approach the participants. PS helped me organise my research by conducting the interviews, transcribing, and translating them from Arabic to English. Also, participants' definitions and the words they used provided useful context for refining questions in MS, which led to answering RQs without missing the elaborating questions. PS used a qualitative method to best meet the objectives. It focused on the inductive reasoning nature, which allowed to evaluate the challenges of utilising AI in L&DS. It addressed the potential ethical issues that could be faced during MS to adhere

to the ethics standard and the feasibility of following the constraints of the design of PS protocol (Thabane, et al. 2010). There are many potential reasons for understanding PS through its target objectives. Unstructured, open-ended interview questions allow participants to talk about their engagements with AI and the challenges they face.

PS provided the essential information to identify the challenges and understand HRMPs' engagements with AI. It made me assess the research design and methods of MS in all aspects. PS diminished unnecessary information, resources, and saved my and participants' effort, which helped to design MS easily, allowing them to narrate the research findings through HRMPs' experiences. Therefore, PS is a small scale to precede MS in analysing data, which has developed guidance to address the research risks and awareness in this field, supporting and modifying MS. This shows the relationship between PS and MS (Eldridge, et al. 2016).

The determination of objectives for research protocols

This study was carried out to reflect all the steps and procedures on MS (In 2017). It assessed the planned plan for assessing the phenomenon (Kim 2011) and the participants' exclusion and inclusion criteria, obtained their written consent, explained the nature of the project, and shared adequate information, such as time and dates around conducting the interview (In 2017). It explored and reflected on the use of findings to guide the interview plan by designing questions, scheduling interview times, and implementing the general approach of online interview techniques, which is a disciplined approach to carrying out the study (Rowley, 2012). Thus, I selected a method and improved the research process (Sampson 2004).

The study designed the interview questions and set up an objective to process PS. The objective was to identify the L&D government system that faces serious challenges, which need to be addressed immediately. To do so, I was required to access those Government Organisations (GOs) to collect data from relevant participants and inform them that their data would be confidential and they would be anonymised so they could talk frankly, which could help to enhance the system and support this project (Sampson 2004). It shaped the development of a distinct methodology (Cassell and Symon 2004). It helped to identify the relevant research objectives, methods, and processes that contributed to the study frameworks, thereby deriving the plans (Doody and Doody, 2015; Hochbein et al., 2018). It also helped to define the research objectives within a specific timeframe, leading to high-quality rigour.

Conduct of the Pilot Study

PS was conducted in 2021, and its duration was approximately one week. Ten participants within GOs were interviewed from different years of experience, management levels, ages, and genders (Bell, et al. 2019) to get different perspectives in developing necessary questions. I was fully aware of the research's aim, method, and procedures (Thabane, et al. 2010) before conducting the interview. The focus was on a limited number of participants working in the L&D function. I determined the participants' eligibility and type (Rutberg and Bouikidis, 2018) without knowing them.

There were ten participants allocated by PS from different GOs working in L&D functions in Dubai. There were two from HRM, one from Senior management, five from middle management with different operational organisations, and two from a junior level who processed L&D practices (Table 1).

Table 1: The Pilot Study Participant's details

No. of Organisation	P's	Gender	Designations	Years of experience	Average of the ages
Organisation 1	P1	Male	Senior Consultant	26	60s
	P2	Female	Senior HR Officer	4	30s
Organisation 2	P3	Female	Executive of T&D	3	20s
	P4	Female	Head of T&D	14	40s
Organisation 3	P5	Female	HR Officer	3	40s
	P6	Female	Senior HR Officer	15	30s
Organisation 4	P7	Male	Assistant of T&D	2	20s
	P8	Female	Senior Consultant	21	40s
Organisation 5	P9	Female	Senior HR Officer	7	40s
	P10	Male	Assistant of T&D	3	30s

The potential participants were from HRM, and middle and junior management because they were at the operational level and were engaging with AI to evaluate their behaviours to the advanced level (Budhwar, et al. 2006).

The findings of this study, developed for MS, were dependent on the availability of a sufficient sample and an effect size that could be used for a better understanding of the phenomenon. The online interviews were conducted individually with well-prepared questions and interview guides (Maheshwari, et al. 2017), which allowed for building knowledge (Sampson 2004) at a specific time with less effort. Thus, the rationale was to develop the interviews' (Majid, et al. 2017) protocols to meet the objectives (Routy, et al. 2019) of developing MS, which I desired to achieve.

Lessons From the Pilot Study

First, the protocol designed during PS is that the research's errors were narrowed, focused, and expanded to understand the research's (Williams, et al. 2008; Denzin and Lincoln 2013) techniques through evaluation of the data collection and techniques for analysis (Sampson 2004), which allow the interaction and exchange of mutually creative, and exploratory investigations when the research relationship commences (Kinchin, et al. 2018) to avoid unexpected complications. This allows me to modify and revise (Kezar 2000) the research design, procedural protocols, and intervention for MS.

The research protocol for data collection (Doody and Doody, 2015) was guided to highlight the significant elements of MS (Silverman, 2013), thereby outlining the data collection process and ensuring effective and ethical interaction with participants (Cassell, 2005; Pritchard and Whiting, 2012). The protocols provided different warnings and notifications from methods to prevent instrument failures of data collection and analysis. It demonstrated the personal resources tools for online interviews (Hundley and van Teijlingen 2002; Conn et al. 2010; Leon et al. 2011), such as preparing devices and determining the timeframe to achieve the objectives (Baron 2019).

