

## Adoption and Utilisation of Workplace E-Learning Practices in the Public Sector Organisations: A Systematic Review

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**Abstract:** The e-learning concept is increasingly receiving attention in education but there seems to be inadequate guidance in developing a formal programme for implementing e-learning, especially in the public sector. Hence, this study focuses on aggregating information on the adoption and utilisation of e-learning in the public sector and attempting the development of a conceptual model for understanding workplace e-learning implementation. A systematic search of the literature was conducted to collect all the literature addressing the adoption and utilisation of e-learning in the public sector. This review brought to light key factors that influence the adoption and utilisation of e-learning amongst public sector employees, including attitude, satisfaction, behaviour intention, continuance intention, or behaviour to use e-learning. The adoption and utilisation of e-learning in the public sector requires a carefully thought-through and evidence-based approach, especially the development of the e-learning programme.

**Keywords:** e-learning, adoption, utilisation, workplace e-learning practices, public sector employees, organisational learning culture.

### Introduction

Digital knowledge and skills acquisition is prevalent nowadays at the workplace and, as a result, there is a need for, “reskilling people to achieve new knowledge and skills to cope with change, working should be increasingly interconnected with learning” (Hamburg, 2021, p. 2). Many organisations have adopted e-learning as a strategic tool for employee learning and development (Nurhayati & Rachmawati, 2021). E-learning is therefore highly important in workplace organisations and has been widely adopted since it is a cornerstone of economic development. Research indicates that America’s enterprises using e-learning in the workplace increased from 8% in 1999 to 29% in 2006 (Jan et al., 2012).

The origin of the concept “e-learning” can be traced back to the 80s and 90s, when students were studying through part-time and distance learning, and to the growth in life-long learning. The inception of digital technology, the internet and web systems also occurred at that time (Hubackova, 2015; Williams & Goldberg, 2005). With the improvement of web systems in 2002-2006, new e-learning programmes were created for teaching and communication and, most important, advancement of education. E-learning is referred to as “a wide set of applications and processes such as web-based learning, computer-based learning, virtual classrooms, and digital collaboration” (Sarabadani et al., 2017, p. 2).

Although today e-learning is highly recognised in workplace organisations, suggestions for improvements have been articulated. For instance, some organisations prefer blended learning (a combination of e-learning and traditional methods) to pure e-learning. They argue that the blended



learning mode appeals to the needs and learning styles of a variety of trainees (DeRouin et al., 2004; Tayebinik & Puteh, 2013). However, this review is about the adoption and utilisation of workplace e-learning practices in the public sector. Research illustrates that e-learning adoption and utilisation is assumed to be an important vehicle for the provision of lifelong learning for workplace practices, and a way to overcome the difficulties of learning (Noe et al., 2014).

The benefits of workplace e-learning cannot be overstated; e-learning has been widely adopted at workplaces for lifelong learning and development for employees (Nurhayati & Rachmawati, 2021). E-learning support's benefit is attributed to its flexibility, independence and collaborative learning, that requires employees to control the time, space and consistency in receiving training (Martins et al., 2019). Other benefits include cost-effectiveness, as it can reduce travel costs since e-learning can allow training to be facilitated to employees anytime and anywhere (Burgess & Russell, 2003).

Despite the significance of e-learning, some countries seem to be lagging behind and experiencing challenges such as low productivity, poor service delivery and poor performance (Nurhayati & Rachmawati, 2021). Some challenges associated with e-learning are costs and the need to change attitudes, lack of sufficient knowledge, budgetary constraints, lack of qualified personnel, lack of relevance and poor infrastructure (Msomi et al., 2016; Oroma et al., 2012). These challenges could be somewhat associated with the inadequacy of research on the adoption and utilisation of workplace e-learning practices in the public sector. It is therefore important to conduct more research to gather knowledge and review the related literature on this area. This paper reports the findings of a scoping review that was conducted to aggregate information on workplace e-learning adoption and utilisation practices in public sector organisations. Also, the aim was to use the outcomes of the review to inform the development of the conceptual model to support the development of workplace e-learning implementation programmes.

## **Methods**

The scoping review followed the Preferred Reporting Items for Systematic Review and Meta-Analysis (PRISMA) (Moher et al., 2010) and the extension of the PRISMA for scoping reviews (McGowan et al., 2020; Tricco et al., 2018). Also, the review used qualitative approaches to source and analyse the data.

