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Examining Workplace eLearning Programs Using Persuasive Learning Design: A Hermeneutic Phenomenological Study

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EXAMINING WORKPLACE ELEARNING PROGRAMS USING PERSUASIVE LEARNING DESIGN: A HERMENEUTIC PHENOMENOLOGICAL STUDY

by

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ABSTRACT

eLearning platforms have become the primary method for employee development in organizations (Dellagiacoma et al., 2020). This shift from the in-person approach has increased resources and budget allocation for authoring software applications needed to develop interactive eLearning programs (Kshirsagar et al., 2020). Despite spending a considerable amount of money on eLearning authoring software, there are concerns that most workplace eLearning programs do not achieve the desired outcomes (Jones, 2016; Patel, 2017; Sidhu, 2019). Although studies show that eLearning programs have effectively enhanced learning transfer, the same studies suggest that employees do not retain information in some eLearning programs (Dellagiacoma et al., 2020; Jones, 2016; Patel, 2017; Thalheimer & Kinnamon, 2017). Studies also show that employees are dissatisfied with workplace eLearning programs despite the availability of modern technologies (Dellagiacoma et al., 2020; Jones, 2016; Thalheimer & Kinnamon, 2017). The dissatisfaction is attributable to elements available in the persuasive learning design framework but missing in other eLearning programs (Patel, 2017). While studies show the impact of persuasive learning design in K-12 and higher education, there is little research in corporate settings.

Therefore, this study explores the effectiveness of workplace eLearning programs developed using persuasive learning design. Persuasive learning design is a framework that ensures that instructional materials have the capability to (a) recognize (or measure) learners' abilities or prior knowledge, (b) use triggers (hints or suggestions) to engage learners, and (c) motivate learners through a user-friendly and interactive interface (Fogg, 2003; Gram-Hansen, 2016; Kristensen, 2013). Participants completed an open-ended

survey embedded in the eLearning program followed by an interview 30 days after the program. The data obtained from open-ended surveys and interviews helped the researcher understand participants' learning experiences and explore the adoption of persuasive learning design framework.

Three factors that influence employees' learning experience in the eLearning program developed using the persuasive learning design are identified. The identified factors include attracting learning attention, adapting instructional materials to align with learning needs, and giving learners the flexibility to accelerate learning. These findings influenced employees' learning satisfaction, engagement, and information retention. The findings align with the existing literature on persuasive learning design and the theoretical foundation that underpins the study.

Keywords: eLearning, eLearning development, learning transfer, persuasive learning design, persuasive technology, employee development, learning engagement.

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DEDICATION

I would like to thank and dedicate this dissertation to my wife, Temi, and my son Daniel. We did it!

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LIST OF ABBREVIATIONS

CD	*Compact Disk*
CBT	*Computer-Based Training*
FBM	*Fogg Behavior Model*
L&D	*Learning and Development*
LMS	*Learning Management System*
OPM	*Office of Personnel Management*
PLD	*Persuasive Learning Design*
PT	*Persuasive Technology*

CHAPTER I – INTRODUCTION

The current business environment forces organizations to embrace eLearning exclusively (Kraiger et al., 2020). However, there are concerns about workplace eLearning programs' receptiveness and effectiveness despite emerging technologies aiding learning content development. Evidence suggests that many eLearning programs are ineffective, and both employees and business leaders are dissatisfied with these programs' outcomes (Patel, 2017). The ineffectiveness is attributable to elements missing in some workplace eLearning programs. Whereas these 'missing elements' are prime features inherent in the persuasive learning design framework. Persuasive learning design is a framework that ensures that instructional materials have the capability to (a) recognize (or measure) learners' abilities or prior knowledge, (b) use triggers (hints or suggestions) to engage learners, and (c) motivate learners through a user-friendly and interactive interface (Fogg, 2003; Gram-Hansen, 2016; Kristensen, 2013).

Hence, this hermeneutic phenomenological study explored persuasive learning design's use in developing workplace eLearning programs. Employees who participated in an eLearning program developed using the persuasive learning design completed an open-ended survey after completion. They also participated in an interview 30 days after the program to explore its effectiveness. The data obtained from open-ended surveys and interviews enabled the researcher to understand participants' learning experiences and explore the adoption of the persuasive learning design framework.

This Chapter I introduces the topic and describes the research problem, purpose, and objectives. The chapter also discusses the conceptual framework, significance of the

study, assumptions, and delimitations. Finally, the chapter concludes with the definition of terms, summary, and information about the organization of the remaining chapters.

Background of the Study

Studies have linked employees' performance with the quality of available learning programs (Elkeles et al., 2015; Thalheimer & Kinnamon, 2017). This realization prompts organizations to continually devise new strategies to enhance employees' learning experience and information retention in workplace learning (Elkeles et al., 2015; Freeze & Bristow, 2018). Thus, there are constant pressures on learning and development (L&D) teams to search for effective strategies that ensure learning programs achieve their desired objectives (Patel, 2017). Learning engagement is linked to information retention (Engelbertink et al., 2020; Heutte et al., 2021). So, organizations continue to invest in eLearning authoring applications that produce interactive learning materials to engage learners and subsequently enhance information retention (Elkeles et al., 2015; Engelbertink et al., 2020). Hence, organizations across various industries continue to appropriate funds for technology applications to meet their firms' learning needs (Kshirsagar et al., 2020; Shahzad et al., 2020).

Consequently, there is a dramatic increase in the adoption of eLearning for workplace learning because of its integral benefits (Kshirsagar et al., 2020; Phillips & Phillips, 2016). In 2015, more than 75% of workplace training was delivered through eLearning (Phillips & Phillips, 2016). In 2017, a survey indicated that more than 90% of U.S. companies planned to migrate employee training to eLearning by the end of 2020 (Deloitte, 2018). However, a recent LinkedIn Learning survey reported that the COVID-19 pandemic forced organizations to completely migrate their training to eLearning

(LinkedIn Learning, 2020). Hence, the demand for eLearning applications continues to grow exponentially, with a significant increase in eLearning budget and resource allocation across various industries (Kshirsagar et al., 2020; Shahzad et al., 2020). Similarly, the eLearning industry has burgeoned with an estimated compound annual growth rate of 14.6% from 2019 to 2026 (Kshirsagar et al., 2020). In the same vein, the eLearning market expects to grow by $12.48 billion before 2024, with the potential to triple by 2025, reaching $374.3 billion by 2026 (Kshirsagar et al., 2020; LinkedIn Learning, 2020).

However, studies show that most eLearning programs in corporate settings do not achieve the desired outcomes (Chen, 2008; Dellagiacoma et al., 2020; Thalheimer & Kinnamon, 2017). Despite the investment in eLearning technology applications, organizations are not optimizing these applications to deliver engaging learning programs (Dellagiacoma et al., 2020; Haghshenas et al., 2011). Therefore, employees struggle to retain information from eLearning programs due to a lack of interactive and engaging features in many eLearning programs (Chen, 2008; Khaddage et al., 2016).

For example, the Office of Personnel Management (OPM) is a federal government agency that sets the guidelines for employee development across various agencies (OPM, 2021). OPM has moved more than 95% of the personnel learning and development programs to eLearning (OPM, 2021). However, there are concerns about these eLearning courses' receptiveness across all federal government agencies (Jones, 2016). This happens partly because most eLearning programs do not offer an effective learning experience and do not engage learners (Khaddage et al., 2016; Patel, 2017).

A special report by the British Broadcasting Corporation (BBC) revealed that employees feel that L&D teams intentionally punish workers as employees grumble and groan when assigned new courses for completion (Borzykowski, 2018). According to Borzykowski (2018), employees must watch "boring" videos for more than 30 minutes with no option of fast-forwarding the video, and they are mandated to complete the training for compliance purposes. Whereas the same instructional content can be re-developed to naturally engage learners, sustain their interests, and persuade them to complete the module without coercion (Sidhu, 2019).

Although studies show that eLearning programs effectively enhance learning transfers, the same studies suggest that employees do not retain information in some eLearning programs (Dellagiacoma et al., 2020; Jones, 2016; Thalheimer & Kinnamon, 2017). The infectiveness of eLearning programs is attributable to the lack of interactive features that engage learners and motivate them in those eLearning programs (Kraiger et al., 2020). Sidhu (2019) posited that a lack of specific eLearning development frameworks leads to dissatisfaction with eLearning programs since most organizations use similar eLearning authoring software for learning content development.

Interestingly, evidence shows that persuasive learning design has produced highly engaging learning content and enhanced information retention in other contexts (Khaddage et al., 2016; Toor, 2016). Persuasive learning design incorporates Persuasive Technology (PT) components into the development of instructional materials (Berkovsky et al., 2015; Khaddage et al., 2016; Toor, 2016). The persuasive learning framework integrates features that recognize learners' prior knowledge, provide regular hints and suggestions, and motivates learners through interactivities (Fogg, 2003; Gram-Hansen,

2016; Kristensen, 2013). Empirical studies realize that persuasive learning design enhances the learning experience and improves information retention in teaching and non-teaching methods (Behringer & Sinclair, 2013; Berkovsky et al., 2015; Khaddage et al., 2016; Toor, 2016). While several research studies focus on persuasive learning design in K-12 and higher education environments, little literature focuses on the corporate setting. Meanwhile, the persuasive learning design may be advantageous to workplace eLearning programs since the concept is a framework and not a method (Gram-Hansen, 2016; Kristensen, 2013; Wiafe, 2013).

Problem Statement

Using eLearning platforms for workforce learning has become a standard practice across various industries (Kraiger et al., 2020). The initial increase in eLearning adoption in organizations stemmed from the potential benefits such as flexibility and cost-effectiveness (Devarakonda, 2019; Kapaniaris & Varvounis, 2019; Somayeh et al., 2016). Meanwhile, the current global pandemic forces organizations to migrate more than 90% of their learning programs to eLearning, and the situation has caused a significant increase in the budget and resources allocation to eLearning across various industries (LinkedIn Learning, 2020; Kshirsagar et al., 2020; Shahzad et al., 2020).

Ideally, the stakeholders' adoption and support for eLearning should result in desired outcomes and engender applause from various stakeholders. Contrarily, studies show that most eLearning programs do not achieve the desired outcomes (Khaddage et al., 2016; Jones, 2016; Thalheimer & Kinnamon, 2017). Also, both employees and business leaders are dissatisfied with the outcomes of many eLearning programs despite spending a considerable amount of money on eLearning authoring software applications

(Patel, 2017). The dissatisfaction occurs because most eLearning methods do not offer effective learning experiences and do not engage learners (Kraiger et al., 2020). There are also concerns that employees do not retain a significant part of the information presented in the programs (Sidhu, 2019). This happens partly because most eLearning approaches lack features that motivate, persuade, and engage learners (Bolliger & Halupa, 2012; Dellagiacoma et al., 2020; Khaddage et al., 2016).

The ineffectiveness of workplace eLearning programs hurts employee productivity and business profitability (Chen, 2014; Kraiger et al., 2020). Also, challenges associated with workplace eLearning programs contribute to employees' on-the-job frustration and consequentially contribute to high employee turnover in organizations (Chen, 2014; Zala & Rajani, 2021). Hence, having a framework that enhances employees' learning experience in eLearning programs can help organizations retain talent, save on recruitment costs, enhance employee productivity, and improve organizations' bottom-line (Dellagiacoma et al., 2020; Deloitte, 2018, Elkeles et al., 2015; Kshirsagar et al., 2020).

Research Purpose

This phenomenological study explored the effectiveness of persuasive learning design in developing workplace eLearning programs from the employees' perspectives. Perhaps, integrating the components of persuasive learning design in the workplace eLearning programs could produce satisfactory eLearning programs that effectively engage learners, enhance information retention, and engender learners' satisfaction with the instructional content design.

Thus, employees who partook in an eLearning program developed using the persuasive learning design completed an open-ended questionnaire to describe their satisfaction with the program. In addition to the survey, participants participated in an interview 30 days after the program to understand their learning experience and provide detailed descriptions of the topic. According to Plano-Clark and Creswell (2015), phenomenology is a type of research design that describes the common meaning for several individuals of their experiences with a concept or a phenomenon. In phenomenology, a researcher collects data from individuals who experience the phenomenon and describe the essence of their experience (Gravetter & Forzano, 2016).

Hermeneutical phenomenology is a type of phenomenological research oriented towards lived experience and interpreting the texts (Plano-Clark & Creswell, 2015). In hermeneutical phenomenology, there is a dynamic interplay among six research activities: a concern of interest, a reflection on essential themes about the nature of experience, a description of the phenomenon, a strong relation to the topic of inquiry, and balancing the parts of writing as a whole (Plano-Clark & Creswell, 2015). This research design fits the purpose of this study. The approach will allow extensive exploration and in-depth analyses of the phenomenon without supporting a particular position or anticipating specific results (Gravetter & Forzano, 2016).

Research Question and Objectives

The central research question is, ‘What is the experience of employees who completed eLearning programs developed using persuasive learning design?’ This study will limit the research scope to the exploration of participants’ perceptions regarding

learning engagement, information retention, and learning satisfaction. Therefore, the study will consider the following research objectives.

RO1 – Describe the participating employee demographics by gender, educational background, and years of experience working with the U.S. federal government.

RO2 – Explore the perceived employee satisfaction of an eLearning program developed using persuasive learning design.

RO3 – Explore the perceived learning engagement of an eLearning program developed using persuasive learning design.

RO4 – Explore the perceived information retention of an eLearning program developed using persuasive learning design.

Conceptual Framework

A conceptual framework represents the literature synthesis that explains the phenomenon or topic a researcher intends to study (Miles et al., 2014). Conceptual frameworks link various components of a study to form a cohesive explanation of relationships among various variables based on established theories (Roberts & Hyatt, 2019). Figure 1 below shows the relationships between the components of persuasive learning design, learning engagement, learning satisfaction, and information retention.

Persuasive learning design is a framework that centers on the development of highly interactive and engaging instructional resources that naturally motivate learners without coercion and consequently enhance information retention (Gram-Hansen, 2016; Kristensen, 2013). The framework ensures that the instructional material has the capability to recognize (or measure) learners' abilities or prior knowledge, use triggers

(hints or suggestions) to engage learners, and motivate learners through a user-friendly interface and interactivities (Mintz & Aagaard, 2012).

Recognizing learning ability relies on measuring learners' prior competencies and allows personalization and customization of instructional material based on individual learning needs (Khaddage et al., 2016). Subcomponents of ability recognition include aligning instructional content to meet learners' needs, adapting content to various learning stages, and accelerating learning when necessary (Alebeisat et al., 2022). Triggers are regular feedback such as hints or suggestions programmed to aid learners toward completion (Orji et al., 2013). These regular hints and tips predict the tendency to comply or act in a situation and influence learners' actions, thoughts, and decisions (Khaddage et al., 2016). On the other hand, learner motivation hinges on attracting learners' attention and sustaining their interest in learning programs (Sims, 2000).

Ability recognition, triggers, and learner motivation are interrelated, and the outcome of one affects the others (Toor, 2016; Wiafe, 2013). By recognizing learners' knowledge and measuring their competencies, the interface will trigger regular hints or suggestions that will naturally motivate learners to complete the program (Alebeisat et al., 2022; Kishabale, 2019). The regular suggestions will mitigate frustrations and gives learners the freedom to make decisions based on their competencies (Alebeisat et al., 2022; Ng & Yee-shun, 2015). Also, the approach will recognize learners' abilities, interests, and preferences, which will lead to learning motivation (Fogg, 2003; Orji et al., 2013).

The outcome of persuasive learning design implementation is an enhanced learning experience characterized by learning engagement, satisfaction, and high

information retention (Gram-Hansen, 2016; Kristensen, 2013). Learning engagement is a state of complete immersion in the learning activities without distractions (Csikszentmihalyi, 2020). Learning satisfaction refers to the learner's subjective assessment of a unit of instruction based on the fulfillment, expectations, and pleasures derived from the training (Wu et al., 2015). Information retention is how information is moved from short-term to long-term memory for easy retrieval (Karpicke & Roediger, 2007).

The Theory of Andragogy, Gagne's Theory of Instruction, and John Keller's Attention, Relevance, Confidence, and Satisfaction (ARCS) model are the theoretical foundations that underpin the implementation of persuasive learning design in the workplace. These theories and models are congruent with the components of persuasive learning design and align with its outcome. Hence, the learning theories and models are the foundation of this conceptual framework, and the researcher will reference them when reporting the findings from the study. However, employees' performance, stakeholders' satisfaction, and return on investment are other potential benefits of a persuasive learning design framework.