Therefore, the key learning points of the research design are that it discusses the phenomenon, specifically the challenges of utilising AI in L&DSs, which could help develop HRMP's skills and deliver quality L&D automated services and systems. It determined the essential information. It led to the discovery that not all HRMPs engage in designing AI in L&D, and there is a gap between developing KSE (CIPD 2005, 2006a; Wolfe et al. 2006) because they follow the designed system by the Dubai government authority that this organisation is responsible to design and enact Policy and Procedures (P&P) of Dubai GOs, which will be explained later in the next chapter. It led to the understanding of participants' perspectives

about AI based on their KSE. The general approach included the research process and techniques that had disciplined HRMPs' knowledge through the TM. Interpretations developed from collected and analysed data through this method, which has systematic and transparent (Patton, 2002) were suitable for the PS as tested.

It was suited because TM is designing data differently (Terry et al. 2017). It is a foundational method, widely used in qualitative methods (Braun and Clarke 2006). Many researchers claim, TA is a method itself (Leininger 1992; Thorne 2000; Braun and Clarke 2006; King 2004; Harding and Whitehead 2013). Others argued, it is not a separate method.

It is a process that can be used by many qualitative methods supporting researchers (Boyatzis 1998; Ryan and Bernard 2000; Holloway and Todres, 2003). It can provide fundamental skills for creating forms of qualitative analysis (Braun and Clarke 2006) and identifying common themes (Terry, et al. 2017) by circling the data (Harding and Whitehead 2013), such as defining AI as a Robot. However, TM was not used for MS because it appeared to have challenges and its coherence was inconsistent, a common theme, as development often comes from data collection (Holloway and Todres, 2003), which does not fit MS.

Van-Teijlingen, et al. (2002) learned from conducting PS because of the significant changes that it made without explicitly discussing what they learned. Further reasons to learn, including lessons and reflections, in detail for MS.

I learnt how to avoid bias in the research during PS. Question nine was, "Can you modify and develop the Training & Development System (T&DS) to support your roles fully in T&D?" Some respondents said yes, while others partially agreed. Technically, I agree to use AI in L&DS, provided that I have accurate and precise data that AI can support me in making informed decisions, which may offer a different perspective than others. This did not lead me to argue with them and ask a biased question by commenting on them. This is significant to learn that bias can impact the results of the findings, which was avoided. I learned how to be skilful by not stopping them but focusing and capturing their answers to align them with probing questions.

Furthermore, PS developed and tested the adequacy of my instruments and the techniques that affected MS. It assessed the feasibility of the research based on the proposed data analysis

methods revealed through invitations received from participants, thus placing the control of recording interviews in their hands instead. It was exceedingly challenging to pursue them for the recordings, as it demonstrated that they were the owners of the interviews.

Before PS, I thought the interview would require less caution, like career interviews; however, I was careful not to reveal my views and knowledge in their answers. I analysed the audio recordings, which made it more beneficial to approach them online without considering their locations. This made them feel more comfortable due to the informal nature of the interviews and the absence of video recording (Verma 2005; Ismail et al. 2018). I transcribed the interviews and then analysed ten interviews within a month using TM.

PS helped to change the research design as a plan and had a better understanding of the collected data (Hennink, et al. 2020). It helped to design the interview questions from a more in-depth angle. It led to the selection of IPA as the best fit for MS questions (Cataldi 2018) based on RQs and objectives. PS helped refine and design RQs based on adequate knowledge, which provided insights into conducting PS and determining the method to use for MS (Callary et al., 2015). The initial research questions during PS are indicated as follows:

- What were HRM practitioners' roles that are created to develop better skills?
- How can HRM practitioners' behaviours change while designing and selecting training and development programs to develop skills?
- Why did AI underpin HRMPs in assessing skills before and after integrating AI into HRM?

These research questions were refined and redesigned to focus more on the research problem and narrow them into two research questions for MS, which led to focus more on HRMPs' KSE as they are the core factor in the HRM functions and cause the system's challenges. RQs were indicated in LR.

PS also helped identify the research problem and refine significant changes for clarification and understanding through selected organisations within the UAE government sector. It helped to focus on interviewing HRMPs to collect data, rather than using observation or collecting P&P documents or organisational circles. It was then decided to continue interviewing online instead of conducting a case study.

This study played a key role in AI based on L&D. The feasibility study served as a guide and aided the design of a plan to develop MS based on time consumption, resources, and possible frustrations, effectively and efficiently, to organise relevant interviews within a timeframe. It evaluated the criteria for selecting participants and estimated the sample size for the study. PS was successfully conducted, and this led to the implementation of the experience and findings for MS.

Therefore, PS helped MS define the objectives, evaluate the selected sample size, and prepare two types of interview questions for top management and HRMPs, to understand the designed system and authorisation clearly from all aspects by explaining the aim of the research to them. It helped to collect data through online interviews through Microsoft Teams and audio-recording them to create transcripts from relevant participants, and their analysis based on a suitable method to obtain relevant findings.

The Main Study

The previous section has discussed the protocol of PS designed to narrow the research errors and understand the research techniques (Williams, et al. 2008; Denzin and Lincoln 2013). PS's objectives were shaped to collect basic data and to design and refine RQs for MS (Sampson 2004). TM was a technique method used during PS to analyse data (Braun and Clarke 2006).

This section explains MS data collection and analysis. There are many potential reasons for understanding MS through online interviews. The online interview approach was a method to collect data to accomplish MS. The interview questions were unstructured and open-ended (Bell et al. 2019) to define and construct my knowledge about the phenomenon as per the participants' KSE (Sampson 2004). Designing the interview questions based on PS test and after ethical approval, required permission from those GOs to access them and collect data from relevant participants that did not cause harm, health risks or breach the ethical criteria (Erguera, et al. 2019). I was, however, prepared to address the potential risks, ensuring that challenges during the interview process were minimised.