## **Background**

This scoping review was developed mainly to inform the larger PhD study, which was focused on exploring the adoption and utilisation of workplace e-learning practices in selected Namibian public sector organisations. The objectives of the larger study include: exploring the adoption and utilisation of workplace e-learning practices in public sector organisations; determining users' perceptions, attitudes, beliefs, needs, opportunities and challenges on adoption and utilisation of workplace e-learning practices; analysing the factors that promote adoption and utilisation of workplace e-learning practices in public sector organisations and; proposing the most appropriate model that could be used for adoption and utilisation of e-learning practices in the public sector.

Initial reading towards the larger study revealed a possible lack of guidance in developing and formally implementing e-learning in the public service, hence, we conducted a rigorous scope review to gather all pieces of the literature that address the adoption and utilisation of e-learning in the public sector and disaggregated them to form baseline data. The assumption was that, with the baseline data

from the scoping review, we would guide workplace e-learning adoption and utilisation practices in the public sector. Additionally, we thought we could use the outcomes of the review to inform the development of the conceptual models for workplace e-learning implementation programmes.

## Search Strategy

A search of the literature was conducted on multiple databases, including Web of Science, Dimensions, Scopus and EBSCOhost (Academic Search Complete, Applied Science & Technology Index (H.W. Wilson), Art & Architecture Source, Business Source Complete, Chinese Insight, CINAHL with Full Text, Communication Source, Computers & Applied Sciences Complete, EconLit with Full Text, Education Source, E-Journals, Environment Complete, ERIC, Essay and General Literature Index (H.W. Wilson), GeoRef, GeoRef In Process, GreenFILE, Historical Abstracts with Full Text, Hospitality & Tourism Complete, Humanities Source, Legal Source, Library, Information Science & Technology Abstracts, MEDLINE, MEDLINE with Full Text, MLA Directory of Periodicals, MLA International Bibliography, Open Dissertations, Regional Business News, SocINDEX with Full Text, SPORTDiscus with Full Text, Teacher Reference Center). A pre-determined search strategy (Table 1) was used consistently in searching all the databases.

**Table 1: Search Strategy**

Keywords	Synonyms
Adoption	Utilisation OR use OR application
"e-learning practices"	OR "Electronic learning" OR "e-learning" OR eLearning OR "distance education" OR "distance learning" OR "online learning" OR "online class" OR "virtual education" OR "virtual learning" OR "learning online" OR online courses OR "web-based learning" OR "online lecture" OR "tele-education" OR "virtual learning" OR "e-education" OR "cyber-education" OR "e-school"
"Public sector"	Government OR "government department*" OR "state-owned enterprises" OR "government enterprise" OR "state sector" OR "public enterprises"
Employee*	OR staff* OR personnel OR worker* OR "civil servant*"

### *Inclusion/Exclusion Criteria*

The results were screened for relevance, including peer-reviewed English-written journal articles published between the years 2011-2022. Also, the studies that were included had to address the adoption and utilisation of workplace e-learning practices in the public sector (Figure I). The authors did the selection of the articles together and once a shared understanding of the process was reached, they selected independently. Once the individual selections were completed, the authors compared their selections and resolved any disagreements.

### *PRISMA Flow Diagram To Summarise Study Selection Processes*

The total database search yielded 5,854 records from the following: EBSCOhost (826), Dimensions (646) Scopus (4382). Following a detailed assessment, 12 were removed as duplicates leaving 5,842 records for screening. Further screening excluded 5,520 records. The number of records assessed for eligibility extracted as full-text articles was 322, of which 13 were further removed due to various reasons. Finally, 31 records were included in the review.