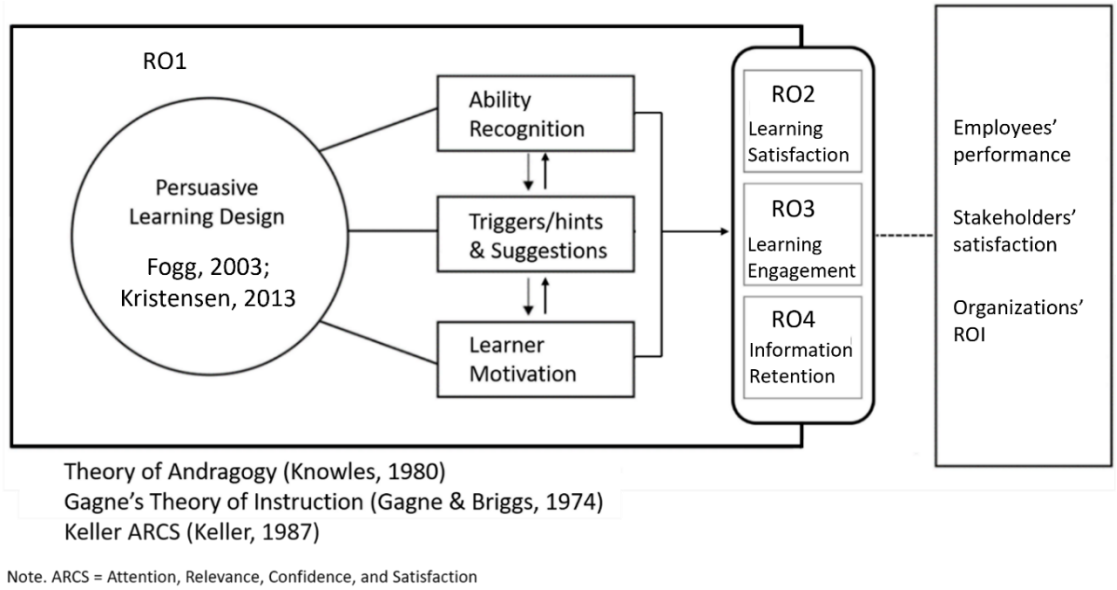


Figure 1. Conceptual Framework.

Significance of the Study

Creating effective employee development programs is the core function of organizations' human resource development (HRD) or talent development unit (Hameed & Waheed, 2011). Since several studies have linked organizational performance with employee development (Nassazi, 2013), HRD practitioners always search for instructional design frameworks and models to enhance learning experiences in workplace learning. The analysis, design, development, implementation, and evaluation (ADDIE) model is the most adopted instructional design framework in the corporate setting (Dick et al., 2013). While there are several evidence-based models and frameworks for analysis, design, implementation, and evaluation, there are few evidence-based frameworks for the second D – development. Meanwhile, the outputs of the development phase are the learning programs that employees complete in the workplace (Kraiger et al., 2020).

Especially now that more than 90% of workplace learning is eLearning-based (Kshirsagar et al., 2020), this study will provide insights into developing eLearning programs to engage learners and enhance information retention, which is the primary objective of learning interventions. The findings from this study should benefit employees by espousing the adoption of learner-centric frameworks in developing workplace learning programs. The conclusions of this study should also benefit HRD and talent development practitioners, instructional designers, eLearning developers, and performance improvement specialists. Other stakeholders such as HR business partners and business leaders can reference the findings when determining the cost-effectiveness of workplace learning. Finally, the results may provide insights into how organizations can retain talents through effective learning initiatives, thereby saving reoccurring recruitment costs. This may enhance employees' productivity and improve the bottom line (Deloitte, 2018; Kshirsagar et al., 2020).

Assumptions

According to Leedy and Ormrod (2005), assumptions are certain factors, underlying principles, and concepts a researcher accepts to be true without verification. This researcher assumes that participants will volunteer to partake in the study, and their interests in the study have no other subliminal motives, such as impressing their supervisors. It is also assumed that participants' descriptions of their learning experience would be objective and accurate, and their responses would be honest. To ensure that the assumptions above do not impact the credibility of the findings, the researcher ensured that participants participated voluntarily; they were free to withdraw their participation at any time without any penalties. Also, the researcher ensured that participants understood

the research purpose, objectives, and any possible impact the process may have on them. In addition, the researcher asked the same question in another format for corroboration and to ensure that participants did not make up scenarios or observations.

Delimitations

The delimitations of a study include all self-imposed restrictions, boundaries, and characteristics a researcher adopted to ensure effective control of the research (Leedy & Ormrod, 2005). This implies that a researcher has control over these features, and they only set the study's limits to a manageable scope (Roberts & Hyatt, 2019). This study focuses on federal government workers instead of private-sector employees because the U.S. federal government is the leading employer of labor in the United States, with over 9 million full-time and contract employees.

The researcher will interview contract employees because they are about 30% to 40% of the federal workforce (Light, 2017). About 4 million contract employees perform entry-level technical and administrative functions and support full-time workers across various federal agencies (Light, 2017). The study focuses on this workforce because little research has been conducted concerning their learning experience. Finally, the researcher also limits this study to a small independent federal government agency in Washington, DC, because the setting fits the scope of the study, and the researcher has access to the setting.

Definitions of Terms

Operational definitions refer to the statements that define and describe how terminologies, words, or phrases are used or applied in a specific context (Robert & Hyatt, 2019). An operational definition provides succinct descriptions of concepts and

terms emphasized in the study to avoid confusion and variation in the interpretation. Below are the operationalized terms and phrases emphasized in this study:

1. *Ability Recognition* – Determining learners' prior knowledge and adapting instructional content to align with learning needs (Fogg, 2009).
2. *Content Development* – The curation of information into instructional resources to suit a specific authoring software (Sidhu, 2019).
3. *eLearning* – Self-paced learning developed using authoring software to administer instruction and provides an avenue to assess the impact of the learning intervention with no group activities and discussions or inputs from an instructor (Steen, 2008).
4. *Employee Development* – Programs and initiatives designed to help employees acquire new skills for optimum performance in the current roles and future career opportunities (Bell et al., 2017).
5. *Information Retention* – The process by which new information is moved from short-term to long-term memory for easy retrieval (Karpicke & Roediger, 2007).
6. *Learning Engagement* – A state of complete immersion in the learning activities without distractions (Heutte et al., 2021).
7. *Learning Motivation* – The ability to sustain learners' interest in learning programs until the learning objective is met (Sims, 2000).
8. *Learning Satisfaction* – Learner's subjective assessment of a unit of instruction based on the fulfillment, expectations, and pleasure derived from the training (Wu et al., 2015).

9. *Persuasive Learning Design* – A framework that incorporates Persuasive Technology components into learning assets to motivate and engage learners without coercion (Gram-Hansen et al., 2013).
10. *Persuasive Technology* – Incorporating persuasion into design technology devices, systems, or applications to motivate users toward attaining the desired goal without coercion (Fogg, 2003).
11. *Triggers* – Immediate feedback, hints, or suggestions prompted by the system based on learning needs (Fogg, 2009).
12. *Workplace Learning* – The process of advancing employee knowledge and skills for optimum performance and organizational effectiveness (Bell et al., 2017).

Organization of the Remaining Chapters

Chapter I introduced the research topic, explained the role of eLearning in employee development, identified the problem associated with eLearning, and described the purpose of the study. Chapter II delves extensively into the findings from the literature regarding the topic, synthesizes scholarly publications to determine how this study fits into previous scholarly works and describes the theories that underpin this study. Chapter III discusses the research methodology, design, and justification for the research design and analysis. Chapter IV presents the results of the open-ended survey, and the semi-structured interviews and Chapter V provides the interpretation of the findings, conclusions, and recommendations for future research.

Summary

The current business environment forces organizations to adopt eLearning for workplace learning programs (Kraiger et al., 2020). The situation has triggered an

increase in the resource and budget allocation to authoring software applications required to develop interactive eLearning content (Kshirsagar et al., 2020). However, evidence suggests that employees and business leaders are dissatisfied with the outcome of many eLearning programs. The dissatisfaction is attributable to elements available in the persuasive learning design framework but missing in eLearning contents (Patel, 2017).

While the impact of persuasive learning design has been examined in K-12 and higher education, little research has been conducted in the corporate setting. Hence, this study explores the learning experience of employees who completed workplace learning developed using a persuasive learning design. The scope of this research is limited to the exploration of participants' perceptions regarding learning engagement, information retention, and learning satisfaction.

CHAPTER II – LITERATURE REVIEW

This chapter summarizes relevant literature on persuasive learning design and chronicles its use in eLearning development. The review shows how this study fits into early scholarly work on the topic and discusses various theories that underpin the persuasive learning design framework (MacDonald, 2017). This literature review is thematic, and each theme addresses various components of persuasive learning design and how they align with the overall employee development. The review integrates findings in a novel interaction to determine if the framework can address employees' dissatisfaction with eLearning programs.

The literature review was conducted using the University of Southern Mississippi Library system, Google Scholar, EBSCOhost, and Summons databases. The researcher used a combination of different keywords and terms to find relevant scholarly publications on the topic. The researcher used Boolean Operators to connect relationships between different terms during web searches and narrow down relevant literature (Younger, 2010). The keywords searched include persuasive technology, persuasive learning, learning engagement, learning interactivity, learners' motivation, learning design, and eLearning development. The literature review was iterative; the researcher continued a more in-depth search based on emerging trends to update the findings.

Employee Development

Employee development refers to an integrated set of programs and initiatives designed to help employees acquire new skills for optimum performance in their current roles and future career opportunities (Jacobs & Washington, 2003). According to Hameed and Waheed (2011), employee development requires an investment in programs

and opportunities that focus on enhancing the capacity of employees for personal career growth and advancement within the organization (Bell et al., 2017). Studies have linked employee development programs with organizational effectiveness (Elkeles et al., 2015; Majeed & Shakeel, 2017), performance improvement and improved productivity (Jacobs & Washington, 2003), and employee engagement and job satisfaction (Hameed & Waheed, 2011). Also, employee development has become a catalyst for growth and competitive advantage (Hameed & Waheed, 2011). According to Torraco (2016), employee development does not only help organizations meet expectations but also enables the firm to surpass performance expectations. Not just for lower-level employees, employee development focuses on enhancing performance at various levels of operations (Walters & Rodriguez, 2017).

According to Patnaik (2020), organizations need to help employees fine-tune their skills, knowledge, and abilities to align with the ever-changing strategic objectives in the current volatile business environment. Thus, continuous investment in employee development indicates employees' values and consequentially predicts the firm's future strategic positioning (Nassazi, 2013; Patnaik, 2020). Walters and Rodriguez (2017) posited a high propensity that knowledge and skills would become obsolete because of technological advancement. Hence, there is a dire need to provide continuous and just-in-time learning opportunities and knowledge upgrades for employees to ensure seamless adaptation to the constant change (Maimuna et al., 2013; Nassazi, 2013). Regular skills and knowledge upgrades will enhance employee productivity and foster organizational performance (Bell et al., 2017).

As organizations continue to evolve from less production-driven to more employee-centric, studies on employee development have become a field of unprecedented interest (Torraco, 2016). Several scholars use *learning and development* and *training* as broader terms for initiatives and programs designed to provide employees with opportunities to continuously enhance their competencies for the current and future job demands (Armstrong & Landers, 2018). Armstrong and Landers (2018) described *training* as a systematic development of all skills, knowledge, and attitudes needed to effectively complete a specific job or task. This view alludes to the previous studies on employee development as the process of advancing employee knowledge and skills for optimum performance and organizational effectiveness (Bell et al., 2017; Jacobs & Washington, 2003; Nassazi, 2013). Hence, employee development is operationalized in this study to represent training, learning, and development in organizations, as suggested by Thoman and Lloyd (2018). Also, the term is adopted because there is no generally accepted method for employee development (Walters & Rodriguez, 2017; Zeidan & Itani, 2018).

There is consensus among scholars regarding the primary goal of employee development (Bell et al., 2017; Thoman & Lloyd, 2018). The primary goal is to ensure that organizations develop and equip their human capital with competencies required for superior performance (Thoman & Lloyd, 2018; Zeidan & Itani, 2018). Therefore, the core objective is to ensure skilled and willing employees are available to support strategic goals (Jacobs & Washington, 2003), an aspect compounded by four other goals: individual, organizational, social, and functional goals (Rajeswari & Palanichamy, 2012). Rajeswari and Palanichamy (2012) posited that individual objectives assist employees in

meeting their personal goals, consequently enhancing their contribution to the business. In contrast, corporate objectives help the firm with its primary goal by exerting individual effectiveness (Rajeswari & Palanichamy, 2012). Similarly, functional goals sustain the department's contribution to match the organizational needs and social goals to ensure that the business is socially and morally responsible regarding society's demands and challenges (Bell et al., 2017).

The History of Employee Development

The history of employee development dates back to the early stages of human civilization (Armstrong & Landers, 2018; Torraco, 2016). The idea has gradually advanced into the sophisticated nature of the present day (Kesti, 2018). Previously, employee development focused on young employees, especially those with high potential (Armstrong & Landers, 2018). For example, Sears Credit's early career development in the 90's focused on developing new employees to improve their skills and abilities for upward growth (Jehanzeb & Bashir, 2013).

Scholars have outlined previous strategies for employee development to include apprenticeships, vestibule training, role-playing, job-instruction training, and computer-based training (Bell et al., 2017; Kesti, 2018). In the early stage, apprenticeships is a widely used format, particularly in the Middle Ages spanned between the 400s and 1400s (Armstrong & Landers, 2018). According to Torraco (2016), apprenticeships originated from the Hammurabi Code, the law governing ancient Egypt in 2000 BC. As apprentices, learners were supposed to learn craftsmanship from their masters, who shared knowledge with them, teaching them the skills required for their career success (Armstrong & Landers, 2018; Torraco, 2016). Vestibule training referred to intensive training designed

for employees working in factories who did not have the requisite skills and knowledge to operate machinery during the industrial revolution (Kesti, 2018). Also known as near-the-job training, vestibule training was typical in factories (Torraco, 2016). Vestibule training sessions occurred in separated and spacious rooms that could store machines and house about ten employees and trainers (Armstrong & Landers, 2018).

The 1930s witnessed the emergence of role-playing that was first developed in the 1910s by Dr. Jacob Moreno (Torraco, 2016). Role-playing was a novel employee development method that placed employees in the same condition they would experience within the workplace, though in a controlled setting with no life risks (Bell et al., 2017; Jacobs & Washington, 2003). Through role-playing, employees could physically interact while at the same time correctly applying the skills required in that specific situation (Torraco, 2016). Job-instruction training emerged in the 1940s and became prevalent during WWII (Mann, 2000). Job-instruction activity aimed to help defense plant supervisors acquire the skills required in training their employees in the various areas (Jacobs & Washington, 2003; Mann, 2000).

According to Zeidan and Itani (2018), the 1990s experienced a paradigm shift in employee development, focusing on enhancing employee performance. Training corporations and factory schools surfaced to offer technical expertise training required to match the early 1900s production. Organizations sponsored their employees to attend on-site and off-site training sessions (Zeidan & Itani, 2018). Hence, classroom training became the most popular instructional method due to its efficiency and minor interruption with production, despite the availability of apprenticeship and on-the-job training (Zeidan & Itani, 2018). Through single-instructor training sessions, employees attended training

off-site to avoid disruptions and interruptions from the production floor (Mann, 2000). During this time, training grew more sophisticated and diverse, encompassing employee skills inventories, independent training advisors, just-in-time training, coupled with improved methods of measuring training's financial and behavioral outcomes (Jacobs & Washington, 2003).

Currently, employee development has gradually shifted away from the classroom setting because of the dynamics of the 21st-century workforce and advanced instructional technology (Patnaik, 2020; Truitt, 2011). Hence, workplace learning has become a recent representation of employee development (Avis, 2010; Eraut, 2000; Lave & Wenger, 1991; Patnaik, 2020). Workplace learning infuses learning into work and provides employees with personal and professional development opportunities through structured and unstructured learning (Patnaik, 2020; Truitt, 2011). Consequentially, research in the domains of experimental learning, social learning, situated cognition, and systems thinking focus more on workplace learning and stretch employee development beyond the context of classrooms (Bell et al., 2017). Additionally, other less-structured informal learning formats such as coaching, networking, experiential learning, mentoring, and self-directed learning have become essential tools to enhance employees' competencies across various industries (Mann, 2000; Rajeswari & Palanichamy, 2012)

Using eLearning for Workplace Learning

One of the significant shifts fueled by internet transformation is technology-based learning in the workplace (Shuck & Reio, 2011; Zha et al., 2017). Technology-based learning approaches include electronic learning or eLearning, online learning, virtual learning, web-based learning, and technology-enabled learning (Hall et al., 2012; Noe &

Kodwani, 2018). These terms are often used interchangeably; however, each concept has specific principles and processes (Armstrong & Landers, 2018; Epignosis, 2015). Warren et al. (2014) distinguished technology-enabled and web-based learning. Technology-enabled learning uses software applications such as video conferencing tools or learning management systems to deliver content either synchronously or asynchronously; the approach still needs an instructor to moderate directly or indirectly (Kesti, 2018; Warren et al., 2014). In contrast, web-based learning includes any instructional material, whether structured or unstructured, hosted on the web to educate and inform, which does not necessarily assess proficiency (Noe & Kodwani, 2018; Warren et al., 2014). On the other hand, eLearning refers to standalone, self-paced, and on-demand learning methods specifically developed to administer instruction and provides an avenue to assess the impact of the learning intervention with no group activities and discussions or inputs from an instructor (Hall et al., 2012; Noe & Kodwani, 2018; Steen, 2008).