It is a sensitive subject due to the challenges in the government L&DS. Additionally, because it intersects with other beliefs (De-Gama et al. 2012), perspectives, emotions, experiences, roles, or the nature of the sector. Thus, the focus was on the research objectives and avoided

personal questions, such as marital status or wages (Joinson and Paine 2007). I also informed the participants in both 'PS and MS', that the data would be confidential and anonymised so they could talk frankly about their engagement with the system. I also informed them that their participation would further support this project.

Lastly, MS has explained the data analysis and demonstrated the value of using the IPA methodology after interviewing participants (Kezar 2000). It is a qualitative method that considers the best approach to meet the research objectives (Islam and Aldaihani, 2022) because this methodology has allowed the participants to express their feelings towards the challenges, their understanding of the terms, and share their stories when engaging with AI in L&DS without any prosecution or distortion (Alase 2017). Thus, the relevant aspect of MS is the utilisation of AI in L&DS based on PS findings (Kezar 2000). MS interviews targeted the UAE government and focused on the role of PS within the research design. The next sub-section describes the data collection procedures and reflects on some challenges I faced in the process.

Data Collection

This sub-section presents the data collection process from some ministries after receiving permission to access them. I sent emails to the UAE government ministries to interview those who work on L&DSs to understand their KSE and the challenges they face while utilising AI in the system. Online and phone call meetings were held with management to explain the research aim and share with them the research documents, including the inclusion criteria. Some ministries granted access to their ministries and data collection from their employees.

I started contacting 17 ministries at the end of March 2023. Out of 17 ministries, two responded immediately. One had asked for face-to-face interviews based on my detailed explanation, and I was asked to resend another email to interview the minister and their top management, but no avail. Several reminder emails were sent to all ministries, including these two ministries, while collecting data and following up to ensure they were receiving emails that were sent to them. Although some ministries had an auto-reply, most of the ministries were not checking their recorded messages. The follow-up made them aware that there were some SMS messages received from their websites with reference numbers, confirming that they were contacted by an external researcher.

Additionally, I attempted to contact those ministries through various communication channels and with multiple individuals to reach them. For instance, I approached them through emails, phone calls, WhatsApp chats, and using the existing network to reach someone who works in a ministry to coordinate and provide contact details to reach them without indicating the names of my networks. I did this instead of dealing with call centres, as sometimes call centres asked me to reach out to those ministries and explain the project to them, as no responses were received from them through this channel. The call centre staff were unable to help. That is why I opted to use different channels.

This research encountered certain challenges in accessing ministries to obtain permission for data collection through interviews with participants and HRM management within government ministries, resulting in a potentially biased sample selection. The first, resulting from hires and transfers. Hence, it was hard to reach them easily. It was even harder to meet with them to explain the project for around two months. It was a rigorous process of forwarding emails and following up with the ministries to get access during this period.

Indeed, it is unusual to deal with an external researcher, especially when required to collect data from their employees. A few ministries' in-charge made the success of this project even harder in different ways. I was asked to have an additional supervisor locally to supervise me during the interviews with their HRMPs. I was required to fill out more than six forms. Those forms were mandatory for all researchers seeking to access this ministry; however, the forms were irrelevant to the business and management researchers. This is because of the sensitivity of the topic.

Two other ministries asked to conduct group interviews that must not exceed half an hour and without audio-recording. Another ministry found it difficult to get their support due to the duration of the election of 2023. Also, a ministry asked for face-to-face interviews, and the last ministry respondent in-charge was unprofessional. He notably said: "The data collection will go abroad, so we refuse your request to access our ministry as you will share them with another country". It was, therefore, difficult for unemployed researchers to access these ministries.

During the summer, the ministries underwent restructuring based on the government's strategic priorities. It was not easy to access them; it took between two months as a minimum and a maximum of nine months to collect data and follow up. Alternatively, not all the ministries

allowed me to access. They made supporting this project difficult due to the sensitivity of the research topic and low HRMPs' KSE, they were reluctant to reveal their limited use of AI to an external researcher.

There was one participant from high management who participated in this project due to her moral support; however, none of the others at the same level from other ministries were able to participate because of their busy schedules. Indeed, this interview did not add much value. She simply confirmed that they were following the government authority systems and P&P, however, she did not share any challenges or engagement with AI as a mystery story due to her sensitive role.

Generally, all ministries asked for my supportive documents such as an ID card, Student card, and certificate of enrolment, along with the official letter from the university, evidence of my official page from the university and asked to fill out some forms, which is plausible. Although all of them did not understand the concept of the topic in the first place, they were concerned about participating. Some had referred me to IT departments, and others had refused without even taking a chance to have a clear understanding of the project, even before understanding the purpose of the research. The explanation was over the phone and/or through sophisticated online applications.

They refused because throughout the attempts to reach out to the ministries, the government had also announced in May 2023 the best and worst ministries for utilising AI. The best ministry was utilising AI in its services and systems, whereas the worst ministry was the ministry that did not utilise AI. The unprofessional in-charge who refused to understand the purpose of the interview was from the worst-ranked ministry in using AI in their systems and services. He said: "You heard about the announcement yesterday, and you knew we got the lowest rate, so why are you still insisting on accessing our ministry?". This was frustrating, as this could be presented in an interesting context since they had the lowest rate. Some other HRMPs were willing to participate, however, their HRM management refused to allow them to do so and created some obstacles to the success of this project. Hence, those participants were uncouncted.