See the PRISMA flow diagram summary below:

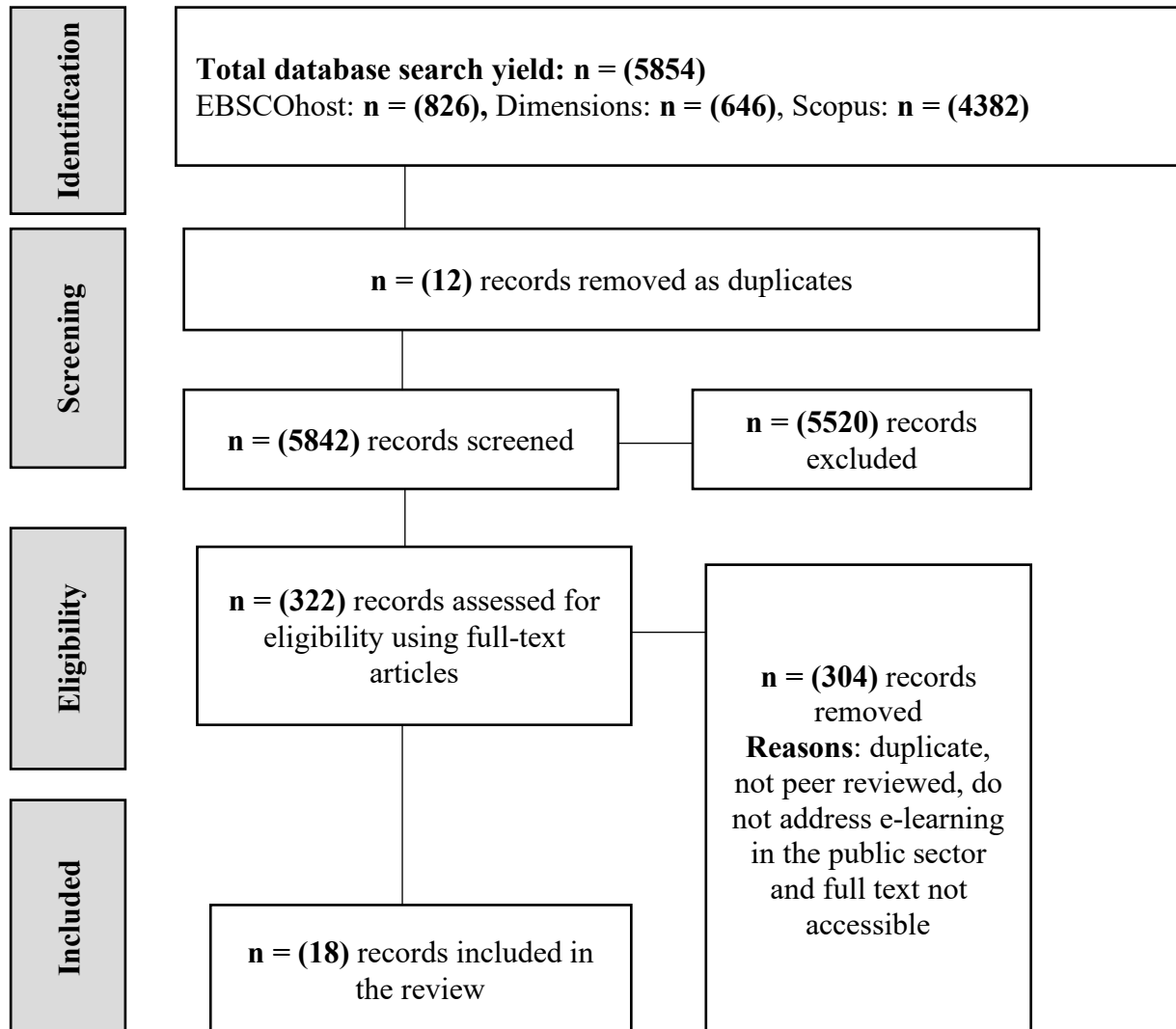


Figure 1: PRISMA flow diagram

### Data Abstraction

The matrix approach was used for its ability to control qualitative data, especially since the review data was not large or cumbersome. The data from the included studies were abstracted into the review matrix, including Author, Title, Year, Country or Region, Methodology and Key Findings. The two authors developed and tested the matrix by abstracting five articles together and they abstracted separately and later merged the data. Once the data was merged into one matrix document, the entire matrix was reviewed for duplication, consistency and accuracy.

## Data Analysis

The data were analysed thematically, and the process involved reading the matrix for familiarisation with the data and using the language of the data to develop codes (data coding), and group the codes into themes and sub-themes (categories and sub-categories). The relationships between codes, themes and sub-themes were established by repeatedly comparing them to ensure consistency.