The term *electronic learning* emerged in 1999 in computer-based training (CBT) systems seminar (Epignosis, 2015). However, eLearning principles have been in existence since the 19th century (Kapaniaris & Varvounis, 2019). According to Epignosis (2015), students had access to distance learning opportunities before the internet era. For instance, Isaac Pitman taught students via correspondence in the 1840s (Epignosis, 2015). Subsequently, BF Skinner developed a teaching machine to administer instructions to students in 1954 (Zornada, 2005). The first computer-based training (CBT) program emerged in 1960, and Illinois students used the machine for learning (Phillips & Phillips, 2015). In the 1970s, eLearning systems became available with more interactive features

(Epignosis, 2015). Also, instructors delivered instructional resources to students by correspondence, and students responded to their instructors via mail (Zornada, 2005).

Organizations utilized technology to deliver training in the 1980s (Phillips & Phillips, 2015). According to Phillips and Phillips (2015), in the early 80s, IBM deployed technology-based learning for more than 5% of its training, which rose to 30% in 1990. Kapaniaris and Varvounis (2019) revealed that the 1990s saw the emergence of online courses that helped eradicate time and geographical constraints in pursuing education. Consequently, in the 2000s, many companies in the United States started embracing eLearning to train their employees (Epignosis, 2015). By the end of 2000, IBM eLearning increased to 75% (Phillips & Phillips, 2015). The development of personal computers and the internet spurred the expansion of eLearning in the late 20th century. Personal computers' Compact Disc Drive (CD drive) allowed organizations to use CDs for video training (Bari et al., 2018). In addition to CD drives, the availability of PowerPoint applications on personal computers boosted presentations in corporate and educational settings (Phillips & Phillips, 2015).

eLearning development currently relies heavily on specialized authoring software applications such as Articulate Storyline, Adobe Captivate, and Lectora (Dellagiacoma et al., 2020; Haghshenas et al., 2011; Khademi et al., 2011). These applications enable organizations to deliver interactive and engaging learning content to employees on a large scale (Dellagiacoma et al., 2020; Phillips & Phillips, 2015). eLearning applications allow learning and development (L&D) teams to support the organization’s mission through personalized learning (Noe & Kodwani, 2018; Warren et al., 2014).

Studies have linked eLearning with enhanced productivity and job satisfaction in the workplace (Chen, 2014; Devarakonda, 2019; Truitt, 2011). Hence, there has been a dramatic increase in eLearning adoption for workplace learning because of its potential benefits (Phillips & Phillips, 2016). Somayeh et al. (2016) attributed the rise in eLearning adoption to its flexibility and cost-effectiveness. eLearning enables customized training and allows employees to revisit the program (Kapaniaris & Varvounis, 2019). It is also cost-efficient compared to traditional learning in terms of facilitation, travel, and accommodation (Devarakonda, 2019). eLearning improves knowledge management by codifying tacit knowledge (Anshari et al., 2017). The approach enables workplace training to become more modular, allowing employees to complete training at their own pace (Zha et al., 2017). Also, eLearning supports the rapid development of training materials (Kapaniaris & Varvounis, 2019). It provides instant access to learning content and seamless integration of learning with work just-in-time (Anshari et al., 2017; Dellagiacoma et al., 2020; Nassazi, 2013). eLearning also provides an environment for employees to improve and refine their skills more rapidly (Devarakonda, 2019).

eLearning has become the primary learning delivery medium in organizations (Dellagiacoma et al., 2020; LinkedIn Learning, 2020). In 2015, organizations used eLearning to deliver more than 75% workplace training (Phillips & Phillips, 2016). The Office of Personnel Management (OPM) is a federal government agency responsible for employee development across various agencies (OPM, 2021). OPM has moved more than 95% of employee development programs to eLearning (Jones, 2016). A Delloite survey estimated that 98% of all companies planned to migrate their employee training to eLearning by the end of 2020 (Deloitte, 2018). However, a recent LinkedIn Learning

survey reported that the COVID-19 pandemic forced every organization to migrate employee development programs exclusively to eLearning (LinkedIn Learning, 2020). The situation has caused a significant increase in the budget and resource allocation to eLearning (Kshirsagar et al., 2020; Shahzad et al., 2020). Consequently, the eLearning market is estimated to grow by USD 12.48 billion before 2024, with the potential to triple by 2025, reaching $325 billion (Kshirsagar et al., 2020; Sharifov & Mustafa, 2020).

However, studies show that most eLearning programs in corporate settings do not achieve the desired outcomes because they do not engage learners (Chen, 2014; Dellagiacoma et al., 2020; Thalheimer & Kinnamon, 2017). Also, learners do not retain information (Elkeles et al., 2015; Deloitte, 2018; Patel, 2017), and they are dissatisfied with the program's design (Dellagiacoma et al., 2020; Jones, 2016; Patel, 2017). Despite the investment in eLearning authoring software applications, organizations are not optimizing these applications to deliver engaging learning programs (Dellagiacoma et al., 2020; Haghshenas et al., 2011). Also, employees struggle to retain information from eLearning programs due to a lack of interactivities and engagement in many eLearning programs (Chen, 2014; Khaddage et al., 2016; Patel, 2017). Studies show that new employees struggle to recollect the eLearning programs' information when they need to apply the knowledge on-the-job (Duangekanong & Vate-U-Lan, 2019; Thalheimer & Kinnamon, 2017). This happens partly because most eLearning programs do not offer an effective learning experience and do not engage learners (Khaddage et al., 2016; Patel, 2017).

In most cases, learning engagement challenges in eLearning programs contribute to the inability to retain information from training (Chen, 2014; Elkeles et al., 2015;

Patel, 2017; Urick, 2016). A special report on BBC shows that many incumbent employees feel that the training department intentionally punishes workers as employees grumble and groan when assigned eLearning courses for completion (Borzykowski, 2018). The dissatisfaction stems from a lack of freedom to move at their pace and a lack of interactivity in eLearning programs (Chen, 2008; Kapaniaris & Varvounis, 2019). Sidhu, 2019 suggested that a lack of a specific eLearning development framework is the bane of dissatisfaction with eLearning programs since organizations use similar authoring software for eLearning development. Meanwhile, the elements lacking in most workplace eLearning programs are some of the components of Persuasive Technology that birthed persuasive learning design (Toor, 2016).

Persuasive Technology

Persuasive Technology (PT) is the process of incorporating persuasion into the design of technology devices, systems, or applications to motivate users toward attaining the desired goal without coercion (Fogg, 2003; Raymer, 2015; Khataei et al., 2021). It is a multi-disciplinary research field that focuses on designing, developing, and evaluating resources and materials that require human-computer interaction (Fogg, 2003; Oinas-Kukkonen & Harjumaa, 2009). The dominant feature in persuasive technologies influences attitudes and behaviors through persuasion, but not through coercion or deception (Oinas-Kukkonen & Harjumaa, 2009; Raymer, 2015).

The idea of infusing persuasion into systems or devices' development emerged in the 1950s (Khataei et al., 2021). Earlier research on persuasive designs stemmed from the Yale Attitude Change (YAC) framework (Hovland et al., 1953). Based on the YAC framework, a system or design achieves persuasion by (a) gaining the audience's

attention, (b) adjusting the message to align with the intended user's level of comprehension, (c) ensuring argument acceptance, and (d) devising a method that ensures information retention (Bandura, 1977; Hovland et al., 1953; Khataei et al., 2021). In the 1970s, Albert Bandura described persuasive systems or designs as an interactive approach that changes human behavior without coercion or deception (Bandura, 1977; Markus, 1977). Bandura's description became the primer on persuasive designs and formed a backdrop for subsequent scholarly work on the topic (Bandura, 1977; Markus, 1977; Tikka & Oinas-Kukkonen, 2019).

Modern studies in persuasive designs emanate from BJ Fogg's studies. Fogg (1998) pioneered Persuasive Technology as a subdomain of captology - *Computers As Persuasive Technologies* (Fogg, 1990). While pursuing a doctoral degree in psychology, Fogg started studying the use of persuasion in technologies. His works influenced the establishment of the Persuasive Tech Lab at Stanford (Devincenzi et al., 2017). Fogg dedicated the lab to studying and promoting persuasive technology (Fogg, 2003). The lab conducted many studies, including the peace innovation lab project and Facebook's psychology on persuasive technologies. Fogg played an instrumental role in developing persuasive technologies (Tikka & Oinas-Kukkonen, 2019). His pivotal text, *Using Computers to Change What We Do*, fueled a dramatic boom in persuasive technologies (Devincenzi et al., 2017; Fogg, 2003).

Since its invention, the concept of PT has evolved and burgeoned in a myriad of fields such as healthcare, communication, advertising, and education (Alvarez, 2018; Consolvo et al., 2009). Many scholars have propounded several persuasive models in various domains (Consolvo et al., 2009; Oinas-Kukkonen & Harjumaa, 2009). Notably, a

broad spectrum of studies has shown the viability of Persuasive Technology in education, healthcare, advertising, and food consumption (Kaptein & Eckles, 2012; Tikka & Oinas-Kukkonen, 2019). Thus, the success of Persuasive Technology toward behavior and attitudes change and motivation is well-established in an array of domains (Tikka & Oinas-Kukkonen, 2019).

Persuasive technologies have become a standard in developing apps, websites, video games, virtual realities, mobile devices, and wearables (Orji et al., 2013; Raymer, 2015). The approach simplifies processes (Alvarez, 2018), makes systems user-friendly (Raymer, 2015), and creates a great experience that naturally encourages users to achieve the desired goal (Alvarez, 2018; Dijkstra, 2008). Persuasive Technology enhances the user experience by considering users' interests, preferences, and recognized abilities (Berkovsky et al., 2015; Dijkstra, 2008). It changes people's behavior, cognitive attitude, and perceptions without coercion or deception, whether in health, physical activities, or education (Dijkstra, 2014; Orji et al., 2013). The approach also improves user experience through human-computer interactions and dialogue to modify and influence user attitudes, intentions, or behavior (Orji et al., 2013; Raymer, 2015).

Persuasive Learning Design

Many researchers have studied how Persuasive Technology can impact learning and the learning experience (Khaddage et al., 2016; Toor, 2016). Earlier researchers proposed different terms to describe and depict learning initiatives that adopt Persuasive Technology. For example, Behringer et al. (2013) used Persuasive Technology for Learning and Teaching, while Engelbertink et al. (2020) and Toor (2016) adopted Persuasive Technology in education. Others used persuasive learning (Kristensen, 2013)

and persuasive learning design (Gram-Hansen, 2016; Herber, 2013; Zulkifli et al., 2015). However, persuasive learning design is suggested as the most appropriate verbiage because it is a framework that can be adopted in different settings, not a specific method or theory (Gram-Hansen, 2016; Khataei et al., 2021; Kristensen, 2013). Hence, persuasive learning design has become an emerging research topic in instructional technology, and eLearning development (Khataei et al., 2021; Toor, 2016).

Persuasive learning design relied on Fogg Behavior Model (FBM) – a persuasive technology model developed by Fogg in 2003. FBM establishes that behavior change involves three persuasive components – recognizing abilities, setting triggers, and motivating users (Fogg, 2003; Tikka & Oinas-Kukkonen, 2019). Earlier researchers on persuasive learning design modified Persuasive Technology components to fit learning contexts (Behringer et al., 2013; Gram-Hansen, 2016). They incorporated PT components into the design and development of instructional content to meet individual learning needs (Engelbertink et al., 2020; Toor, 2016). Specifically, persuasive learning designs ensure that instructional materials have the capability to (a) recognize (or measure) learners' abilities or prior knowledge, (b) use triggers (hints or suggestions) to engage learners, and (c) motivate learners through a user-friendly and interactive interface (Gram-Hansen, 2016; Khataei et al., 2021; Kristensen, 2013; Mintz & Aagaard, 2012).

Recognizing learners' ability

Recognizing learning ability hinges on the capacity to measure learners' prior knowledge and personalizing instructional material to align with learners' needs (Alebeisat et al., 2022; Khaddage et al., 2016). Effective persuasive learning designs center on the personalization and the customization of technologies based on individual

needs (Dijkstra 2014; Fogg, 2003). Thus, ability recognition centers on aligning instructional content to meet learners' needs, adapting content to various learning stages, and allowing learners to accelerate when necessary (Dijkstra 2014; Tikka & Oinas-Kukkonen, 2019). It also includes creating unique experiences that appeal directly to learners (Orji et al., 2013; Raymer, 2015). Based on prior knowledge and ability, learners can personalize the interface and customize the content to measure previous competencies (Gee, 2005; Papert, 1998; Zha, 2017). The customization persuades learners and provides authentic control over the learning program's pace and duration (Ng & Yee-shun, 2015; Papert, 1998). Also, the interface must be conducive to different types of learners (Alebeisat et al., 2022; Khaddage et al., 2016), and the instructional material should be adaptive (Alebeisat et al., 2022; Hall et al., 2012; Price et al., 2016).

Using triggers or suggestions

Triggers are immediate feedback, hints, or suggestions prompted by the system toward completing an action (Fogg, 2009). Triggers influence users' actions, thoughts, and decisions (Raymer, 2015). This immediate feedback anchors on learners' needs and the steps needed to satisfy the needs (Alebeisat et al., 2022; Edward, 2015). Triggers also rely on the system's personalization (Berkovsky et al., 2015). Persuasive learning design measures learners' tendency to comply or act in a situation and prompts interventions to guide users to complete a specific task (Berkovsky et al., 2015; Fogg, 2009). The approach assesses the performance and progress and provides hints that motivate users to attain a specific goal (Dijkstra 2014). Appropriate clues influence cognitive attitude and persuade users to achieve desired objectives without coercion or deception (Yusoff & Kamsin, 2015). Triggers hinge on conditions, while the hints or interventions stem from

the pre-programmed conditions designed to enhance learning (Raymer, 2015; Yusoff & Kamsin, 2015). Using triggers in learning builds on adopting learning theories, technologies, and systems that inherently stimulate learners to learn more effectively (Dijkstra, 2014; Raymer, 2015; Tikka & Oinas-Kukkonen, 2019)

Motivating learners

Learning motivation refers to sustaining learners' interest in learning programs (Sims, 2000). Motivating learners in eLearning programs require a user-friendly and interactive interface (Papert 1998), appealing visual representation, and captivating sound that appeals to learners' senses (Kishabale, 2019; Sidhu, 2019). According to Kiili (2005), intrinsic motivation depends on the learning experience. However, the learning experience in eLearning depends on the interface's user-friendliness, interactivities, and the customizability of the content (Kishabale, 2019; Sidhu, 2019). Triggers mitigate frustrations by providing alternative explanations or illustrating the idea using alternative formats (Khaddage et al., 2016; Kishabale, 2019). Immediate feedback facilitates progress (Clark & Mayer, 2016) and gives learners the freedom to make decisions based on learning needs (Ng & Yee-shun, 2015). Also, adult learners are naturally motivated when they have authentic control over the module (Ng & Yee-shun, 2015; Yang, 2004). Hence, learning motivation depends on users' interests, preferences, and recognized abilities (Fogg, 2003).

Persuasive Learning Design in Educational Settings

The success of persuasive designs is evident in various domains (Tikka & Oinas-Kukkonen, 2019). Studies have shown the viability of the effectiveness of persuasive learning design in educational settings (Mintz & Aagaard, 2012; Widyasari et al., 2019).

The concept enhances the learning experience of K-12 and higher education students and improves the retention of instructional content (Widyasari et al., 2019). The success is attributable to learning engagement and learning interactivity that enhances the acquisition of new skills and knowledge (Kaptein & Eckles, 2012; Oinas-Kukkonen & Harjumaa, 2009).

In a study exploring web 2.0 and PT's use in enhancing the learning process, Widyasari et al. (2019) established that persuasive learning design improves learning behavior. Thus, persuasive design principles are applicable in learning environments (Mintz & Aagaard, 2012). Teachers have often employed persuasion as one teaching component in traditional instructor-led instruction (Mintz & Aagaard, 2012; Toor, 2016). Persuasive learning design shifts the principles of persuasion to a digital paradigm by providing a system that inherently stimulates students to learn more effectively and quickly (Toor, 2016). Persuasive principles, including social signal, simulation, reduction, tunneling, conditioning, surveillance, self-monitoring, tailoring, and suggestions, have shown potential to motivate learners (Fogg, 2003; Oinas-Kukkonen & Harjumaa, 2009).

For example, the *Helping Autism Diagnosed young people Navigate and Develop Socially* (HANDS) project is a persuasive learning design that enhances self-management and social skills among autistic spectrum disorders (Cabrita et al., 2018; Mintz & Aagaard, 2012). Also, the EuroPLOT persuasive learning project introduces new teaching elements, including robotic dolls and mobile learning (Behringer & Sinclair, 2013). These imply that integrating persuasive learning in pedagogical activities and teaching methodologies augments the teaching-learning process (Behringer & Sinclair,

2013; Widyasari et al., 2019). The framework enhances the learning process and improves students' academic performance (Devincenzi et al., 2017; Mintz & Aagaard, 2012).