Nevertheless, most of the ministry's management reached out to support this research and approved to access their ministries to interview their HRM employees. Those ministries had

initial approval and got a chance to conduct meetings with the ministries' management to provide them with more explanation and documentation. After explaining the research aim, the ministry's management identified and nominated the right participants based on the inclusion criteria (Rutberg and Bouikidis 2018), as they knew their existing employees, and I did not have access to this information or any potential participant's contact details. The inclusion criteria were to have more than one year's experience in the L&D function within a ministry. It also involved those who had the authority to design and develop the system and whose tasks were relevant to AI in the L&D operation.

Ultimately, I was able to conduct different interviews with different government ministries in the UAE. Management of each ministry nominated between one to five participants to provide data. Some bias potentially occurred in the selection process by management, while it was difficult to rely on data from a single participant (Gerhart, et al. 2000; Wright, et al. 2001; Kim and Ployhart 2014). The ideal selection was for the researcher to select participants and to have more than one participant from each ministry to analyse their understanding towards TAs within a ministry. However, given the difficulty of gaining access to government employees and to many of the ministries and their responsibilities, this was accepted as a pragmatic choice, albeit one that introduced some limitations to the data.

To minimise the main potential biases of the research, which are considered in selection bias and differential information bias from participants. Selection bias occurs during the nominating participants who were interested in being interviewed online as a resource. I was able to interview HRMPs who were selected by their management based on the inclusion criteria. Each ministry nominated between one to five participants in L&D and multitasks in HRM, as I didn't have direct access to their HRM, and I didn't know them personally. The management showed their interest in participating in this interesting topic. It is possible that HRMPs were nominated to participate for unknown reasons, and this is a potential limitation, albeit one that was a necessary part of negotiating access to closed Government ministries.

While the potential of selection bias exists since the participants were nominated by management, I took steps during the interview to minimise the effects of this on participants' responses. It was made clear to all participants that none of their responses would be shared with management (apart from at the level of aggregated data across the full sample). I provided a detailed explanation of my research and adequate information to the participants as

reassurance that the interview will be treated with utmost confidentiality. I avoided asking them personal and sensitive questions, such as their household characteristics.

The Sample

This data collection sub-section discusses MS samples who were interested in participating from different management levels. After the selection had taken place, participants were invited directly by me to participate. I made it clear that this research was not conducted on behalf of their employing ministry and that participation was voluntary. Neither the ministry's employees nor anyone else in the ministry was informed of anyone's voluntary decision to participate (except their management, who nominated them). The interview invitation letters (Appendix 4) were sent to the participants after the ethical committee approved the ethical form straightaway on 31st March 2023.

This invitation letter was distributed to the potential participants through emails. It described the research by explaining the concept of the interview and the purpose of conducting the research. This then allowed me to send participants an information sheet (Appendix 1) and an informed consent form for official recordings to gain the participant's consent to be part of this research. It was sent to each participant separately for their permission, after signing the consent form, to determine the convenient time of conducting online interviews.

Contacting participants before conducting their interviews (Anaya et al. 2018) as an ethical dimension helped to build relationships, which allowed me to email some of them the interview questions to gain their approval at a certain time (Bell, et al. 2019), otherwise, they might not have approved the use of the audio-recordings during the interviews. It used simple and understandable language by educating them about the confidentiality of the audio-recordings (Mackay 1995) and sharing data archives, disposal, or agreeing to break them up (Smith 2003).

I mitigated the participants' anxiety by explaining the anonymity to their management, explaining that their personal views would not be shared. I explained the confidentiality of the collected data, where participants will be protected and respected for their time in participating in this research, to get their consent. The agreement was made based on the provided explanation. This explanation made them feel comfortable, sharing the challenges they faced in the system without any anxiety or harm.

I understand my role in designing a plan and following it to answer RQs before proceeding with the interviews. The in-depth interviews were conducted to have rich information about HRMPs' perceptions, emotions and experiences towards technologies through online interviews (Boyce and Neale 2006). I identified what rich information and helpful responses would help to achieve, which supported me in guiding my questions. I used flexible open-ended questions, unstructured and informal online in-depth interviews with HRMPs in the UAE ministries, which evolved naturally to gain the information I needed based on their own words through their shared stories, which was considered an appropriate research interview format based on the designed plan as a guide.

I designed the list of questions that were approved by the ethical panel. This method relied on the questions. They are clear and neutral, preventing bias or judgment words to understand their perspectives about the technologies and explore their feeling about the challenges and their KSE when sharing their engagement stories and their suggestions (Taherdoost 2022). I ensured they responded, not influenced by me and took notes during the interviews, which helped to capture the key information without disrupting them. I also manage interview time efficiently because qualitative interviews contain complex information that requires some time to reflect on their experiences.

Out of 17 ministries, I was able to access only 12 ministries and interview 23 participants between May and December 2023. The first interview was conducted on 23rd May, and the last was completed by 29th December 2023. The potential participants were interviewed within the initial plan of PS due to the acceptance of their respective management and their own decisions to participate. The initial idea was to interview participants between 20-30 HRMPs from the L&D function, along with their relevant HRM senior managers. The duration of the interviews took around an hour due to additional interview questions. The longest interview was conducted for 59 minutes, with P1M11. The shortest interview was with the CEO. It was conducted for 13 minutes. The average length of the remaining interviews was approximately 55 minutes.