## Results

### Article Characteristics

The review included a total of eighteen peer-reviewed studies (Alajmi et al., 2019; Bhuasiri et al., 2012; Chih-Yang et al., 2011; Chung et al., 2016; Chung et al., 2014; Donmez-Turan, 2019; Garg & Sharma, 2020; Isaac et al., 2018; Kapo et al., 2020; Lai, 2017; Lin et al., 2019; Mohd Asarani & Ab Rahim, 2016; Montgomerie et al., 2016; Pereira et al., 2015; Yoo & Han, 2013; Zainab et al., 2015; Zainab, Awais Bhatti, et al., 2017; Zainab, Awais Bhatti, et al., 2017), including one from Kuwait (n = 1) (Alajmi et al., 2019), Yemen (n = 1) (Isaac et al., 2018), Malaysia (n = 1) (Mohd Asarani & Ab Rahim, 2016), Brazil (n = 1) (Pereira et al., 2015), South Korea (n = 1) (Yoo & Han, 2013), New Zealand (n = 1) (Montgomerie et al., 2016), Thailand (n = 1) (Bhuasiri et al., 2012), Bosnia (n = 1) (Kapo et al., 2020), India (n = 1) (Garg & Sharma, 2020), Turkey (n = 1) (Donmez-Turan, 2019), three from Nigeria (n = 3) and five (n = 5) from Taiwan (Chih-Yang et al., 2011; Chung et al., 2016; Chung et al., 2014; Lai, 2017; Lin et al., 2019). Five themes emerged from the review, including public service employees' attitude towards using e-learning, public service employees' satisfaction with e-learning, public service employees' behaviour and intention to use e-learning, public service employees' continuance intention to use e-learning and organisational factors influencing public service employees to use e-learning. Table 2 below presents a synthesis of the themes and sub-themes.

**Table 2: Synthesis of the Results**

Themes	Sub-themes	Description
Public sector employees' attitude towards using e-learning		This theme describes factors that affect e-learners' attitudes to using e-learning, including the behavioural intention to use e-learning (Bhuasiri et al., 2012; Hsiu-Ying Chung et al., 2014; Lai, 2017; Yoo & Han, 2013; Zainab, Awais Bhatti, et al., 2017), subjective norm, behavioural control, perceived ease of use, perceived compatibility (Lai, 2017) and perceived usefulness (Bhuasiri et al., 2012; Lai, 2017), performance expectancy (Yoo & Han, 2013; Zainab, Awais Bhatti, et al., 2017) and policy factors (Hsiu-Ying Chung et al., 2014; Zainab, Awais Bhatti, et al., 2017).
Public sector employees' satisfaction with e-learning		This theme describes how user satisfaction influences public sector employees' continuous use intention for e-learning (Chih-Yang et al., 2011; Garg & Sharma, 2020; Isaac et al., 2018; Lai, 2017; Pereira et al., 2015) and factors that influence satisfaction, including computer self-efficacy, job relevance, expectation confirmation (Chih-Yang et al., 2011), perceived ease of use (Chih-Yang et al., 2011; Garg & Sharma, 2020), perceived usefulness (Chih-Yang et al., 2011), course content (Garg & Sharma, 2020) and quality, quality disconfirmation, value and value disconfirmation, technological readiness and performance (Pereira et al., 2015).

Themes	Sub-themes	Description
Public sector employees' behaviour intention to use e-learning		This theme describes the factors that influence e-learners' behavioural intention, including behavioural attitude (Hsiu-Ying Chung et al., 2014; Garg & Sharma, 2020; Lai, 2017; Yoo & Han, 2013; Zainab, Bhatti, et al., 2017), policy factors (incentive policies and pressure policies), and performance expectancy (Donmez-Turan, 2019; Zainab et al., 2015). Also influenced by compatibility, relative advantage, observability, trialability, perceived ease of use, perceived usefulness and resistance to change but negatively influenced by compatibility (Hsiu-Ying Chung et al., 2014) and barrier factors (personal, content suitability and situational barriers) (Chih-Yang et al., 2011).
Public sector employees continuance intention to use e-learning	Public sector employees continuance intention to use e-learning	These themes describe public sector employees' continuance behaviour of e-learning adoption, including satisfaction (Hsiu-Ying Chung et al., 2014; Garg & Sharma, 2020), which is also influenced by computer self-efficacy, job-relevance, expectation confirmation and perceived usefulness (Hsiu-Ying Chung et al., 2014) course content (Hsiu-Ying Chung et al., 2014) and ease of use.
	Public sector employees' continuous use of e-learning	Continuous use of e-learning" is negatively affected by professional factors such as organisational support, management support, task support assignment but positively influenced by information technology, and personal factors including relative advantage, compatibility, attitudes and performance expectancy (Kapo et al., 2020).
Organisational factors influencing employees to use e-learning		This theme describes the organisational factors that influence public servants' use of e-learning such as online considerations (time allocation, discipline and learning style) (Montgomerie et al., 2016), peer support (improve motivation and discipline (Montgomerie et al., 2016), technical delivery (easy to use software) (Mohd Asarani & Ab Rahim, 2016; Montgomerie et al., 2016) and organisational culture (mandatory use of e-learning (Montgomerie et al., 2016) or otherwise (Mohd Asarani & Ab Rahim, 2016)).