Persuasive designs influence individuals to change their attitudes, behavior, and opinions (Devincenzi et al., 2017). Therefore, it can be incorporated in the classroom to attract students' attention and enhance their learning behavior (Behringer & Sinclair, 2013). Persuasive learning design is applicable in a plethora of educational contexts ranging from higher education to the educational process of children with special needs (Devincenzi et al., 2017; Mintz & Aagaard, 2012). Applying persuasive learning design in education fosters an increased learning process and engenders students' positive reactions to instructional materials (Behringer & Sinclair, 2013; Orji et al., 2019; Widyasari et al., 2019).

Studies show that persuasive learning design influences behavioral change (Dijkstra, 2014; Raymer, 2015). For instance, Web 2.0 technology, including YouTube, Wikis, and Blogs, improves students' behavior by enhancing classroom communication, collaboration, sharing, and interaction activities (Behringer & Sinclair, 2013; Widyasari et al., 2019). The strategy transforms learning from a traditional and centralized system to a communicative and interactive ecosystem (Devincenzi et al., 2017).

According to Devincenzi et al. (2017), persuasive learning design offers exciting opportunities in educational settings. Besides motivating students to start a specific learning process, persuasive learning design allows various teaching methodologies to enhance learning (Orji et al., 2019). It increases learners' retention and decreases the number of minutes students spend on the content (Devincenzi et al., 2017; Orji et al.,

2019). The strategy supports accelerated learning and facilitates a seamless assessment of learners' prior knowledge (Orji et al., 2019). Studies on persuasive learning design in higher education suggest the impact of persuasive technology in learning is attributable to interactivity, feedback, and learner motivation (Devincenzi et al., 2017; Orji et al., 2019).

Persuasive learning design is effective in non-teaching methods such as self-directed learning (Gram-Hansen, 2016) and simulated learning environments (Behringer & Sinclair, 2013). Also, Orji et al. (2019) findings allude to the effectiveness of persuasive learning in higher education. Toor's (2016) exploratory studies showed that persuasive design helped people make informed career advancement decisions. Persuasive technology eradicates skeptical attitudes by targeting individuals' behavior and attitude (Fogg, 2003). It achieves this by offering adequate information to motivate and engage (Berkovsky et al., 2015). Also, persuasive learning design supports teachers and empowers students in a new field (Engelbertink et al., 2020). Cabrita et al. (2018) suggest that persuasive technologies boost learning by allowing automation of learning assets. According to Engelbertink et al. (2020), persuasive learning encourages learners to participate in eLearning classes through intrinsic motivation.

Learning Satisfaction

Learning satisfaction refers to learners' subjective assessment of a unit of instruction based on fulfillment, expectations, and the pleasure derived from the learning process (Holdford & Patkar, 2003; Wu et al., 2015). According to Wu et al. (2015), learning satisfaction anchors on individual learners' experience and how the experience impacts the transfer of learning. Hence, learners may have varying subjective assessment and satisfaction levels of a program (Song, 2020; Wu et al., 2015). Song (2020) posited

that learning satisfaction largely depends on whether a program meets, surpasses, or falls short of learning expectations. Similarly, Holdford and Patkar (2003) outline factors that determine the learners' satisfaction level: quality of the learning process, quality of learning environment, quality of the instructional material, quality of learning implementation, and the quality of service. These factors describe comparable outcomes between perceived usefulness and expectancy with displeasure or pleasure derived from a learning program (Hero & Lindfors, 2019; Rajabalee et al. 2021).

There is a correlation between learning satisfaction and information retention (Rajabalee et al. 2021; Song, 2020). Studies have linked increased satisfaction levels with exciting learning experiences that result in higher information retention (Kishabale, 2019; Song, 2020; Wu et al., 2015). Learning satisfaction with positive learning outcomes indicates learning effectiveness (Rajabalee et al., 2021; Sampson et al., 2010). The learning satisfaction level contributes to the learning experience and information retention (Dick et al., 2001; Hero & Lindfors, 2019; Song, 2020). Also, learning engagement contributes to learning satisfaction (Rajabalee et al. 2021; Yusof et al., 2020). Learning interactivity, an offshoot of learning engagement is a critical factor in learning satisfaction (Ku et al., 2013; Yusof et al., 2020). Effective interactivity results in personal connections with instructional materials, increasing learning satisfaction (Topala & Tomozii, 2014; Ng & Yee-shun, 2015). Hence, an interactive learning environment with a user-friendly interface directly impacts workplace learning satisfaction (Johnson et al., 2011; Song, 2020; Topala & Tomozii, 2014).

According to Warren (1985), individual learners' learning curve influences learning satisfaction. Hence, modular learning resources with self-pace capability receive

a higher satisfaction rating (Foroushani et al., 2012; Warren, 1985). Studies show that employees are more satisfied with learning initiatives that consider prior knowledge (Zha et al., 2017), allows personalization of the content (Alebeisat et al., 2022; Bouilheres et al., 2020), and facilitates interaction (Johnson et al., 2011; Ku et al., 2013). Thus, measuring prior knowledge and providing opportunities to accelerate learning based on learning needs are effective strategies for higher learning satisfaction (Engelbertink et al., 2020; Toor, 2016; Zha et al., 2017). Also, learner-centered approaches make learners the core of learning activities meet and surpass learners' expectations (Hero & Lindfors, 2019; Tadesse et al., 2020). Topala and Tomozii (2014) indicate that learning satisfaction is a multifaceted attitude towards learning undertakings, learning environment and conditions, and learning outcomes. Siming (2015) posits that instructional material development and the interaction between learning materials and learners impact learning satisfaction. Hence, the learning environment and experience determine learning satisfaction and information retention (Dhaqane et al., 2016; Gruber et al., 2012; Hartono, 2017).

Learning Engagement

Engagement is a state of complete immersion in a task without distraction (Csikszentmihalyi, 2020; Engelbertink et al., 2020). There is a connection between learning engagement, learner motivation, and information retention (Gagne et al., 1992). Learners' motivation underpins learning engagement, and active learning occurs when learners are fully engaged in learning activities (Yang, 2004). Adults learn better when motivated and build on their previous knowledge and experiences (Knowles, 1980). According to Ng and Yee-shun (2015), adults require higher engagement with the content

to comprehend and fully internalize information. Using persuasive learning design can foster motivation and engagement in online learning environments (Mandryk et al., 2013). However, technology-based instructional content must be interactive, user-friendly, and intuitive to engage learners (Berkovsky et al., 2015; Yusoff & Kamsin, 2015).

Learning engagement requires personal connections with the content to create a great experience that naturally encourages users to achieve the desired goal (Csikszentmihalhi, 2020; Kang, 2017; Ng & Yee-shun, 2015). Also, instructional content would need to create a connection between the learner and the content (Kang, 2017; Rajabalee & Santally, 2021). The connection will immerse learners into the learning assets by using interactions between the content and the learner (Carmichael et al., 2018; Khaddage et al., 2015). Using interactivities and simulations to deliver instructional materials improves the learning experience and enhances the retention of information (Kang, 2017; Ng & Yee-shun, 2015). The idea allows learners to relate the information to various real-life situations and make learning permanent (Ramessur & Santally, 2007).

Learning interactivity is an effective engagement method on eLearning platforms. (Kishabale, 2019). Learning engagement in eLearning programs depends on effective interactions between learners and the learning system (Ramessur & Santally, 2007). Initially, the effectiveness of eLearning programs depends on the software developers' creativity and the ability to write codes (Clark & Mayer, 2016). However, eLearning authoring applications such as Articulate Storyline, Adobe Captivate, and Lectora have provided a streamlined authoring environment for developers to build interactive and engaging content without writing codes (Sidhu, 2019). eLearning authoring applications

have several functional similarities with minor differences (McGarry, 2019). While some eLearning programs developed using these applications are highly effective, many ineffective eLearning programs exist (Clark & Mayer, 2016). Hence, the knowledge of eLearning authoring tools is not enough to produce interactive and engaging programs (Sidhu, 2019).

According to Sidhu (2019), using authoring software for knowledge transfer must integrate theories and frameworks that allow interactivity between learners and the learning environment. Interactivity is akin to quality in eLearning (Kishabale, 2019). According to Chen (2008), learning interactivity underscores learning engagement and determines the program's effectiveness. Also, eLearning interactivity is akin to a persuasive dialogue that engages and motivates learners in an online learning environment (Herring & Smaldino, 2005; Pappas, 2016). Hence, interactivity is the pedestal upon which learning engagement rests (Sims, 2000; Wagner, 1997).

Information Retention

Information retention refers to the process of moving new information from short-term to long-term memory for easy retrieval (Bennet & Rebello, 2012; Karpicke & Roediger, 2007). According to Karpicke and Roediger (2007), the human brain does not retain all information beyond an immediate moment. Hence, the brain discards some information and retains a fragment that resonates (Karpicke & Roediger, 2007; Varga & Bauera, 2018). The residual information in the brain forms a body of knowledge an individual has about a topic or concept (Bauer & Jackson, 2015; Bunsey & Eichenbaum, 1996; Tse et al., 2011). Bunsey and Eichenbaum (1996) explained that the study of memory overlaps with the study of retention. Retention occurs when the brain keeps

information in the long-term memory and reproduces knowledge (Bunsey & Eichenbaum, 1996; Tse et al., 2011). Thus, the ability to recall information when needed is the core of knowledge (Varga & Bauera, 2018). Study shows that factors such as the environment, condition, and time play significant roles in information retention (Varga & Bauera, 2018). Also, an individual's interest is crucial in information retention (Bauer & Jackson, 2015).

Liew (2007) emphasized the importance of understanding the relationship between data, information, and knowledge when discussing information retention. Data are individual symbols or facts that may have different meanings in different contexts (Kanehisa, 2014; Liew, 2007). A combination of relevant data transforms into information on a topic, while knowledge is a collection of information an individual retains about the subject (Kanehisa, 2014; Van Meter, 2020). According to Tzu (2005), the retention process includes encoding, organizing, and recalling information. However, the retention process does not happen naturally (Tzu, 2005). Instead, the process depends on the organization, development, and delivery of information (Bell et al., 2017; Jacobs & Washington, 2003).

Similarly, information retention in workplace learning programs depends on the learning experience (Bell et al., 2017); and the learning experience plays a critical role in information retention (Goins & Fisher, 2018; Tzu, 2005). Studies identify engaging and interactive learning materials as impetuses for information retention (Hero & Lindfors, 2019; Tadesse et al., 2020; Toor, 2016). Also, Goins and Fisher (2018) conclude that engaging and interactive materials enhance the learning experience and increase learners' capacity to retain information. Carmichael et al. (2018) emphasize the importance of

interactive visual aids in information retention. Studies show that integrating visual aids and multimedia components in instructional materials increases information retention (Bennet & Rebello, 2012; Burke, 2011; Carmichael et al., 2018). Graphical representation and illustration aids information retention cements information in learners' minds, and makes it easy to refresh their memory (Carmichael et al., 2018; Carpenter et al., 2012; Kang, 2017).

Theoretical Background

Persuasive learning design is congruent with many learning theories (Tikka & Oinas-Kukkonen, 2019). However, there is no generally adopted theoretical framework for persuasive learning design (Gram-Hansen, 2014; Kristensen, 2013; Wiafe, 2013). Earlier studies on persuasive design did not recommend specific theoretical underpinnings for subsequent studies (Oinas-Kukkonen & Harjumaa, 2009; Wiafe, 2013). Also, previous studies adopted theoretical frameworks that aligned with the setting (Fogg & Hreha, 2010; OinasKukkonen & Harjumaa, 2009; Toor, 2016; Zulkifli et al., 2015). Thus, Gram-Hansen (2016) suggests that the theoretical framework for persuasive learning design should rely on the instructional setting and context. Since this study focuses on workplace learning, Andragogy, Gagne's Theory of Instruction, and Keller ARCS model are the theoretical foundations that underpin persuasive learning design for workplace programs.

Theory of Andragogy

The theory of andragogy refers to the principles and methods used to help adults learn (Knowles, 1980; Loeng, 2017). According to Knowles (1980), adult learners require higher engagement with the instructional content to fully comprehend and utilize

information, unlike children who act as passive receptacles of knowledge. The theory focuses on developing effective methods for adult learning in formal and informal settings (AlSaadat, 2018; Hagen & Park, 2016). Knowles concluded that adults are purpose-driven and motivated to learn on their terms (AlSaadat, 2018; Knowles, 1980). Thus, andragogy orients toward self-direction, life experiences, and intrinsic motivation (Loeng, 2017). It centers on individual learning, self-directed learning, and personalized learning (Loeng, 2017; Yang, 2004) and focuses on the idea that adult learners require a distinct and unique approach to learning (Chacko, 2018; Henschke, 2016). Adult learners appreciate instructional activities relevant to their jobs instructional programs that build on their previous knowledge and experience (Knowles, 1980).

Knowles propounds five assumptions and attributes regarding andragogy that differentiate it from pedagogy (Hagen & Park, 2016; Knowles, 1980). First, adult learners are self-directed thus have a self-concept. The second assumption is that adult learners' experience accumulates as learners mature. Third, adult learners possess the readiness to learn and are increasingly oriented to developmental tasks. The fourth assumption of andragogy is the orientation to learning; the direction of a learner becomes more inclined towards problem-centeredness as the learner matures. Finally, adult learners possess the intrinsic motivation to learn (Chacko, 2018; Knowles, 1980). Thus, Knowles's assumptions regarding adult learners include self-concept, learning motivation, readiness to learn, experience, and orientation to learning (Chacko, 2018; Hagen & Park, 2016; Knowles, 1980).

Effective instruction in andragogy incorporates performance-based tasks, immediate application, and problem-solving (Arghode et al., 2017; Decelle, 2016; Loeng,

2017). Adult learners are goal-oriented, and they appreciate learning methodologies that tie to specific professional goals (Decelle 2016; Loeng, 2017). Chacko (2018) highlights the following factors required for the effective implementation of adult learning principles in educational settings;

1. Establishing a positive learning environment that focuses on interactive learning. Designing learning goals rudimentary to the needs and learners' interests.
2. Researching the needs and interests of adult learners.
3. Aligning learning activity to achieve predetermined learning objectives.
4. Creating learning methods and frameworks that support effective strategies for instruction.
5. Reviewing learning activities and making necessary modifications to align with learning objectives (Chacko, 2018).

The theory of andragogy aligns with persuasive learning design. Persuasive learning design hinges on learning engagement, interactivity, and learner motivation (Zulkifli et al., 2015). Similarly, attributes of persuasive learning designs are available in andragogy (Yusof et al., 2020). Adult learning theories anchor on active learning, which occurs when a learner is fully engaged in learning activities (Chacko, 2018; Yang, 2004). Thus, the learning activities must focus on individual learning, personalization, and customization of instructional materials to motivate learners and sustain their interests (Knowles, 1980). This approach enables adults to make personal connections with the instructional content and apply the knowledge to real-world situations (Yang, 2004; Loeng, 2017). Like the persuasive learning design framework, adult learning principles apply to various settings (Yang, 2004; Yusoff & Kamsin, 2015). Adult learning requires

an environment conducive to several learners, keeping a respectful yet fun setting and using visual interactivity to sustain interest (Arghode et al., 2017; Hall et al., 2012). Adult learners retain information if there is intrinsic motivation without coercion (Chacko, 2018; Ng & Yee-shun, 2015). Learning satisfaction increases when the learning materials build on learners' previous knowledge and experiences (Knowles, 1980). Also, adult learners require a higher level of engagement with the learning content to understand and fully internalize information (Chacko, 2018; Ng & Yee-shun, 2015)

Gagne's Theory of Instruction

Persuasive learning design aligns with Robert Gagne's theory of instruction (Khadjooi et al., 2011). The theory provides several practical ideas that enhance the development of learning materials for adult learners (Ellington & Earl, 1996). Gagne's theory comprises the taxonomy of learning outcomes, the conditions of learning, and the events of instruction (Gagne et al., 1992). The taxonomy of learning focuses on the importance of breaking learning capacities into various domains, and each domain promotes learner performance (Gagne et al., 1992). Gagne's taxonomy includes five categories of learning outcomes: verbal information, intellectual skills, cognitive strategies, attitudes, and motor skills (Gagne et al., 1992). Each learning outcome determines the conditions of learning that support the learning activity (Khadjooi et al., 2011). The condition of learning focuses on internal and external conditions that impact learning. The internal conditions anchors on optimizing learners' prior knowledge, and external conditions consider various stimuli that influence learning, such as the learning environment (Driscoll, 1994).