The top management of ministries nominated their employees based on research eligibility and the type of participants (Rutberg and Bouikidis, 2018). Most of the participants were from middle management. One, however, was from top management, and eleven were from senior management in HRM from different ministries. The participants were categorised based on

their characteristics such as gender, designations, years of experience and age (Table 2: The Main Study Participants' Details). I was prepared for these interviews and ensured that they proceeded as planned. I was able to collect the required data and succeed in the interviews.

Before conducting each interview, I introduced myself and my study, explaining the project type and the interview's aim to the participants. I asked them to fill in a consent form as part of the interview process, took their written consent and explained how their responses would support my research. Additionally, I explained the anonymity of using their personal information, the confidentiality of the data-sharing process, and the duration of the informal interview so they could speak openly. I informed them that the interview would be recorded, but without video, for my reference only.

Lastly, I began conducting the interviews and asked unstructured questions based on the answers I received informally, without interruption, as a form of encouragement to keep them engaged, while taking notes. Any irritation may cause them to withhold significant information, which can affect the interview results. Participants felt comfortable because they were encouraged during the interviews to answer the questions and interact with them by asking for more clarification of their experiences, showing them that I was interested in their answers and thanking them at the end (Taherdoost 2022).

The important participants were from L&D and middle management because they were at the operational level and utilised AI in their daily practices. Alternatively, the less affected participant was from top management. Yet she confirmed that their system is controlled by the government authority and her ministry follows the government P&P. However, she did not disclose any challenges or negative information as she is at a strategic level, executing the ministry's goals and is indirectly involved in L&DS.

Also, the number of participants was sufficient to meet the requirements of this research (Maheshwari, et al. 2017) for a better understanding of the phenomenon separately with great detail through individual characteristics (Smith and Nizza 2022) because it focuses on specific experiences as participants should be more similar ostensibly. Additionally, the number of participants was also sufficient to reach different management levels by answering RQs and providing valuable insights to analyse RQs through IPA. The majority of the ministries' management were helpful and supportive. For instance, a participant from a ministry, who was on maternity leave, agreed to participate in the interview.

All participants utilise an electronic L&DS as the government authority has designed an individual development plan for the ministries' employees through a performance management system (FAHR 2022) as part of the L&D process with limited 'self-management'. However, not all have the authorisation to design or develop the system. Most of them only provide suggestions periodically to enhance the system through the government authority. Table 2 below shows the participants' details and their unique identifier numbers.

Table 2: The Main Study Participants' Details

No. of Ministries	P's	Gender	Designations	Years experience	Average of the ages
Ministry 1	P1	Female	Acting Head of Training and Development Section	8	30s
	P2	Female	Director of Human Resources Department	3	40s
Ministry 2	P1	Female	Advisor of the Human Capital Department	4	40s
Ministry 3	P1	Male	Training Specialist	15	40s
Ministry 4	P1	Female	Human Resources Planning Principal Executive	5	30s
Ministry 5	P1	Male	Branch Manager of the external scholarship and educational development centre	19	40s
	P2	Male	Head of Security Qualifications section	20	40s
	P3	Male	Deputy Director of the Professional Development Centre	24	40s
	P4	Male	Officer of the External Scholarship and Educational Development Centre	7	20s
	P5	Male	A head section of assessing the Training and Development	20	40s
Ministry 6	P1	Female	Training & Development Specialist	8	30s

	P2	Female	Technical Assessor	4	20s
Ministry 7	P1	Female	Assistant Undersecretary, Support Services Sector	3	40s
	P2	Female	A head of the T&D section	23	40s
	P3	Female	Training and Development Principal Executive	10	30s
	P4	Female	Training and Development Principal Coordinator	4	20s
Ministry 8	P1	Male	Learning and Development expert	9	40s
Ministry 9	P1	Female	Head of Staff Performance Department	5	40s
Ministry 10	P1	Male	Senior <u>Manager</u> Institutional Effectiveness	45	60s
	P2	Male	Academic Manager	26	50s
Ministry 11	P1	Female	Human Resources Assistant Specialist	9	30s
	P2	Female	HR Information Systems Assistant Specialist	5	30s
Ministry 12	P1	Female	HR Specialist	13	30s

The sub-section has discussed the sample of participants, their categories and the challenges of accessing the ministries to collect data. The following sub-section discusses the approach that aided easy data collection from the sample.

Online Interviews

As indicated earlier in PS section, it is important to design an interview schedule to aid the process of conducting online interviews and carrying out progress interviews plausibly (Schultze and Avital 2011). The data collection sub-section explains the online interview process and how data was collected from the sample. The online interview method is one of the methods designed to collect in-depth data, which leads to building rapport with participants (Ismail, et al. 2018). The interviews were conducted with the selected participants using video conference technologies, such as Microsoft Teams (Attewell 2005).

The interview questions included the process of techniques used to reinforce knowledge (Burnette, 2017) in answering RQs. Most of the interviews were conducted in Arabic, based on the participants' preferences. It was, however, in the English language, with two participants, as they were native English speakers. English is a business language in government ministries because different nationalities are employed worldwide; as such, it does not require translation (Troudi and Hafidh 2017) for those two participants. It is significant to view the social world through different participants' viewpoints (Shuck, et al. 2011) to collect in-depth data (Johansson and Herranen 2019) that refine the interview's analysis (Artino, et al. 2014).