### Public Sector Employees' Attitude towards Using E-learning

The review findings suggest a strong relationship between attitude and behavioural intention to use e-learning (Bhuasiri et al., 2012; Hsiu-Ying Chung et al., 2014; Lai, 2017; Yoo & Han, 2013; Zainab, Awais Bhatti, et al., 2017). For instance, the review reports that whilst other factors, such as subjective norm, behavioural control, perceived ease of use, perceived compatibility (Lai, 2017) and perceived usefulness (Bhuasiri et al., 2012; Lai, 2017), also influence behavioural intention, attitude is the most important predictor of e-learning adoption. Also, the review findings show that attitude towards use is positively influenced by policy factors such as incentive and pressure policies and negatively influenced by barrier factors such as personal, content suitability and situational barriers (Hsiu-Ying Chung et al., 2014; Zainab, Awais Bhatti, et al., 2017), additionally, emphasising the predictive ability of attitude in behavioural intention to use e-learning, Yoo & Han's (2013) study found that employees' attitude is positively influenced by performance expectancy (Yoo & Han, 2013; Zainab, Awais Bhatti, et al., 2017), facilitating conditions, and social influence but negatively influenced by anxiety.

### **Public Sector Employees' Satisfaction with E-learning**

The findings suggest that user satisfaction is a key factor in the public servants' intention to continue to use e-learning or e-training systems (Chih-Yang et al., 2011; Garg & Sharma, 2020; Isaac et al., 2018; Lai, 2017; Pereira et al., 2015). Civil servants' continuance behaviour of e-learning was significantly influenced by satisfaction (Chih-Yang et al., 2011; Garg & Sharma, 2020) and satisfaction was influenced by factors including computer self-efficacy, job relevance, expectation confirmation (Chih-Yang et al., 2011), perceived ease of use (Chih-Yang et al., 2011; Garg & Sharma, 2020), perceived usefulness (Chih-Yang et al., 2011) and course content (Garg & Sharma, 2020). These results were consistent with Pereira et al., (2015) whose findings suggested quality, quality disconfirmation, value and value disconfirmation, positive impact on satisfaction as well as disconfirmation usability, innovativeness and optimism, as decisive for continuous use intention. In addition, technological readiness and performance are strongly related and both positively influence satisfaction (Pereira et al., 2015).

The review also suggested that the acceptance of e-learning was positively associated with job satisfaction and organisational learning culture. The Unified Theory of Acceptance and Use of Technology (UTAUT) aims to explain user intentions to use a technology and their subsequent usage behaviour (Venkatesh et al., 2003). For instance, selected UTAUT variables (performance expectancy, effort expectancy, social influence, and facilitating conditions – on job satisfaction), the organisational learning culture and job satisfaction (Lin et al., 2019). Both performance expectancy and social influence positively influenced job satisfaction, effort expectancy and facilitating conditions were not significantly associated. Performance expectancy, effort expectancy, and social influence significantly influenced organisational learning culture. Thus, organisational learning culture significantly influenced job satisfaction (Lin et al., 2019).