Gagne formulates nine events of instruction that synthesize the theory to enhance learning transfer from perception through various stages of memory (Gagne et al., 1992). The events of instruction require learning designers to determine learning objectives and categorize objectives into one of the five domains of learning outcomes in the taxonomy (Gagne et al., 1992). These events provide the required conditions for learning and form the baseline consideration for selecting or developing appropriate learning materials. The nine events of instruction include;

1. Gaining attention
2. Informing the learner of the objective
3. Stimulating recall of prerequisite learning
4. Presenting the stimulus material
5. Providing learning guidance
6. Eliciting the performance
7. Providing feedback
8. Assessing the performance
9. Enhancing retention and transfer

Gagne's model is a learner-centered design that focuses on the mental events in adult learning (Driscoll, 1994; Khadjooi et al., 2011). The model focuses on how adult learners process information by responding to various stimuli while achieving the learning outcomes (Ellington & Earl, 1996). Like persuasive learning design framework, learning interaction, learning engagement, and learners' control are the critical elements of Gagne's model (Driscoll, 1994; Ellington & Earl, 1996; Yusoff & Kamsin, 2015). According to Yusoff and Kamsin (2015), learning interaction and learning engagement

are central to achieving learning outcomes in Gagne's model. Learners need internal and external stimuli that evoke interest in the unit of instruction (Gagne et al., 1992). Hence, activities that support learning interaction and engagement in the development of instruction underpin learning motivation (Toor, 2016). Also, the instruction materials must consider learners' characteristics and give them control over learning activities (Gagne et al., 1992). Also, considering learners' prior knowledge, abilities, and preferences promote internal stimulus and facilitates learners' motivation (Gagne & Briggs, 1974; Toor, 2016; Wiafe, 2013).

Keller ARCS Model

The Keller ARCS model systematically addresses the problem of learning motivation (Keller, 2009). According to Keller (1987), the inability of instructional material to appeal to learners and arouse their interest is the specific criticism of many units of instruction. Hence, Keller developed the ARCS model to deal with the challenges associated with learning motivation and engagement (Dick et al., 2015). The model comprises four attributes that motivate learners – attention, relevance, confidence, and satisfaction (Keller, 2009).

Keller (1987) outlines four steps needed to motivate. The first step is to attract learners' attention through mechanisms that appeal to their emotions and sustain their interest in the program. The second step is to make the content relevant to their experience and prior knowledge to maintain their interest. The third step is to ensure that learners are confident that they have the ability and capacity to accomplish the instructional goal. Finally, learners need to derive satisfaction from the delivery of the instructional materials and have a great learning experience (Keller, 1987). This model is

critical in the eLearning mode of instruction; its features underpin learners' motivation and engagement in eLearning programs (Dick et al., 2015).

Dick et al. (2015) conclude that one aspect of Keller ARCS is insufficient to achieve learning motivation and engagement. Hence, it is imperative to incorporate all four components – attention, relevance, confidence, and satisfaction (Dick et al., 2015; Keller, 2009). Combining these components will increase learners' interests and enhance information retention (Driscoll, 1994). Learning motivation is the core of both persuasive learning design and Keller ARCS (Keller, 2009; Toor, 2016; Zulkifli et al., 2015). The ability recognition and regular hint features available in persuasive learning mitigate frustrations and motivate learners (Khaddage et al., 2016). Also, learning motivation relies on recognizing users' interests, preferences, and prior knowledge and aligning the instructional materials to meet the learning needs (Toor, 2016; Zulkifli et al., 2015).

Conclusion

Although studies have produced empirical evidence favoring persuasive learning design in technology-based learning, studies suggest that using persuasive learning design enhances the learning experience and improves information retention in the classroom setting. The framework has also been established to be effective in non-teaching methods such as self-directed learning (Gram-Hansen, 2016) and in simulated learning environments (Behringer and Sinclair, 2013). However, two voids have been identified in the literature. First, past studies focused on pedagogical learning methods in K-12 and higher education. Participants are full-time students who enrolled in courses with the primary learning objective. Hence, it is unclear how much influence the persuasive learning design had on participants' learning engagement and information

retention. Second, previous studies employed technology-enabled learning formats where instructors steered learning transfer over a long time. Thus, persuasive learning design was a supplemental driving force, making it difficult to ascertain whether the outcome is attributable to persuasive learning design. However, very little study has been conducted on integrating persuasive learning design into standalone eLearning programs in corporate settings. Few studies also focused on using persuasive methods to develop workplace learning programs based on adult learning theory.

Organization of the Remaining Chapters

Chapter II synthesizes the information from the literature to chronicle the use of persuasive learning design and identifies the gap in the literature. The literature review shows how this study fits into earlier studies and discusses various theories underpinning persuasive learning design. Chapter III discusses the research methodology research design and justifies the research design. Chapter IV presents the results of the open-ended survey, and the semi-structured interviews and Chapter V provides the interpretation of the findings, conclusions, and recommendations for future research.

CHAPTER III – RESEARCH METHODOLOGY

This study explored the effectiveness of developing workplace eLearning programs using persuasive learning design. The primary objective is to understand the learning experience of employees who completed an eLearning program developed using the persuasive learning design framework. Therefore, this chapter discusses the research methodology and research design and justifies the research design. Other sections include population and sample, data collection, and data analysis.

Research Question and Objectives

The central research question is, 'What is the experience of employees who completed eLearning programs developed using persuasive learning design? The study limits the scope to participants' perceptions regarding learning engagement, information retention, and learning satisfaction. Therefore, the following research objectives guide the study:

RO1 – Describe the participating employee demographics by gender, educational background, and years of experience working with the U.S. federal government.

RO2 – Explore the perceived employee satisfaction of an eLearning program developed using persuasive learning design.

RO3 – Explore the perceived learning engagement of an eLearning program developed using persuasive learning design.

RO4 – Explore the perceived information retention of an eLearning program developed using persuasive learning design.

Research Design

Research is the process and procedure that researchers use to collect, analyze, and interpret information to increase knowledge about an issue or topic (Burns & Groves, 1997). A researcher may use a qualitative, quantitative, or mixed research method; the nature of the study will determine the research process and procedures (Graveter & Forzano, 2016). According to Graveter and Forzano (2016), the research methodology is a blueprint that describes how a researcher designs the study to assure readers that data collection, analysis, and interpretation adhere to best practices and ensure credible, reliable, and valid research findings. Thus, the methodology determines the assessment of the research quality, the reliability and credibility of the results, and the generalization of the findings (Plano-Clark & Creswell, 2015).

This study adopted a qualitative method instead of a quantitative or mixed-method. There are few studies on developing workplace learning programs using persuasive learning design; hence, no valid instrument exists to measure constructs. Also, a quantitative study may require a controlled setting (Plano-Clark & Creswell, 2015); however, the researcher cannot control the research setting in participants' homes due to the current maximum remote work. The difference in the setting may produce unintended conclusions for the findings, threatening the validity of the quantitative method (Burns & Groves, 1997). The setting may be advantageous to a group, influence the outcomes, and jeopardize the research hypotheses (Graveter & Forzano, 2016).

This study explored participants' learning experiences, and a qualitative method is suitable for studies that focus on exploring a phenomenon (Gravetter & Forzano, 2016). According to Bergman et al. (2012), there is no single reality; individual learning

preferences, cultural differences, and environmental factors may influence people's reality. Thus, a qualitative method uncovers participants' views through in-depth conversation (Clark & Creswell, 2015). This premise aligns with Robert Gagne's theory of instruction, one of the theories underpinning this study. Gagne's model is a learner-centered design that focuses on the mental events in adult learning (Khadjooi et al., 2011). The model is based on how adult learners process and interpret information based on individual experiences, perceptions, and mental structures (Dick et al., 2001; Ellington & Earl, 1996).

The primary goal of qualitative research is to collect data through open-ended conversations to provide a well-grounded, rich description and exploration of the phenomenon (Castleberry & Nolen, 2018). Hence, the researcher decided to conduct a qualitative study to provide a rich description and exploration of persuasive learning design in workplace eLearning programs. The research will explore participants' learning experiences, analyze the data, and report the findings in narrative form instead of a statistical format (Clark & Creswell, 2015). The approach will allow extensive exploration and in-depth analyses of the phenomenon without supporting a particular position or anticipating specific results (Gravetter & Forzano, 2016).

According to Creswell (2007), qualitative research can be ethnography, narrative, grounded theory, case study, or phenomenological research. Ethnographic research explores the culture of a group of individuals or context from the participant's point of view (MacDonald, 2017). A narrative study will weave a series of events to form a cohesive story. A grounded theory study develops a theory or framework grounded in the data collected in a study (Creswell, 2007). A case study analyzes real-world issues within

the confines of a specific situation, organization, or environment. On the other hand, phenomenology focuses on exploring experience from the perspective of individuals who experienced the phenomenon (Dudovsky, 2016).

Based on the above definitions, a phenomenology research design fits the purpose of this study since data will be collected from the standpoint of employees who complete the eLearning program. This method will enable the researcher to explore the learning experience of employees who complete an eLearning program developed using the persuasive learning design framework. Clark and Creswell (2015) classify phenomenology studies into transcendental phenomenology and hermeneutical phenomenology. A transcendental phenomenology study focuses more on participants' descriptions of their experiences and less on the researcher's interpretations. Conversely, hermeneutic phenomenological research focuses on describing participants' experiences and the researcher's interpretation of the description (Palmer, 1969).

The above explanation informs the choice of hermeneutical phenomenology for this study. A hermeneutic phenomenological study slants toward the experience and understanding the true meaning of the experience concerning a phenomenon (Clark & Creswell, 2015). This methodology requires a dynamic interplay among six research activities which includes the concern of interest, a reflection on essential themes about the nature of experience, a description of the phenomenon, a strong relation to the topic of inquiry, consideration of various parts, and balancing parts of writing as a whole (Kafle, 2011). This research design is congruent with the purpose and the goals of this study. The approach will allow extensive exploration and in-depth analyses of the phenomenon to obtain new knowledge (van Manen, 1994).

Population and Sample

A *population* is the larger group of individuals of interest to a researcher, and a *sample* is the selected few that a researcher studies (Graveter & Forzano, 2016). The researchers' selection process to determine a few individuals for the study is called sampling (Clark & Creswell, 2015). Sampling is the process of identifying a designated population where a researcher would take a sample (Clark & Creswell, 2015). Ideally, researchers prefer to study the whole population of interest, but the challenges associated with reaching the entire population always make researchers resort to sampling (Graveter & Forzano, 2016). Hence, sampling focuses on selecting smaller and more manageable groups from the population as a whole and limiting the study to a selected few (Graveter & Forzano, 2016). Below is the discussion about the research population and sample.

Research population

This study focuses on contract employees working with U.S. federal government agencies. The U.S. federal government is the leading employer of labor in the United States, with over 9 million full-time and contract employees. Contract employees consist of 30% - 40% of the federal workforce since 1980, and there are currently about 4 million contract employees who support full-time employees (Light, 2017). Contract employees may be full-time workers of registered federal government prime contractors and sub-contractors deployed to support full-time federal workers (Gallagher, 2006). According to Light (2017), some contract employees are independent contractors hired for specific short or long-term projects. They comprise of males and females from diverse backgrounds with various credentials based on the agency's human capital needs. There is no specific number of contractors a federal agency is required to hire; the leadership of

each federal government agency determines the number of contracts employees hired based on business needs (Gallagher, 2006). Hence, it is impossible to ascertain the total number of contract employees working with various federal agencies (Light, 2017). However, these individuals complete the same learning programs mandated or suggested by the U.S. Office of Personnel Management (OPM), which sets employee development policies and procedures for all federal government agencies (OPM, 2021).

Research sample

The researcher planned to survey and interview contract employees who completed an eLearning program developed using a persuasive learning design framework. According to Creswell (1998), qualitative research should have a large sample size to obtain sufficient data to explore and provide a detailed description of the phenomenon of interest. While Creswell (1998) recommends between 5 and 25 participants for a phenomenology study, Morse (1994) recommends a minimum of six participants.

Sampling strategy

Sampling strategies are methods or processes a researcher uses to select participants for a study (Shadish et al., 2002). Depending on the research design, the sampling strategy can be either probability sampling or non-probability sampling. Probability sampling anchors on choosing participants based on random selection, while non-probability is the opposite (Graveter & Forzano, 2016). Purposive sampling is adopted in this study. Purposive sampling involves intentionally selecting individuals to participate in a study (Clark & Creswell, 2015). According to Clark and Creswell (2015), the purposive sampling strategy is commonly used in all qualitative studies. Since the

researcher does not know the entire population, the researcher will base the selection on special qualifications of some sort or prior evidence of representation (Graveter & Forzano, 2016).

Purposive sampling can be homogenous sampling, maximal variation, and snowball sampling (Graveter & Forzano, 2016). The researcher will adopt a homogenous sampling strategy to recruit participants for this study. Homogenous sampling is the method of selecting participants who share common traits or characteristics of interest to the researcher (Clark & Creswell, 2015).

Participant recruitment

The researcher planned to survey 25 participants and schedule a follow-up interview with participants based on Creswell's (1998) recommendation. The researcher will email contract employees to recruit potential participants for the study (see Appendix F). Among the 1020 employees working with the agency, the researcher will select the first 25 respondents who meet the criteria set forth based on the research question. These criteria include being a contract employee deployed to work in the agency and the willingness to complete a persuasive eLearning program as part of the employee development. Selected participants completed the eLearning program and completed an open-ended survey after completion.

The researcher will interview these participants 30 days after completing the eLearning program and use saturation as a point of closure. According to Thomas (2017), researchers reach data saturation when no new information emerges from additional interviews. Hence, using saturation as the cut-off point will enable this study to get more data from the interviews until no new information is provided (Thomas, 2017). However,

the focus of this study is to obtain quality and vivid descriptions of participants' experiences and views.

Data Collection Instrument

Data collection refers to the procedures used to gather the information to answer the research question or meet research objectives (MacDonald, 2017). Qualitative data collection methods include observations, open-ended surveys, textual or visual analysis, focus groups, and individual interviews. According to Colaizzi (1978), focus groups and interviews are the gold standards for phenomenological studies. Wimpenny and Gass (2000) posit that focus groups and interviews allow the researcher to have in-depth dialogue with subjects to uncover the meaning of their experience. Although there is no unanimous data collection technique for hermeneutic phenomenological research (Kafle, 2011), many scholars recommend one-to-one interviews for the methodology (Kafle, 2011; van Manen, 1994; Wimpenny & Gass, 2000).

Therefore, open-ended surveys and one-to-one interviews are the data collection instruments for this study. Hermeneutic phenomenological research design hinges on interpreting participants' experiences and the context (van Manen, 1994). The survey will allow participants to answer questions in open text format based on their knowledge, feeling, or understanding (Clark & Creswell, 2015). Also, using the interviews to generate data will allow the researcher to delve extensively into the conversation to understand the underlying meanings of the experience that is not plausible in a focus group (Kafle, 2011).

One-to-one interviews can be unstructured, structured, or semi-structured (Wimpenny & Gass, 2000). Unstructured interviews do not have pre-decided interview

questions, and data is collected from a researcher's conversation with participants (MacDonald, 2017). Conversely, structured interviews allow a researcher to consistently ask participants the same set of questions (MacDonald, 2017). According to Wimpenny and Gass (2000), structured interview questions are pre-decided with follow-up probing questions. On the other hand, semi-structured interviews utilize interview protocol to guide the conversation with each participant and maintain the freedom to reword questions spontaneously to explore the topic extensively (Wimpenny & Gass, 2000).

According to Creswell (1998), researchers are the primary instrument when a semi-structured or unstructured interview is used for data collection since their unique characteristics may influence data collection. Since a semi-structured one-to-one interview is congruent with the purpose of this study and the research design, the researcher is the primary instrument. This understanding will allow the researcher to probe participants for additional details while steering the interview to answer the research question (Kafle, 2011). The researcher will use open-ended surveys to collect data for Research Objectives 1&2 and interviews for Research Objectives 3&4.

Data Collection Procedures

Before participating in the program, the researcher will send a PDF version of the informed consent form to participants through email (see Appendix E). Participants will be able to sign the form electronically using Adobe Sign (Adobe, 2021), and both the researcher and the participant will receive confirmation after signing the form.

Instructional material

The instructional material is an eLearning program on the *Effective Management of Personal Identifiable Information (PII)*. The research setting is an independent agency

of the US government that monitors and regulates derivatives markets and financial organizations and enforces the law against market manipulation. The organization collects a wide range of information about individuals and business entities during its everyday business. Some examples of the information include individuals' names and contact information, individuals' financial records or account information, information identifying whistleblowers, as well as background and enforcement information about individuals who are currently under investigation. Therefore, employees are responsible for protecting the privacy of individuals and the information that the agency collects, the loss of which could result in significant harm to both individuals and the agency. Thus, effective PII management is critical to the organization's mission, and this understanding informs the need for developing the eLearning program using a persuasive learning design.