The online interviews were conducted one-on-one with interview guides and well-prepared interview questions (Maheshwari, et al. 2017), which helped to build knowledge (Sampson 2004) and helped the research rationale to be developed through the interviews' (Majid, et al. 2017) protocols (Routy, et al. 2019) to achieve the research objectives based on the participants' role in L&D. This allowed the meeting of those who engage with L&DS to identify their understanding of the key concepts. These include using AI-algorithms as a supported technology in L&DS, their challenges, their actions, and suggestions to develop L&DS in the country.

The interview's questions were between 17 main questions and sub-questions, while there were 18 questions and sub-questions for senior positions. These interview questions were focused mainly on comprehensive and more detailed answers, which were more relevant to RQs. Following similar answers and examples received from participants, some questions became redundant, such as Question 10. b was deleted because it was not applicable, as the UAE government L&DS launched the system with all phases in 2015, whereas it was applicable in PS, as the GOs were still processing the system at the Dubai government.

There was also a challenge with the interview's questions. The questions were verbose for around an hour for each respondent. The participants got tired and bored with the last few interview questions, especially when answering similar questions in Arabic. Initially, they were excited and enthusiastic about answering the questions, but by the end, with a few questions remaining, they felt tired. This was evident as they made comments like: "as I told you", "I can't recall" or "I just told you", and so on.

Other interview questions were designed for a high-level ministry strategy to contact Ministers, Minister's deputies, and CEOs. Luckily, only one CEO was interviewed because high-level management typically does not disclose the challenges of their ministries. Lastly, I provided a "Thank You" through a Participant Debrief Letter to the participants after completing each interview, along with a unique identifier number. This sub-section has explained the data collection by the selected sample, which interviewed them through online interviews. The next sub-section explains data analysis using IPA methodology and the method employed to analyse the data.

Data Analysis

The previous sections have presented PS and MS, while also noting the steps were taken to conduct them, including accessing the ministries, obtaining data from the sample through online interviews and relationship-building with participants during the data collection process. This was indicated as part of the reflections after collecting sample data. The data collection allowed effective communication with participants to understand the phenomenon and can provide insights without distortion, imposing any information (Lincoln and Guba 1985) about AI and algorithms' definitions or feeding them the interview's answers.

A big and final challenge was when I wrote the transcripts and translated them into English. Although the business language used within the UAE government ministries is English, this required putting in extra effort and time into transcribing all the interviews and then translating most of them, as the majority preferred to answer in Arabic. I asked them in English and then translated their responses orally into Arabic. Only two participants were able to manage to answer the interview's questions in English, which did not require any translation at this level.

The questions were quite sensitive due to the challenges of the government system, and this led me to emphasise confidentiality to alleviate their fear. Interestingly, none of the participants subsequently withdrew their participation or refused to answer any questions in either study (Sampson 2004). Some of the participants requested a report containing my findings and recommendations after the data collection and analysis.

There were some limitations, risks, and challenges when transcribing and translating the interviews from Arabic to English because of idioms, word order and dialects, while I am fluent

in both languages, I am not a dedicated translator, and I don't have experience in the translation field. Some participants' words do not exist in English to explain their meaning and their stories in a way they are expressed in the native Arabic language (Al-Amer et al. 2015), in terms of understanding literal translations, syntax and grammatical differences between languages, where required to pay attention to these linguistic nuances (Huseynova 2024).

Certain words were difficult to translate or to find suitable English terms for. I spent days transcribing and translating each interview conducted in Arabic. The audio recordings of online interviews were rarely disconnected. However, when I started writing the transcripts, I discovered that a few words were unclear. I checked either the notes I took during the interviews or contacted the participants – again, as a result of the strong relationship I had built with them, to help identify the missing few words because the recordings were cut off or the voices cracked. Thus, I was able to collect those missing words and then translate them into English for the transcription.

Interpretative Phenomenological Analysis

This data analysis sub-section explains the use of IPA and then concludes the chapter with the limitations of IPA. IPA is a qualitative form of psychological science. It is an ideographic methodology that helps to focus on understanding participants' perspectives, emotions, knowledge, and experiences in their work environment (Smith, et al. 2009). It is therefore relevant to grasp the core challenges and identify the effectiveness of AI on participants' KSE, noting the technologies they engaged with and determining the challenges of the systems.

The interviews were transcribed and analysed using IPA, which revealed the participants' understanding of AI, algorithms, their engagement with technologies, the current challenges they face in the L&D function, their actions, and their suggestions differently. It also transcribed the online interviews' material (Ochs 1979; Spradley 1979; Mischler 1986; Strauss 1987; Riessman 1993; Rosaldo 1993) to obtain the findings (Flick 2014). IPA is used to address different research questions in different fields in the world, such as HRM for this qualitative method.

IPA was used as an analytical framework that effectively aligned with the chosen qualitative approach in the research and the focus on individual experiences and perceptions. It helped determine the type of data collection that provided a thorough and rich insight into the

participants' experiences. A high level of closure is typically most suitable for remote, audio-based in-depth interviews, as it ensures a comprehensive understanding and minimises ambiguity, which helps create a good rapport with participants due to the sensitive topic of their daily engagement with these challenges in the government system (Smith and Nizza 2022).

IPA has some similarities with other methods of analysis, such as TM. Similarities in terms of philosophical background, consideration and data selection, identifying themes, and focusing on data description and interpretation (Vaismoradi, et al. 2013). However, IPA is a methodology that helps researchers through a framework (Rajasinghe et al., 2024), based on the subjective experiences of participants, aiming to uncover the meanings they attach to significant life events, unlike other methods (Vaismoradi and Snelgrove, 2019). It helps the process of generating insights by understanding their perspectives, obtaining rich descriptions, and gaining insight into their definitions of technologies and emotions surrounding the challenges in L&DS. IPA supports the definition of connecting between participants' KSE and their understanding of the phenomenon (Smith and Eatough 2019).