### **Public Sector Employees' Behaviour Intention to Use E-learning**

The findings suggest that behavioural intention was influenced by behavioural attitude (Hsiu-Ying Chung et al., 2014; Garg & Sharma, 2020; Lai, 2017; Yoo & Han, 2013; Zainab, Bhatti, et al., 2017). Behavioural intention to use e-government systems, such as e-learning, was reported to be positively influenced by factors including behavioural attitude, policy factors (incentive policies and pressure policies), performance expectancy (Donmez-Turan, 2019; Zainab et al., 2015), and negatively influenced by barrier factors (personal, content suitability and situational barriers) (Chih-Yang et al., 2011). Personal factors included lack of time to study, and personal physical unsuitability and situational barriers included unfamiliarity with e-learning methods, interruptions in courses, inability to complete courses and content suitability barriers included failure of e-courses to meet expectations and unattractive courses (Chih-Yang et al., 2011).

The behaviour intention was positively influenced by factors including compatibility, relative advantage, observability, trialability, perceived ease of use, and perceived usefulness but negatively influenced by compatibility (Hsiu-Ying Chung et al., 2014). Additionally, barrier factors negatively influenced behavioural intention. For instance, resistance to change was found to affect effort expectancy, hence, influencing behavioural intention (Hsiu-Ying Chung et al., 2014). Nonetheless, incentive and pressure policies have been reported to positively influence behavioural intention (H.-Y.

Chung et al., 2016) but incentive policies are more effective (Hsiu-Ying Chung et al., 2014; Zainab et al., 2015).

### **Public Sector Employees' Continuance Intention to Use E-learning**

The review emphasises that civil servants' continuance behaviour of e-learning adoption was significantly influenced by satisfaction (Hsiu-Ying Chung et al., 2014; Garg & Sharma, 2020). According to Chi-Yang et al. (2014) among the six results with significant relationships, e-learning continuance intention was emphasised as having a positive effect on satisfaction. Also, the results revealed that continuance intention depends on user satisfaction with the e-training system (Hsiu-Ying Chung et al., 2014). While Chi-Yang et al. (2014) cited satisfaction determinants by computer self-efficacy, job relevance, expectation confirmation and perceived usefulness, Hsiu-Ying Chung et al. (2014) refer to course content as affecting user satisfaction. However, both studies agree that ease of use affects user satisfaction. On continuance use, ease of use and course content was found to be insignificant. The emphasis of the results was that until the users felt satisfied with the e-training system they would not plan to continuously use the system for their development (Hsiu-Ying Chung et al., 2014).

This review has suggested a new term, "continuous use of e-learning", suggesting that it is negatively affected by professional factors such as organisational support, management support and task support assignment. Also, personal factors including relative advantage, compatibility, attitudes and performance expectancy determined and positively influenced the continuous use of e-learning (Kapo et al., 2020). Additionally, information technology (especially the degree of ease of use) was found to positively influence the continuous use of e-learning (Kapo et al., 2020). Even more specifically, mobile technology was reported to influence the continuous use of e-learning due to its benefits including facilitating employee or trainee interactions, speedy access to information, rapid restoration of course content, and content creation (voice and video recording) (Alajmi et al., 2019). Generally, public sector e-learners' continuance intention can be established by tracking usage rate, course completion rate and course pending rate (Mohd Asarani & Ab Rahim, 2016).

### **Organisational Factors Influencing Public Sector Employees to Use E-learning**

The review suggests that online considerations (time allocation, discipline and learning style) influence successful e-learning. E-learning enables flexibility or 'self-paced learning' but sometimes the same flexibility creates challenges such as procrastination, as learners tend to struggle to create time and find the discipline and motivation to consistently learn online, given other external factors such as family and work-related issues that may shift priorities. Prior experience with e-learning was reported to be a useful factor in enabling learners to cope with the workload. Whilst some learners liked the anonymity that came with e-learning, allowing them to share their opinions or views comfortably, others still struggled to be comfortable (Montgomerie et al., 2016). Whilst some learners realised the benefits brought about by e-learning some perceived traditional training to be more effective due to benefits such as trainer-led instruction, printout materials, and two-way communication (Mohd Asarani & Ab Rahim, 2016). On the other hand, e-learning enables the standardisation of the curriculum, unlike face-to-face training where there is variance in the course material and the delivery (Mohd Asarani & Ab Rahim, 2016).