The eLearning program was developed using Articulate Storyline authoring software, and the development aligns with the persuasive learning design framework (see Appendix D). The eLearning program is programmed to assess learners' previous knowledge of the topic, trigger suggestions or hints to support learners, and provide appropriate intervention based on the expected learning outcome (Yusoff & Kamsin, 2015). Based on the recognized ability, the program may trigger an example or a scenario that provides insights or additional information that will assist learners in understanding the subject matter (Khaddage, Lattemann, & Crompton, 2016). In some cases, the course may redirect learners to the section or sub-section that explains the concept. Also, the course may provide the same idea in another format and explain the concept from another perspective. The eLearning was deployed via an enterprise learning management system

(LMS). Participants were assigned generic login credentials that allowed them to complete the program in the LMS. The generic login information enabled the researcher to collect data anonymously without revealing participants' identities. The eLearning program development process is available in Appendix A.

Procedures

The researcher administered an open-ended survey to collect data about learner satisfaction. The open-ended survey appeared automatically at the end of the eLearning program. The survey is pre-developed as part of the eLearning program, and it has ten questions (see Appendix D). The questions appeared on the screen, and participants typed in their responses. The researcher retrieved the data from the learning management system and export the data to Microsoft Word for analysis.

In addition to the survey, the researcher conducted semi-structured follow-up interviews to explore participants' learning experiences. The researcher used an interview script and protocol that contained open-ended interview questions for participants (see Appendix C). The interviews had eight questions with probing questions based on the participants' responses. While the same interview questions were used for all participants, the researcher asked participants to discuss other relevant information that may be useful. The interview questions collected data about learning engagement and information retention.

The interviews occurred through a video conferencing application accessible by the participant (Teams or Zoom), and each interview spanned between 45 minutes and 1 hour. Each participant determined the convenient time for the interview, and the researcher set up a meeting and sent the meeting invite to the participant's email for

confirmation. The interviews were recorded using the recording video feature in the video conferencing application used for the interview. During the interview, participants previewed interview questions to be familiar with the sequence of the questions. The researcher asked some preliminary questions to warm up each interview session before moving forward to core interview questions (see Appendix C). The introduction included permission to record the video/audio conversation.

Anticipated risks were minimal and no more significant than those typically encountered in daily work activity. The researcher minimized the risks by providing detailed information about the interview process login details, disabling their video during the interview, and ending the video call if necessary. Some participants chose to disable the video feature during the interview. Every participant was fully informed that participation is voluntary, and they could withdraw their participation at any time. Table 1 shows the data collection plan for this study.

The researcher used the device encryption option in the computer to protect data from unauthorized access in case the computer device is lost or stolen. Device encryption is available on all the editions of Windows 10 and 11. Enabling the feature will scramble the primary and the secondary drives connected to the device and require a unique password from the device owner before the device can be accessed. Using this device encryption feature will provide an additional layer of security for the data beyond the general computer passwords.

Table 1 *Data Collection Plan*

Week	Task
0	• Receive the University of Southern Mississippi's IRB Approval Form • Coordinate dates for the program deployment with the organization
1	• Send out the participation recruitment email • Select participants that meet the requirements
2	• Send informed consent to selected participants • Deploy the learning program to participants using the LMS • Send thank you emails to participants
3	• Retrieve and organize data collected at the end of the program
4	• Schedule one-on-one interviews with participants
5	• Review the survey responses in preparation for interviews
6	• Conduct one-on-one interviews with participants • Send post-interview thank you emails to participants
7	• Transcribe the interviews and review the transcripts • Send transcripts to participants for member checking
8-10	• Conduct data analysis, code, and determine themes • Complete data analysis
11-12	• Finalize results and research conclusions

Member checking

The researcher used member checking to allow participants to review the data and provide feedback (Emerson et al., 1995). After the transcription and review of the interviews, the researcher sent the transcripts to participants for review and provided them with the opportunity to review the data for accuracy. Member checking enables participants to either affirm or adjust the summary and characterize their reflections,

views, feelings, and experiences (Lawrence-Lightfoot, 1997). The approach also allows participants to correct errors, clarify their intentions, and provide additional information (Emerson et al., 1995).

Clarifying researcher bias

Research biases are factors that may influence or skew the outcome of a study in a specific direction or distort the findings (Shadish et al., 2002). While several biases may impact a study, the researcher's subconscious thoughts, beliefs, and viewpoints may affect their objectivity, consequently skewing the findings in a specific direction (Emerson et al., 1995). Since researchers are the primary instrument in qualitative studies, they must consciously acknowledge and document their viewpoints and establish a process to ensure that their assumptions and preconceptions do not shape decisions throughout the study (Lawrence-Lightfoot, 1997). Therefore, in this study, the researcher regularly exercised introspection regarding his roles, assumptions, and viewpoints through journaling as recommended by Smith (2018). In a qualitative study, journaling requires making regular entries about one's thoughts and preconceptions in a diary or memo during the research process. The researcher can remove or minimize biases through these regular entries, especially during data collection (Anderson, 2017).

It is also vital for a qualitative researcher to disclose the disciplinary affiliation and rationale for the topic selection (Lawrence-Lightfoot, 1997). The researcher for this study was a certified eLearning developer working as a contract employee with a federal agency. As a Senior eLearning Specialist, his responsibility included developing multimedia eLearning programs, managing the learning management system, and evaluating learning programs. During program evaluations, the researcher observed that

most eLearning programs do not achieve the desired outcomes, validated by evidence from scholarly publications.

Confidentiality

According to Smith (2018), confidentiality is essential in ethical research. Thus, participants will be assured that their information will be secured (Smith, 2018; Yin, 2018). The recorded data is stored in the research folder on the researcher's personal computer. The computer has a security password with up-to-date windows security features, and the research folder also has a passcode only known to the researcher. The researcher labelled all recordings anonymously with a participant's number and pseudonym for each participant as recommended by Maher et al. (2018). The researcher replaced participants' names with P#1, P#2, P#3, and so forth. Finally, the researcher will destroy the recording after the study is published and will not keep the recordings beyond their use for the study. The researcher will keep the transcripts in the research folder on OneDrive cloud storage for five years before deleting them. The OneDrive folder is secured with a password known to the researcher only.

After five years, the researcher will permanently delete the entire folder that contains the transcripts from the OneDrive. The researcher will right-click on the folder and click 'Delete' to delete the folder completely. Then, the researcher will click the OneDrive recycle bin, select the transcripts folder, right-click on the folder and click 'Delete.' This process will ensure that the folder and all it contains are completely erased from OneDrive.

Triangulation

Flick (1992) states that triangulation requires using a minimum of two perspectives to increase the depth of the study and validate the data. To ensure the result's credibility, the researcher will triangulate the data collected through interviews with the survey response to check for consistencies and similarities as advised by Emerson et al. (1995). Also, the research will use multiple theoretical perspectives (Knowle's andragogy, Gagne's model, and Keller ARCS) in the data analysis for a complete understanding of the phenomenon. This approach will eliminate or reduce the fundamental biases that may arise from using a single method and offer a more balanced description or explanation of the findings.

Data Analysis

Hermeneutic phenomenology orients toward interpretative phenomenology, which involves a detailed and complete description and interpretation of participants' experiences (Cooper et al., 2012). According to Cooper et al. (2012), the primary purpose of data analysis in interpretative studies is to interpret and deduce meanings from data beyond the textual description of the phenomenon. Hence, the researcher adopted interpretative phenomenological analysis (IPA) in this study. IPA offers insights into how participants experience a phenomenon in a given context as individuals and also from a shared perspective (Laverty, 2003). IPA focuses on synthesizing participants' descriptions and the researcher's interpretation of the meaning of participants' claims (Cooper et al., 2012). Laverty (2003) posits that IPA aligns with the hermeneutic cycle, and researchers have the flexibility to determine suitable analysis procedures.

Analysis process

This study implemented the hermeneutic cycle procedure proposed by Laverty (2003) and Miles and Huberman's (1994) framework for the data analysis. The hermeneutic cycle includes a rigorous and iterative reading of the transcript, reflective writing, and text interpretation (Laverty, 2003; Van Manen, 1997). Specifically, the process requires a researcher to dwell with the textual data and deduce their meaning related to the study (Parse, 2001). Afterward, the researcher will interpret the words, phrases, and sentences to uncover meanings and understand participants' perceptions (Laverty, 2003; van Manen, 1997). Finally, the researcher will synthesize the content to form cohesive information or idea that help answer the research questions (Parse, 2001). The iterative process of writing and rewriting the information will allow the comparison of themes and engender a complete understanding of the phenomenon (Cohen et al., 2000).

The researcher supplemented the hermeneutic cycle with Miles and Huberman's (1994) framework for effective data analysis. Miles and Huberman's (1994) framework includes four major phases in data analysis: data reduction, data display, conclusion drawing, and verification. Data reduction includes organizing, condensing, and minimizing the mass of data into a simplifying version to make it more meaningful, intelligible, and manageable in terms of the issues being addressed. Data display provides an organized and streamlined assembly of information using visualization to portray supporting evidence emerging from the data. Conclusion drawing includes determining the meaning of the analyzed to assess their relationship and the implications for the research question. Finally, verification involves revisiting the data continuously to verify

the emergent conclusions. Figure 2 shows the data analysis process to be implemented in this study.

The researcher transcribed interviews using Sonix video transcription software. Using a software application to transcript data helped the researcher manage the large dataset during the analysis (Bazelby & Jackson, 2013; Creswell, 2007). The software produced a textual narration of the interviews that will be corrected for errors and sent to the participants for member checking. Participants will have the opportunity to confirm the accuracy of the transcripts or adjust their responses as recommended by Van Manen (1994).

Figure 2. Data Analysis Process.

Data coding

Since two datasets were collected, the researcher coded each dataset separately and merged the emerging themes from survey responses and interview transcripts. The researcher saved transcripts as Microsoft Word documents. The documents have double-line spacing with wide margins to label the texts, and the researcher used the comment bubble to code the transcripts. Transcripts were read multiple times before coding as described in the hermeneutic cycle (van Manen, 1997).

This study adopted deductive and inductive coding to accommodate the preestablished themes prevalent in the persuasive learning design framework and remain open to inducing new meanings from datasets. According to Saldana (2016), using the

combination of deductive and inductive analysis in a qualitative study allows researchers to uncover additional information beyond the initial categorizations shaped by preestablished research questions. There were two coding cycles for both survey responses and interview transcripts. The researcher used both simultaneous and inductive coding in the first coding cycle, depending on the participant's response. Using both coding methods enables researchers to capture connotative and denotative meanings of participants' phrases and words (Saldana, 2016). The approach will allow the researcher to fracture the texts and recognize deductive and inductive concepts from the participants' responses rather than the isolated line (Lawrence-Lightfoot, 1997).

The researcher identified various labels into different code categories that relate directly or indirectly to the research topic. Afterward, the researcher sorted and arranged labels into categories and used broader terms to describe each group as Saldana (2016) recommended. The codes were cleaned up, and the data were grouped into simplified categories that can be understood in the context of the research questions. Each group has sub-categories that interpret participants' responses (Emerson et al., 1995).

For the second coding cycle, the researcher re-coded the data using theoretical coding to identify dominant codes that serve as the main categories (Saldana, 2016). The researcher cleaned up the codes, reorganized the codes, and retained the best codes that aligned with the study. Similar codes were merged to reduce the initial number, and some codes were relabeled to form a conceptual category. The theoretical coding enabled the researcher to systematically integrate the central theme and its major categories to suggest a possible theoretical relationship among the code categories and their

explanations regarding the research topic (Saldana, 2016). Figure 3 shows the coding process.

Each category was connected back to the research questions. Different patterns and themes were identified, examined, and interpreted in texts. The data was reduced to focus on content that relates directly or indirectly to the topic. The data is displayed in narrative texts to make it easy to identify systematic patterns and interrelationships across themes. The results are reported in a narrative format.

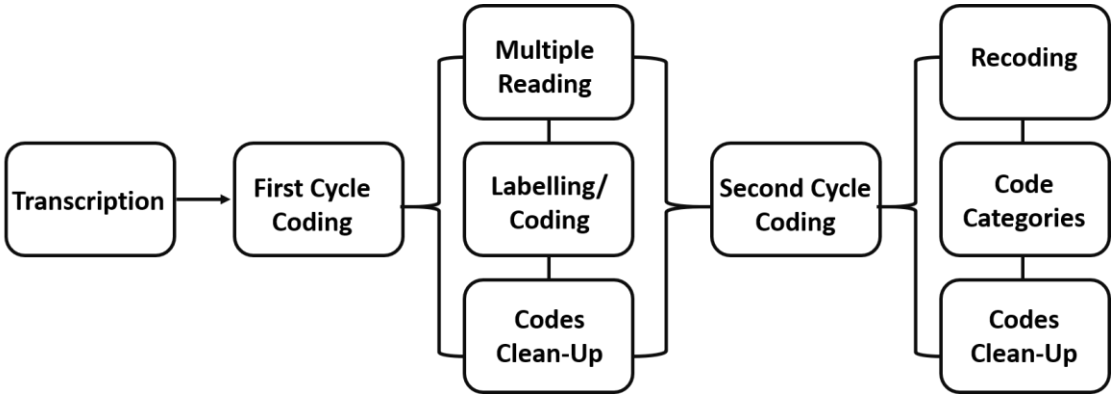


Figure 3. The Coding Process.

Limitations

Every research has certain limitations that should be discussed to assure the study's credibility (Middleton, 2016). These items are critical to the research, and discussing them allows readers to understand the rationale behind certain decisions the researcher made that may make people question the findings (Leedy & Ormrod, 2005). Subjectivity is a significant concern in this study since hermeneutical phenomenology studies rely on the researcher's active involvement with a phenomenon, experience, and constant reflections. Thus, the researcher always questioned himself and verified whether his explanations of personal and participants' experiences were correct. There was

openness to participants' experience, a quest to understand their experience deeply, and the willingness to contribute to deepening the experience to understand the phenomenon.

Also, there is no prior research on the phenomenon in this research setting; hence the analysis is limited to participants' interpretation of their experience and the researcher's interpretation of participants' experience. Although participants completed the same eLearning program, their professional background and education may impact the interpretation of their experience. Thus, generalizing a participant's response may not necessarily reflect the view of other participants. Therefore, it will be reasonable not to generalize the findings from the study to another federal government agency. The study may not lend itself to replicability and the transferability of the findings to other settings, such as other organizations in the private sector, is also limited.

Summary

This chapter discusses the research methodology and research design and justifies the research design. The study is hermeneutic phenomenological qualitative research. At least ten contract employees are surveyed and interviewed 30 days after completing an eLearning program developed using persuasive learning design. An open-ended survey and semi-structured one-to-one interviews were used to collect data for the study. A purposive sampling strategy was used for participants' selection. The interviews were conducted using a video conferencing application accessible by the participant, and each interview will last between 45 minutes to 1 hour. The interviews had between eight questions with follow-up probing questions based on the participants' responses. To analyze the data, the interviews were transcribed, then chunked and coded. The data is displayed in narrative texts to make it easy to identify systematic patterns and

interrelationships across themes. The results will be reported in a narrative format instead of a statistical form.

CHAPTER IV – RESULTS

This study explores the effectiveness of a workplace eLearning program developed using persuasive learning design. The central research question of the hermeneutic phenomenological study is, 'What is the experience of employees who completed eLearning programs developed using persuasive learning design?' The primary objective of the study was to understand participants' learning experiences. Participants completed an open-ended survey embedded in the eLearning program and participated in an interview 30 days after the program. The research objectives guided the data collection. These objectives include participant demographics, perceived learning engagement, information retention, and learning satisfaction. The researcher analyzed the collected data as outlined in Chapter III.

Chapter IV presents the results of the open-ended survey and the semi-structured interviews. It begins with a description of the data analysis process, including measures taken to ensure the reliability and trustworthiness of the collected data. The researcher presents the findings in four sections. The first section is demographics, which provides the outcome related to RO1. The second section is titled perceived learning satisfaction, which provides the outcome related to RO2. The third section titled perceived learning engagement, provides the outcome related to RO3, while the last section, titled perceived information retention, provides the outcome related to RO4. Finally, the chapter concludes with a summary of the results.

Data Analysis

As a hermeneutic phenomenological study, the study orients toward interpretative phenomenology, focusing on a complete description and interpretation of participants'

experiences (Cooper et al., 2012). According to Laverty (2003), interpretative studies align with the hermeneutical phenomenology, and researchers have the flexibility to determine suitable analysis procedures. Since the main objective of the analysis is to interpret and deduce meanings beyond the textual description of the phenomenon, the researcher adopted the hermeneutic cycle with the Miles and Huberman framework for the data analysis (Miles & Huberman, 1994). The approach offered insights into how participants experience the phenomenon as individuals and from a shared perspective.

The researcher surveyed 25 participants who completed the eLearning program developed using the persuasive learning framework and interviewed seven participants 30 days after completion. The interviews occurred over Microsoft Teams, which enabled the recording of the conversation. Based on Thomas' (2017) recommendation, saturation was used as the point of closure when new information no longer emerged. The researcher transcribed the interviews using Sonix video transcription software, which produced a textual narration of the conversation. The data collected from the survey and the interviews were saved separately on the researcher's computer.