One of IPA's characteristics is identifying and describing idiography in each interview deeply and experience, which engages with this qualitative approach (Eatough and Smith 2017) during interpretations. IPA is rooted in idiography. Idiography is a theoretical orientation to understand a particular thing from the participants' viewpoints. It is an interpretation because IPA is an explicitly interpretative endeavour (Smith 2011), and its experiences are closer to understanding meaningfully the context of participants and their rising actions within a work environment. Because knowledge comes in different forms, and IPA is clear about the contribution of subjective perspectives to their psychological understanding (Eatough and Smith 2017).

IPA helped to determine the criteria of the sample participants to identify closely those who have meaningful experiences that illuminated (Smith, et al. 2009) their KSE when engaging with AI in the government system, and the challenges they face across different participants and identify themes. The selection was based on certain criteria to study these groups when generalising the findings, considering the sample similarities and contrasts. Selecting a specific group by the gatekeepers of each ministry. IPA is a time consumer, which allows for choosing interesting findings due to this research topic.

IPA helped me consider my practices when analysing data and working on transcripts word by word to compare them with others and cluster them into different groups (Appendix 9: An Example of IPA Analysis for P4M7). This required classification to interpret the unfolding concepts and understand their meanings (Nowell et al. 2017) supported by audio-recording (Cañibano 2013), which provided an extract of the memos about identifying the uses of AI in the L&D system and aligning them with RQs to create and develop coding that meets the research objectives.

In contrast, IPA is a powerful methodology to protect the rights of all parties, including government ministries, management, participants, the university, and myself, regarding dignity and privacy. It allows participants to fully disclose their stories based on their experience (Alase 2017). This guided me to access the ministries and get the participants' consent to conduct the interviews with confidence and avoid risks.

This consideration helped to capture and analyse the participants' sensitive in-depth experience to safeguard them through pre-post interviews. I ensured they were comfortable and made them aware of their right to withdraw from participation at any time before analysing their answers. Thus, they were supported, and their information was anonymised using pseudonyms (Smith and Nizza 2022).

IPA is an iterative multi-process that helps analyse data through repeated reading. I grouped my exploration notes into themes that capture participants' perspectives and how they make sense of their experiences with AI. This is significant because, during the analysis, I examined each interview, clustering the similarities and differences across transcripts. It maintained an inductive approach, interpreting each participant's transcripts fully and separately based on their KSE, which are free from theoretical constraints. This engagement involved an in-depth analysis of each transcript, identifying experiential statements, making explanatory notes from participants, clustering those notes, and structuring each personal experiential theme individually (Joseph, 2014).

The research transcripts include descriptive notes to identify potential meanings and formulate conceptualisations, such as the participants' thoughts and experiences that contributed to understanding the system processes within the ministries. I was free to formulate participants' experienced statements (sentences). Each statement went beyond merely responding to their rich accounts, which elucidated the challenges of the system that were analysed. The participants articulated their engagement with TAs in government systems, which was highly

interpretative in this research, based on their definitions and understanding of TAs. However, they did not assert that HRMPs are the challenges, as HRMPs are responsible for designing the system and providing it with the necessary data. Thus, IPA enabled me to discern these signs and implement them to convey emotions or psychological mechanisms through an understanding of experiential statements founded upon these emergent signs (Alase 2017).

IPA compiled the participants' experiential themes by extracting identifying information from the experiential statements, which helped highlight the keywords for analysis. I chose to use some statements but did not engage sufficiently with others, as they were unrelated to any statements and did not represent important analytic processes. The selected statements offered more detail on conducting the research. This was due to IPA necessitating idiographic analysis (Smith et al. 1995), which facilitated the recounting of the different participants' KSE and described their significant experiential features regarding the challenges faced by HRMPs in the government L&DS.

IPA coding provided identification of themes that reflect insights into the research question. It relates to the existence of empirical material in cases where a participant says a related phrase. I attempted to identify and address the research problem and locate a specific text. I gave a code and a name to link this received data with RQs. Additionally, there are quotes and stories related to different interesting areas, especially in this unstructured interview. Coding led to common themes (Wong 2008), which supports understanding the analysis of the research through the IPA methodology. That means that AI is integrated into the L&D government system at a basic level, where most HRMPs in ministries are still performing their roles manually.

The sense of coherence impacts their relationship with colleagues, as they don't have time to exchange knowledge and experiences because they spend the whole day entering training details manually into the system. It impacted their future outlook, as there is no time to develop their KSE well and prepare for their next career jobs. Furthermore, they were prevented from designing the system and were only allowed to provide suggestions to the authorised organisation to develop it, which, somehow, had the most negative impact.

They feel depressed because the current challenges in the system waste their time and effort, and physically, they feel pain. While contextual influences most of them to think about developing their internal systems and solving challenges within their authority. Contrary, they

felt positive because the insights encouraged them to achieve some developments that saved their time and effort.

There are metaphors used, but few are explicitly indicated that describe their actions, such as “until the day of resurrection” (P2M10). This group considers AI (as a tool), which means it will never happen. “Subhan Allah” (Glory be to Allah) (P2M6) is a phrase used by someone to express doubt and curiosity. why hasn’t it been considered yet? where is it simplest to execute?