Peer support was also linked to successful e-learning perceptions as positive peer support helped e-learners with motivation and discipline, but on the other hand, e-learners expressed frustrations with the limited peer interaction and support on e-learning. Due to self-paced or flexible learning enabled by e-learning, e-learners were not always on par, thus, making it difficult for them to support one another, share experiences and provide feedback to each other. E-learners have since suggested the need for deadlines to ensure that they are on par. However, peer support was viewed as a possible challenge, especially in cases of dissatisfied e-learners (Montgomerie et al., 2016).

The technical delivery of the course was linked to the learning experience. When technical delivery was good (easy-to-use software) e-learners tended to have a positive learning experience but when there were technical issues learning engagement and enthusiasm were negatively affected, thus, learning experience becomes negative. The study by Mohd Asarani & Ab Rahim (2016) also shares the same claims, adding that one should ensure that the system always works smoothly and internet-connected computers are available to avoid negative learning experiences. Nevertheless, technical delivery issues' impact on performance tends to be mitigated by the level of positive peer support but negative comments exacerbate the issue (Montgomerie et al., 2016).

The organisational culture was also a contributing factor in successful e-learning use. For instance, some organisations or companies mandated (forced or pushed) their staff to use e-learning. Whilst such a company decision could have its merits, some staff members did not consider e-learning to be important. Also, the staff members sometimes did not understand why they needed to spend time on it, and that shows sometimes misalignment between the purpose of the collective development initiative and the organisational culture understood by participants (Montgomerie et al., 2016). In other settings, such as Malaysia, e-learning is provided for free to public servants as a way of encouraging them to enrol but the important thing is that the course provided is not mandatory, allowing for personal choice of course and time period (Mohd Asarani & Ab Rahim, 2016).

## **Discussion**

The adoption and utilisation of e-learning in the public sector appears to be inadequately researched as this review located only a total of eighteen peer-reviewed studies. The review seems to suggest that as countries develop and embrace technological innovations the uptake of e-learning tends to be of the utmost importance. For example, out of eighteen reviewed studies, twelve were from Asia while six were from other continents, namely, Africa, South America and Australasia. The pattern above could suggest that the conversation about e-learning in the public sector is concentrated in the developing world, seemingly because of the impeding factors such as lack of funds needed to acquire modern technologies, lack of accreditation by international bodies and use of quality assurance measures (Erdoğmu & Esen, 2011).

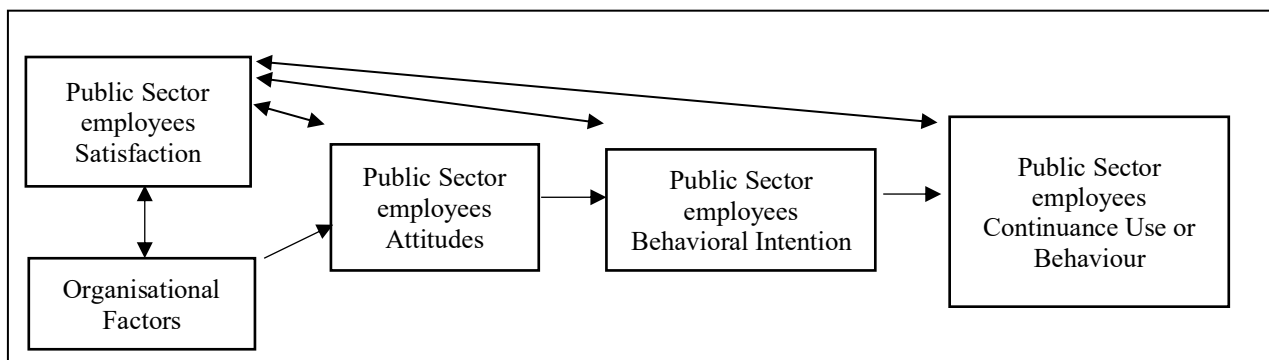
The majority of the rather limited research publications on e-learning in the public sector tend to report the implementation of e-learning and barely cover the evaluation of e-learning in the public sector. This observation is consistent with Erdoğmu & Esen's (2011) claim that there is relatively little research on the evaluation of e-learning in the public sector.