The researcher implemented the hermeneutic cycle process, which includes a rigorous and iterative reading of the transcript, reflective writing, and text interpretation (Laverty, 2003; Van Manen, 1997). The process enabled the researcher to delve extensively into the datasets to deduce meanings related to the research objectives (Parse, 2001). Afterward, the researcher followed Miles and Huberman's (1994) framework, including data reduction, display, conclusion drawing, and verification. The researcher synthesized participants' descriptions and interpreted the meaning of their claims (Cooper et al., 2012). This process produced organized and streamlined data that allowed the

researcher to draw conclusions based on emerging themes (Laverty, 2003; van Manen, 1997).

Trustworthiness

Trustworthiness includes credibility factors that assure the readers' confidence in the data analysis (Roberts, 2010). These credibility factors decrease any issues about the trustworthiness that may influence or skew the research findings (Creswell, 2013). According to Creswell (2013), qualitative studies typically apply multiple strategies to check for trustworthiness, including journaling, member checking, and triangulation. Based on Lawrence-Lightfoot's (1997) recommendation, the researcher used member checking to allow participants to review the data to affirm or adjust the characterization of their reflections, views, feelings, and experiences.

As the primary instrument in the qualitative study, the researcher regularly exercised introspection through journaling to ensure that his assumptions and preconceptions did not influence the study (Smith, 2018). Journaling ensured regular entries about the researcher's thoughts in a diary during the research process and helped minimize biases, as Anderson (2017) recommends. Finally, the researcher used triangulation to increase the depth of the study and validate the data based on Flick's (1992) advice.

According to Flick (1992), triangulation requires using a minimum of two perspectives to ensure the result's credibility. Therefore, the researcher used two cycles of coding and multiple coding methods for each coding cycle and triangulated the emergent themes from the interviews with the survey's themes to check for consistencies and similarities. This approach enabled the researcher to offer a more balanced

explanation of the findings and reduce the fundamental biases that may arise from using a single method.

Data analysis plan

A data analysis plan shows the relationship between research objectives, collected data, and the data analysis process. The research objectives include the demographic information and exploring the participants' learning experience regarding their perceived learning satisfaction, learning engagement, and information retention. Table 2 outlines the overall data analysis plan and connects research objectives with collected data and the data analysis.

Table 2 *Data Analysis Plan*

Objective	Data Collected	Instrument	Question Number	Data Category	Data Analysis
RO1	Demographics	Open-ended survey	Q1, Q2, Q3, Q4	Nominal	Descriptive statistics
RO2	Learning Satisfaction	Open-ended survey	Q5, Q6, Q7, Q8, Q9, Q10	Text	Content analysis recurring themes
RO3	Learning Engagement	Semi-structured interview	Q1, Q2, Q3, Q4, Q8	Text	Content analysis recurring themes
RO4	Information Retention	Semi-structured interview	Q5, Q6, Q7, Q8	Text	Content analysis recurring themes

The researcher coded the two sets of collected datasets (open-ended surveys and interviews) separately and merged the emerging themes afterward, and there were two cycles of coding for each of the datasets. In the first coding cycle, deductive and inductive coding methods were used to accommodate the pre-conceived themes in the literature while remaining open to emerging themes from datasets to uncover additional information beyond the initial categorizations shaped by preestablished research questions (Saldana, 2016). Using both coding methods enables researchers to capture connotative and denotative meanings of participants' phrases and words (Saldana, 2016).

In the second coding cycle, the researcher re-coded the data using domain and theoretical coding methods to identify dominant codes that serve as the main categories (Saldana, 2016). After the domain coding, the researcher reorganized the codes, deleted redundant codes, merged similar codes to reduce the initial number, and relabeled some codes to form conceptual categories. The theoretical coding produced integrated central themes that suggest a possible theoretical relationship among the code categories and their explanations regarding the research topic. The domain coding shows the relationship between the main code categories, while the theoretical coding shows the relationship between the central theme and its major categories (See Figure 4).

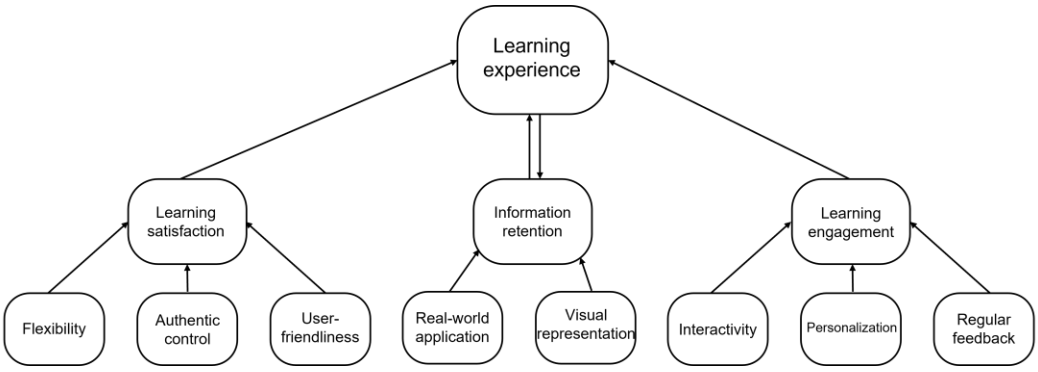


Figure 4. Relationship Between Themes.

Emergent Themes

The subsequent thematic analysis produced nine themes, but only eight are related to the research objectives for this study. The data are organized into three sections: (a) learning satisfaction, (b) learning engagement, and (c) information retention. Learning satisfaction themes include authentic control, freedom, and user-friendliness. Learning engagement themes include interactivity, personalization, and regular feedback, while information retention themes include real-world application and visual representation. The last theme, manipulation tendency, criticizes persuasive learning design, which is unrelated to the research objectives.

Participant Demographics

RO1. Describe the participating employee demographics by gender, educational background, and years of experience working with the U.S. federal government.

The researcher met the goal of the first research objective by obtaining the demographic information of all participants through the open-ended survey and the interview protocol. Participants answered questions related to their gender, educational background, and years of experience working as a contractor with the federal government. Twenty-five contract employees completed the open-ended end-of-the-course survey, and seven were interviewed. Creswell (1998) recommends between five and 25 participants for a phenomenology study, while Morse (1994) recommends a minimum of six participants.

After interviewing five participants, there were similarities in their description, signaling saturation. The researcher conducted additional two interviews to seek new information, but no further information emerged. Table 3 displays the demographic

information of participants that completed the open-ended survey, including gender, educational qualification, and years of experience.

Table 3 *Open-ended Survey Participant Demographics*

Demographics	*N*(Participants)	Percent of total participants
Gender		
Male	14	56%
Female	11	44%
Highest Educational Qualification		
Bachelor's	7	28%
Master's	13	52%
Doctorate	5	20%
Years of experience		
1-5	15	60%
6-10	9	36%
11 and above	1	4%

The distribution of participants shows a diverse representation in terms of gender, educational qualifications, and years of experience. Twenty-five contract employees completed the open-ended survey at the end of the eLearning program. Fifty-six percent of the participants (n = 14) were males, and 44% (n = 11) were females. Twenty-eight percent (n = 7) have bachelor's degrees, approximately half of the participants, 52% (n = 13) have master's degrees, and 20% (n = 5) have doctoral degrees. Sixty-seven percent of the participants (n = 15) have 1-5 years of experience as contract employees, 36% (n = 9) have 6-10 years of experience, while only 4% (n = 1) have more than ten years of experience as a contract employee. The years of experience describe the total number of years a participant has been a contract employee across multiple federal government agencies holding similar positions. Table 4 shows the demographic information of the participants interviewed.

Table 4 *Interview Participant Demographics*

Demographics	*N*(Participants)	Percent of total participants
Gender		
Male	4	57%
Female	3	43%
Highest Educational Qualification		
Bachelor's	2	29%
Master's	4	57%
Doctorate	1	14%
Years of experience		
1-5	4	57%
6-10	2	29%
11 and above	1	14%

The demographics of the interview participants consist of 57% (*n* = 4) males and 43% (*n* = 3) females. Twenty-nine percent (*n* = 2) have bachelor's degrees, more than half of the participants, 57% (*n* = 4) have master's degrees, and fourteen percent (*n* = 1) have a doctoral degree. Fifty-seven percent of the participants (n = 4) have 1-5 years of experience as contract employees, 29% (*n* = 2) have 6-10 years of experience, and 14% (*n* = 1) have more than ten years of experience as a contract employee. The years of experience describe the total number of years a participant has been a contract employee across multiple federal government agencies.

Perceived Learning Satisfaction

RO2. Explore the perceived employee satisfaction of an eLearning program developed using persuasive learning design.

The researcher met the goal of the second research objective through the end-of-the-course open-ended survey administered after the eLearning program. Based on participants' responses and the researcher's interpretation of their responses, three themes were identified as satisfaction factors in the eLearning program developed using the

persuasive learning design. The identified themes are flexibility, authentic control, and user-friendliness (see Figure 5). These themes have related descriptions, and excerpts from participants' responses to the open-ended survey exemplify the interrelationship among these themes.

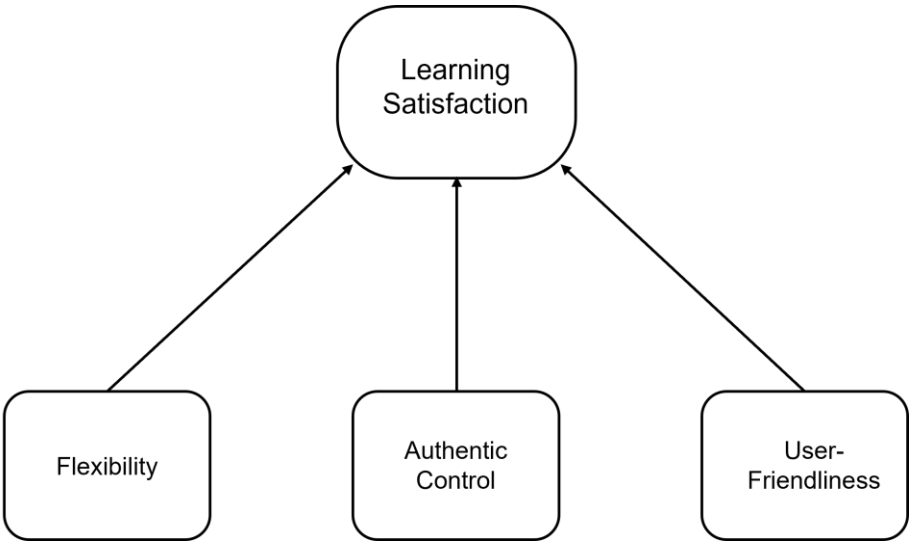


Figure 5. Learning Satisfaction Themes.

Theme 1. Flexibility. Flexibility is a dominant theme from participants' responses to the perceived learning satisfaction questions. More than three-quarters of the participants, 76% (n = 19), alluded to flexibility as a major factor that epitomizes their satisfaction with the eLearning program. Participants used various terms and phrases such as "flexibility," "freedom," and "ability to move" to express their preference for the flexibility available in the program. In the completed open-ended survey, some participants simply typed "the flexibility," while some used flexibility in the sentence to describe their experience in the program.

Based on their responses, "the ability to move" based on learners' pace is satisfactory. A respondent's response captures the above premise succinctly, "I am highly

satisfied with this training, particularly the flexibility; I appreciate the flexibility and ability to move on my own pace." Another participant wrote, "I enjoyed the interactivity, freedom, and flexibility. They really sustained my interest."

As a stand-alone eLearning program, participants appreciated the ability to move faster on the topics they have advanced knowledge of and spend more time on the concepts they are less familiar with. A participant wrote, "I love how the content is broken down into topics and the freedom to go on my own pace." Another respondent stated, "It's really nice to move faster and still retain the information in the training. I appreciate the ability flexibility and the ability to save time without missing out on important details."

Two participants attributed flexibility to measuring proficiency on the subject matter and aligning training with prior knowledge to determine the area of concentration. One of the participants stated, "the ability to pretest myself to determine the topic I need to cover is very important to me; the flexibility allowed me to learn to the best of my ability." Another participant responded, "the ability to assess my knowledge of the training is very helpful, [it] gives me the motivation to complete the program faster, which gives me a great experience." Flexibility, and the related terms or phrases, appear in 19 and out of the 25 survey responses, making it one of the dominant themes related to learning satisfaction.

Theme 2. Authentic Control. Participants' responses to the open-ended surveys show authentic control as a major factor in their satisfaction with the eLearning program. Sixty-four percent (n = 16) posited that having an authentic control about the pace, order, and the ability to proceed to another section at their own speed was satisfactory.

Participants used various terms such as “control,” “self-paced,” and “decision-making” to describe their affinity for the eLearning program. Some participants typed “control,” or “self-paced,” while some used these terms in the sentence to describe their satisfaction with the eLearning program. One participant wrote:

> I love the idea of having control over the pace and speed of the course, the ability to quickly move on to another topic or section, and the ability to ‘pause and play.’ I mistakenly closed the tab and reopened the course, and it asked if I wanted to continue where I stopped or wanted to start afresh. I opted to continue where I stopped, and I didn’t miss anything.

Three participants attributed authentic control to the ability to “learn by trying” and how regular hints or feedback supported their experience in the program. One participant responded, “the ability to learn by trying and the hints feature that offered suggestions provided quick results and made the information less intimidating. The feature gave me control over the pace, which allowed me to move faster.” According to another participant, constant feedback made it easier to try out something to see the outcome, boosting their confidence in their decision-making capability: “To me, the most important feature is the ability to try out several options and learn from my mistakes. It boosted my confidence and gave me the control to learn and retain information easily and increase the likelihood that I won’t forget.”

Other participants attributed authentic control to personalizing the learning material by measuring their prior knowledge. Some participants referred to this functionality as self-paced, while others referred to it as the ability to make decisions about how to learn. While answering a question on whether their experience with the

eLearning program was satisfactory or unsatisfactory, a participant wrote, “the self-paced approach provided me with the opportunity to reduce the learning duration without reducing the information or knowledge needed to perform essential functions on the job nor compromising the quality of the knowledge gained in the training.” One participant asserted that giving employees authentic control to customize their learning material to fit their individual needs is the most beneficial feature:

> I think giving employees the opportunity to customize the learning environment and material is the most important feature I see in this training. Employees come from diverse backgrounds with knowledge and academic degrees; the freedom to create a customized learning path would make them responsible for their training based on what they already know about the topic.

Theme 3. User-friendliness. User-friendliness is the most dominant theme from participants’ responses to the perceived learning satisfaction questions. Eighty-four percent (n = 21) used terms or phrases categorized under user-friendliness to describe their perceived satisfaction with the eLearning program. The user-friendliness terms participants used in their survey include “user-friendly,” “interactive,” “easy navigation,” and “visually engaging.” Participants identified the eLearning program as interactive and intuitive, void of undue frustrations common in some eLearning programs. Below is the response of a participant when answering a question on whether they encountered any technical problems in the program:

> This course has a simple and user-friendly interface that is straightforward and easy to navigate – the information is well-organized, and it is easy to complete activities and knowledge checks. I did not encounter any technical issues in this

> eLearning. I liked the ease of use – how each task is simplified with the regular hints that prevent any frustration people may encounter.

Some participants attributed user-friendliness to visually appealing designs. Nine participants claimed that the visual representation and animations in the program sustained their interest and enhanced their learning experience. A participant wrote, "The design is clean and visually engaging; I love the movement of the illustrations. The animation engaged me and sustained my interest throughout." Another participant stated, "I would say the interactive interface is the most satisfactory feature in the course. The rhythm of the audio and visual representation really make it [the training] enjoyable. I connected with the strategic use of visuals and their smooth movement."

Participants' expressed satisfaction with their interactions with the content and the interface, especially the knowledge check activities. Six participants mentioned that they found the knowledge checks engaging; the knowledge checks allowed participants to interact with the course, which prevented them from being distracted. While answering a question on what made their experience with the eLearning satisfactory or unsatisfactory, a participant stated, "…the knowledge check activities are very interactive with feedback for every action to help us navigate the activities. Below is another participant's response that capture learners' interactions with the eLearning program:

> I believe the ability to interact with the course provided a good experience. There is an opportunity to listen, watch, and perform hands-on activities by completing activities. All links and buttons appear clickable, and when I clicked, there are always some actions as simple as a button changing color. The alternate texts

showed when I hovered my mouse over an item, which helped me in the knowledge checks.

Some individuals attributed user-friendliness to the mobile responsiveness of the program and being functional on any web browser. The eLearning program adopted a responsive design that allowed participants to have similar experiences irrespective of the devices used. Two participants found this feature satisfactory; they appreciated the ability to learn on their mobile devices whenever and wherever they wanted. One participant stated, "being able to access the training on the mobile device is the most beneficial feature; I like the ability to access the course material whenever I feel like and also wherever I want and on any internet browser." Another participant wrote, "I like the fact that the course is intuitive and user friendly as I am able to complete on my phone; it provided regular feedback, and I could see the progress on my phone. Colors and textual designs are appropriately used to draw attention and engage."