The transparency of the analysis is presented based on the decisions made at every step of the qualitative research process. Besides using IPA, Gioia et al. table was used to structure the transcribed data to represent the analysis of quotes to preserve the participants' perspectives as a first-order analysis and the themes as a second-order analysis, where I interpreted their terminologies in the second-order. The table provided the rationale for the research and offered an overview of the process, justifying the research. It is not traditionally used, but it is a helpful table and part of IPA to represent the outcome of the analysis that aggregates layers by identifying the relationship between the two orders and getting a grasp on capturing the dimensions. This helped to have rigour, a clear data structure, and a transparent process by explaining and arguing the interpretation.

This research has, therefore, been designed to understand TAs in L&DS by HRMPs and understand their perceptions as the UAE government has emphasised its use of AI. However, the completion of the data analysis process revealed that AI has been inappropriately designed for L&DS in the UAE government sector, where most HRMPs have moderate KSEs. It raises potential challenges for the government in utilising the current L&DS. AI, which is considered a new technology in the UAE government sector – one that requires a certain KSE to be understood and operated successfully may drive the participants to understand the terms and engage with the system appropriately.

This sub-section explains the data analysis after collecting them from the potential participants and describing the characteristics of the chosen IPA. It is worth explaining how IPA was applied to analyse and discuss the data in the Findings and Discussion chapters by quoting and thematically analysing the relevant collected data. According to Braun and Clarke (2022, p10), data orientation contains “more inductive, where the analysis is located within, and coding and theme development are driven by the data content”. The key analytic aim is to justify the data

content inductively from participants' perspectives through coding and categorisation of these data. IPA was applied to ensure a precise analytical process (Thorne, et al. 1997) by building a theory about what is happening in L&D and why there are challenges in the government L&DS to explore the phenomenon (Vaismoradi, et al. 2016). However, IPA has some limitations, like any other method, which are explained in the following sub-section.

Limitations

The previous sub-section has presented the analysed data through IPA methodology and put it into a structure using Gioia's method. After explaining the characteristics of using IPA methodology, this last sub-section presented the limitations of the research methodology to minimise these limitations for future research. While there are appropriate plans to conduct qualitative online interviews and analyse data using IPA, there are, however, limitations associated with every method (Braun and Clarke, 2006; King, 2004; Nowell et al., 2017).

IPA is a methodology used frequently; however, it lacks standardisation and can be ambiguous, and most academic authors stated that IPA is descriptive and inappropriately interpretative analysis (Tuffour 2017). Moreover, many authors have published on the philosophical, theoretical, and methodological underpinnings of IPA, shedding light on IPA, like other phenomenological studies, presents an unsatisfactory recognition of the essential role of language. However, it could be accepted through metaphors, discourse, and narratives (Rajasinghe 2020) as a result of the descriptive role.

IPA captures the participants' experiences more than their perspectives, which allows the exploration of their experience through 'phenomenological meditation', which depends on my understanding of participants' stories and experiences for those who were able to describe the perspectives that presented biases between them (Thabane, et al. 2010). IPA does not analyse all 23 participants' data (MacLeod 2019) but only a few participants. IPA is used widely in health and illness studies, and not much in other interdisciplinary (Smith and Eatough 2019).

IPA was used to focus on the different experiences of participants and the meanings of those experiences, rather than their perspectives and the challenges of utilising AI in L&DS. This approach allowed me to understand the world's experiences, rather than just the causes of that phenomenon. Although it allows me to understand participants' experiences to explore the

reasons for the implications presented in participants' experience historically in L&DS, cognition's role in phenomenology was not understood appropriately (Tuffour 2017). It has enough unrealistic experience (Armour, et al. 2009) to clarify why the challenges in L&DS occurred.

This chapter has presented the research design and discussed the research's aim, objectives and research questions. It has defined and explained the key concepts of the phenomenon, identified ontological and epistemological positions, and developed a qualitative method that aligns with RQs to explore the phenomenon adequately. It contributes to a subjective ontology by interpreting participants' perspectives when defining technologies and engaging with them in L&DS and epistemic world as a researcher (Yancher, 2015; Eatough and Smith 2017).

Online interviews require specific underpinning efforts and consistency across all the methodologies (Duanea 2021). It collects the data and assesses the results to derive insights (Yin 2012) through online interviews, which is time-consuming by using one method, so the data become inevitably significant and analysed by IPA.

The following chapter analyses and discusses the findings of the collected data from the UAE government ministries regarding HRMPs' utilisation of AI-algorithms in L&DS and their understanding of AI-algorithms. The Findings are divided into two chapters: The first chapter analyses how HRMPs understand and engage with technological affordances differently. The second chapter analyses the challenges that HRMPs face in L&DS when utilising these technologies, their actions, and suggestions, as HRMPs are the core challenges of the system based on the limitations of HRMPs KSE. The totality of the findings and discussions of these two chapters are interconnected, and the implications of the findings provide meaningful feedback to these challenges related to HRMPs' engagement with these technologies, which were identified from the LR.

Redaction Note

Pages (90 to 172; 219-231) have been redacted, as authorised by the University of Stirling Education Committee Academic Panel (Research).

The Panel recognised the potential risk factor for participants due to the sensitive nature of the subject matter of the thesis, despite the author's best efforts to anonymise contributions.

The Panel approved permanently restricted access to the thesis, permitting access to the literature review and methodology only.

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Redaction Note

Pages (90 to 172; 219-231) have been redacted, as authorised by the University of Stirling Education Committee Academic Panel (Research).

The Panel recognised the potential risk factor for participants due to the sensitive nature of the subject matter of the thesis, despite the author's best efforts to anonymise contributions.

The Panel approved permanently restricted access to the thesis, permitting access to the literature review and methodology only.