The five themes that emerged in the review's findings seem to be interrelated, suggesting a logical relationship that could help theorise the implementation and evaluation of e-learning in the public

sector. The relationships between the themes also suggest possible predictors of workplace e-learning adoption and utilisation practices in the public sector. The review suggests that public sector employees' satisfaction is key, influencing public sector employees' attitudes, behavioural intention and, ultimately, continuance to use e-learning. Whilst some studies strongly suggest that *satisfaction* (Chih-Yang et al., 2011; Hsiu-Ying Chung et al., 2014; Garg & Sharma, 2020) is the dominant predictor, some suggest that *attitude* (Bhuasiri et al., 2012; Hsiu-Ying Chung et al., 2014; Lai, 2017; Yoo & Han, 2013; Zainab, Awais Bhatti, et al., 2017) towards using e-learning is the dominant predictor of e-learning adoption (Jan et al., 2012) but satisfaction seems to stand out because it appears to influence attitude.

There seem to be factors that are reported to influence satisfaction such as self-efficacy, job relevance, expectation confirmation, perceived ease of use, perceived usefulness and course content. The above claim is consistent with Expectation Confirmation Theory, which ties the above-mentioned factors to employees' continuous use intention and their satisfaction (Rajeh et al., 2021). Other factors that are reported to influence satisfaction are quality, quality disconfirmation, value, value disconfirmation, disconfirmation usability, technological readiness and performance (Pereira et al., 2015). In a nutshell, a public sector employee who is satisfied with e-learning tends to have a positive attitude towards e-learning and that impacts on their behavioural intention and continuance to use e-learning.

The review suggests that organisational learning culture influences job satisfaction and public sector employees' behavioural intention and, ultimately, continuance to use e-learning. Factors that are reported to influence organisational learning culture include time allocation, discipline, learning style, prior experience and peer support. The above-mentioned factors are linked to successful e-learning as they motivate learners and keep them disciplined and, hence, able to cope with the workload.



**Figure 2: Conceptual Model of E-learning Adoption and Utilisation in the Public Sector**

The conceptual model above summarily shows the relationship between the themes that emerged in the data analysis. The relationships show that public sector employees' satisfaction with e-learning influenced their attitudes, and their attitudes also influenced their satisfaction with e-learning. Also, organisational factors influenced both public sector employees' satisfaction and attitudes towards e-learning. Further, public sector employees' attitudes influenced their behavioural intention to use e-learning, which also influenced continuance use or behaviour and public sector employee's satisfaction. Furthermore, both public sector employees' continuance use of e-learning or behaviour and employees' satisfaction influenced each other.

The adoption and utilisation of e-learning in public sector organisations requires a formal approach, where a programme is carefully developed to instil the culture of e-learning and facilitate the employees who use e-learning. The development and implementation of an e-learning programme have to take into consideration all the major factors including organisational factors, and public sector employees' satisfaction, attitudes, behavioural intentions and continuance use or behaviour. Also, the programme has to pay special attention to the mediating factors that influence the above-mentioned major factors such as user perceptions of e-learning, policy factors, personal factors, professional factors, barrier factors, course design and content, IT infrastructure, etc. Policies that make learning mandatory, when paired with incentive policies, could improve employees' uptake of e-learning. However, the IT infrastructure should be ready to support e-learning because if not, the public sector employees will experience challenges that will lead to dissatisfaction, negative attitudes towards e-learning and, ultimately, negative behavioural intention and no continuance to use e-learning.

## **Limitations**

This scoping review was focused on e-learning in the public sector and required a strong systematic searching methodology. which may have not been exhaustive. However, the services of systematic review and expert literature searchers were used to ensure that all the relevant literature was collected. Also, the researchers relied on the availability of all the necessary data or literature sources but conducting a scoping review in a resource-limited setting such as Africa and African institutions means one has limited or no access to all the best available databases. However, the researchers relied on freely available and subscription databases through both the University of Namibia and the University of Botswana.

## **Future Research**

This scoping review highlighted the inadequacy of research on e-learning adoption and utilisation in the public sector. Whilst available research has employed theoretical approaches, such as the Unified Theory of Acceptance and Use of Technology, to study e-learning adoption and utilisation in the public sector, there is a need for more research that explores other theories, such as the Expectation Confirmation Theory, to understand the user factors. Also, there seem to be many factors that influence the adoption and utilisation and uptake of e-learning but research has not been conclusive on their inter-relationships with, and influence on, e-learning. Thus, there is a need for more research on factors that influence e-learning adoption and utilisation and uptake, especially in the public sector.

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