Perceived Learning Engagement

RO3. Explore the perceived learning engagement of an eLearning program developed using persuasive learning design.

The researcher met the goal of the third research objective through semi-structured interviews. Seven participants answered eight questions with follow-up probing questions, and the first four questions centered on their perceived learning engagement in the eLearning program. Based on their responses to these questions and the researcher's interpretation of their responses, three themes were identified to characterize participants' perceived learning engagement. The identified themes are

interactivity, personalization, and regular feedback (see Figure 6). Like the previous objective, these identified themes also share similar descriptions.

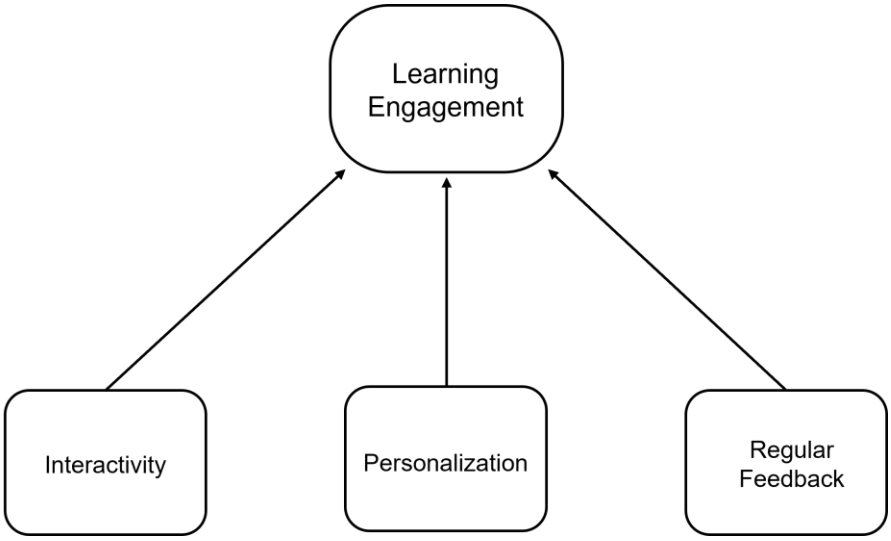


Figure 6. Learning Engagement Themes.

Theme 4. Interactivity. Interactivity is the most dominant theme from participants' responses to the perceived learning engagement questions. Based on their responses, all participants (n = 7) used terms such as interactivity, interactive, interactions, and multimedia when describing their experience with the eLearning program. Reading the interview transcripts, the importance of using interactive media and multimedia strategies in eLearning programs is a recurring theme among all participants. Their responses suggest that participants prefer highly interactive content that produces a great learning experience.

Participants often compared their experience with other courses completed as part of their employee development program and distinguished between the persuasive eLearning program and other eLearning that did not use the persuasive learning framework. They believed that instructional material is "boring" if the content is "text-

heavy" and lacks interactive features that could engage learners. P# 1 posited that instructional content that lacks interactive features looks like an intentional punishment if employees are mandated to complete the training:

> My experience with this eLearning is great …and I found the interactive activities interesting. Comparing this experience with the previous training, I think we need to adopt this new method or approach in all training we need to complete, especially all annual compliance training to ensure people have a great learning experience and enjoy completing the training. Training should not look like a punishment; we need the material to be interactive and visually appealing. I would like us to adopt this new methodology that is not boring and text-heavy like what we currently have in the agency. These training modules are text-heavy which means that employees would need to read a lot of materials and use the information to answer questions at the end of the module. I believe that approach is too traditional or, rather, may be outdated and does not appeal to most employees who are millennials. (P#1)

Participants appreciated eLearning programs that provide interactions between the instructional material and the learner, with the opportunity to listen, watch, and engage in simulated or hands-on activities. Based on their experience, P#3 described the eLearning program as interactive, which changed their role from "passive learners" to active participants in their learning journey. The interactivity produced a "dialog" between participants and the eLearning program, allowing them to "engage" with the learning content:

- Well, personally I am a visual learner, and I get bored easily, so I love to learn by listening and watching something interesting... I prefer training that provides hands-on activities that will keep me engaged with the opportunity for me to demonstrate what I am learning in the training. Instead of asking me to read something, I prefer something I can watch again and again with the option to interact with the training and move from being a passive learner to an active participant in the course. To me, interactive activities provided a dialog between the learner and the eLearning content to make it easy to engage with the material. (P#3)
- I like the feature that was used to simulate the instructional material to mirror real-life situations where I would apply the knowledge. I think from my personal experience and learning preference I learn better through interactive learning activities than reading the texts. I get bored easily, so I always need something exciting and captivating to keep my attention and I need to be able to relate the information to a variety of real-life situations for me to remember. (P#6)

According to P#2 and P#4, engagement with the eLearning content is the most exciting aspect of the eLearning program. These participants found it essential to have a great learning experience through multimedia content as non-interactive training made learners "a passive receptor" with no real way to communicate with the training except for clicking the next button:

- The overall experience was a good one although the approach in the eLearning course is not traditional so to speak and kind of different from what we currently have in-house. I always feel overwhelmed with too much information that is in

the current in-house training... I don't want to watch a video for one hour, I will be bored. That is why I like my experience in this training, the engaging activities really worked for me, especially the knowledge checks, I can still remember how interactive they were. The engaging multimedia was very helpful, they allow interaction that is unavailable in non-interactive learning content. I was really engaged… unlike non-interactive training which makes me a passive receptor with no real way to communicate with the training except for the ability to click the next button. (P#2)

- This training provided me with an active learning experience through the interactive media used in the course. The content is captivating …with some types of interactivities, visual or graphical illustration in a way that will make the content appeal to participants. It is well-designed… and easy to follow the information from the beginning to the end. I wish it could replace other boring compliance training that we are forced to complete every time. (P#4)

Theme 5. Personalization. Personalization is a prominent theme from participants' responses to the perceived learning engagement questions. Based on their responses, six participants (n = 6) used personalization or related terms such as customization and adaptation to describe their experience with the eLearning program. According to participants, personalization is a learner-centric approach since it is developed to help them master the information required to perform essential functions. Participants found this feature helpful because it allowed them to proceed at their pace and focus on the area where they need to devote more time and build on existing knowledge and experience to make learning personal:

- I love the idea of skipping the information I already know and devoting my time and energy to the materials I am not unfamiliar with. This ability to personalize the course based on my knowledge is great because it allowed me to have a better understanding of the training content …people learn in different ways and I believe personalizing training makes more sense to me because I think it enhanced my learning experience. I like the method because the process is personalized therefore, I can move faster in the areas I am good at and take more time in areas where I am behind without feeling like I am dragging. (P#3)
- The feature that measures previous knowledge to determine where to place learners is the most important feature in the program. I also found the regular personal feedback very helpful. I think the regular feedback and hints complemented the personalization feature. It could have been difficult to get the best of the training without the hints. I would recommend this approach for the new employee training. Making content to align with their prior knowledge and experience will ensure a smooth and speedy transition and integration of new employees to the agency's mission-critical functions. (P#1)

Participants attributed personalization to content adaptation, and they preferred the opportunity to control both the instructional materials and the learning interface. While answering the question about the most interesting aspect of the eLearning program, participants identified how the instructional approach builds on previous competencies and the adjustable interface as effective features. These features allowed them to prioritize their preferences and determine the most suitable customization needed for a

great learning experience, which naturally sustained their interest and motivated them to complete the program.

> I appreciated the opportunity to customize the instructional content and the learning interface… and the opportunity to proceed at my pace. I tested out some topics using the pre-designed competency assessment which allowed me to demonstrate my knowledge… and I was able to move to the instructions that addressed other topics that needed to be completed in order to satisfy the course requirements. The ability to test out of some topics captivated my desire to learn and retain information since I know the information will not be repetitive once I have mastered a concept. (P#5)

Theme 6. Regular Feedback. Participants' responses alluded to the significance of regular feedback in their learning experience. They used regular feedback and related terms such as "hints feature" and "suggestions" when describing the features that influenced their learning engagement. According to participants, regular feedback created a unique engagement that motivated participants and mitigated frustrations. Their responses suggested that regular feedback enhances participants' learning experience and information retention.

- What I liked most was the hints feature that popped up whenever I am stuck to ask if I need help with something. I found this interesting because it really helped me navigate the course…I personally like the feedback, especially the feedback from the knowledge check is super helpful, it will explain why an answer is wrong instead of just saying try again… I felt like the hints are designed to target

me, whenever I paused for about 15 seconds, it will just pop up to ask me questions and kind of like that because it was really engaging. (P#4)

- I appreciated the regular feedback available throughout the entire course… I felt like it's really needed because privacy, as in PII, is just a boring topic, but the regular hints and suggestions were really helpful. I think this is a feature I never thought could be useful at the beginning but ended up being my favorite… and the good thing is that it only shows up when needed, so it's not like it's distracting or annoying. (P#3)
- I so much enjoyed the regular feedback and I can see how this feature can be put to good use in my assignments… I always think about how to help new employees acclimate to the new environment and make good use of their time, and I think this "hints feature" would be very useful for their learning experience. …When people are in the process of learning new skills or trying to learn a new business process, they would need regular feedback that tells them whether or not they are doing things the right way. (P#5)

A participant recognized the importance of customizing learning to mirror real-life situations where people need to be agile and adapt to different situations on the job. According to P#6, the importance of having custom delivery of learning content to address the unique needs of employees with just-in-time feedback in their learning journey cannot be overemphasized. This realization captivated the participant's interest and consequentially resulted in learning engagement.

> I am personally drawn to this training because the method mirrors the personality of most of us in this generation and how we will act in real-life situations. The

> current workplace is so dynamic that we need to find a way to learn fast and adapt to constantly changing situations. …I love how this personalized approach allowed me to speed up how exciting the training is; it kept me glued to the screen throughout… the just-in-time feedback is something I think should be replicated on every training program. (P#6)

Perceived Information Retention

RO4. Explore the perceived information retention of an eLearning program developed using persuasive learning design.

The researcher met the goal of the fourth research objective through semi-structured interviews. Participants responded to the interview questions with follow-up probing questions, and the last four questions centered on their perceived information retention in the eLearning program. Two themes emerged based on their responses to describe their perceived information retention. The identified themes are real-world application and visual representation, and these themes are also interrelated (see Figure 7).

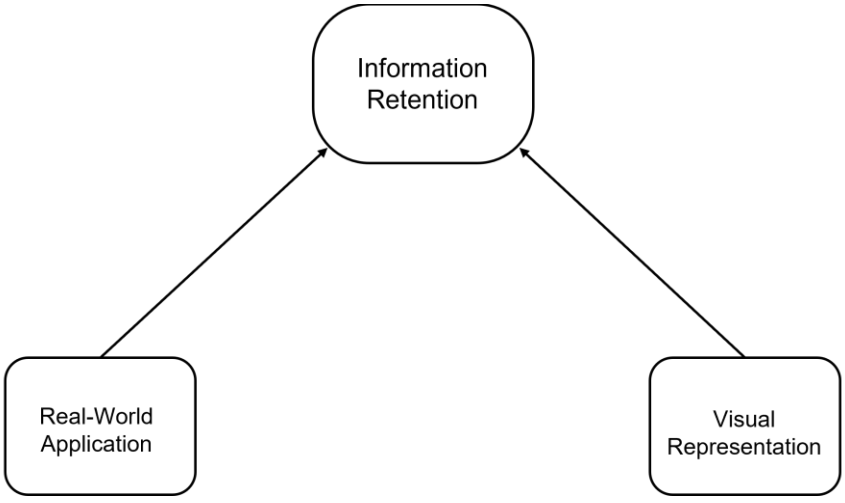


Figure 7. Information Retention Themes.

Theme 7. Real-world application. All participants (*n* = 7) attributed information retention to the real-world applicability of the eLearning program. Based on their responses to the interview questions, participants used "real-world application" and related terms such as "real-world scenarios" and "on-the-job examples" to describe factors that helped them retain information in the eLearning program. Participants' responses to the interview questions suggested that a real-world approach in learning enhances information retention by transforming information into concrete experiences that can be applied on the job. Excerpts below capture participant's responses:

- I was able to apply the knowledge when working on an assignment. The real-world scenarios in the eLearning program were helpful; they helped me make an instant judgment when I needed to determine if certain information fits the category of PII. …I quickly remembered the applied examples in the training, which explained how to categorize information accurately. These examples explained concepts using various scenarios and provided several situations where the scenarios can be applied. (P#2)
- The real-world scenarios really make sense to me as they encourage critical thinking and problem-solving skills which can help employees to be successful in real-world projects… I still remember the key information in the training because of the real-world application of the information… This approach will be useful for new employees, especially new recent graduates, who do not have previous on-the-job experience but will need to adjust quickly, having training that allows them to have a feel of similar situations to be encountered in their role will enhance their performance…having the

ability to get real-world experience in the learning program can make a difference and make the transition a bit less scary. (P#1)

Participants asserted that an effective learning program should be contextualized and applicable in a professional setting since the primary goal is to ensure employees retain a significant amount of information after completing the program:

- I don't have the immediate statistics, but I know learning retention increase dramatically once the learner moves from just reading something to actually doing a task. This is the power of incorporating simulations and real-world scenarios. You actually have the learner take control of their learning experience. So, in my opinion, simulations and real-world scenarios can be highly effective; they helped me retain the information and I think it will help others. (P#5)
- I use the knowledge regularly, and I believe future learning programs should be developed using the same approach. The knowledge checks were contextualized, using real-world examples that resonated with me. I think the training is effective because it focused on context and how applicable certain information is based on the context… Since knowledge retention is the primary purpose of any training, real-world scenarios definitely help with information retention, based on my personal experience… this is a great way to provide employees with the opportunity to make mistakes in a safe learning environment which will, in turn, help them make better decisions on the job when faced with similar situations… but the lack of these features may

contribute to on-the-job frustration that may arise from the inability to apply training knowledge. (P#7)

Participants prefer breaking the instructional contents into chunks or micro components and making the content searchable in the eLearning platform. The chunking of instructional material is beneficial to learners by offering the content in a manner that allows the information to be processed in bite-size pieces instead of presenting everything at once, resulting in information overload. According to participants, employees need just-in-time information in the real world, and it is beneficial to have a learning program that mirrors real-world applications.

- I also prefer the course content to be broken down into pieces instead of having 1 or 2 hours of training at a stretch, the information can be broken down into sub-units, and I can take them sequentially, and when I feel confident about the information then I can go ahead and take my assessment that is what works for me… I like how I am able to search for keywords in the training… and I wish this is available to me on the job because it will reduce the demands on working memory. (P#3)
- Personally, I have a short attention span and I don't normally do well in long training. However, I ended up completing this eLearning program faster, and I still remember the information when I need the information simply because the content is broken into micro components, and they are work-related. This approach helped me on the job because it is application-based, and I learned at my pace… I am self-motivated, and I can set personal goals, the ability to move at my pace allowed me to effectively master the whole content, I spent

more time on areas of weaknesses and quickly completed learning tasks in my strong area. (P#4)

Theme 8. Visual representation. All participants (*n* = 7) attested to the impact of the graphical representation in their information retention. Participants identified good visual design and user-friendly interface as contributing factors to information retention. Visual representation and related terms such as “graphical representation,” “look and feel,” and “user-friendly design” are identified as factors that contributed to their information retention in the eLearning program. Based on participants’ responses, visually appealing learning will not only engage participants but also sustain their interests in the training and enhance their ability to retain the information. Excerpts below capture some participant’s responses:

- The "look and feel" and the user-friendly design are essential features in eLearning courses that helped me retain the information. As a visual learner, the visual representation and the user-friendly interface connected me with the instructional materials and sustained my interest in the training. I cannot overemphasize the importance of great visual design; training content should be visually appealing and graphically illustrative to appeal to participants’ senses and motivate them to complete the course. I think when people are engaged and motivated, it would be easier for them to a develop natural interest in the training, and the interest will definitely enhance the retention of the information. (P#2)
- I like how the training used icons and infographics to communicate information in easy to consume format, this presentation style makes

information to be very interesting and captivating. I was able to digest the information and that it's how information sticks. When instructional content appeals to learners, it makes the learning experience unique and makes learners connect with information. They connect with the images and connect with a visual representation. People connect easily with video instructions and interactive media; these approaches give a better experience rather than just giving them content full of texts and having them study and then write the exams afterward. (P#7)

Participants are concerned about how the agency focuses on the content more than the presentation of the content, and they expressed displeasure with poor designs of instructional materials. According to P#5, "please log on and complete your compulsory eLearning" is the email employees do not want to receive, while other participants mentioned that they normally have the "video running in the background" while they continue working on some other tasks:

- I have always wondered if there is no better way to create some training materials instead of boring videos or text-heavy information slides. While I totally understand the importance of having detailed information in learning programs, but I equally believe that there must be a better way to present the information. Sincerely speaking, please log on and complete your compulsory eLearning is the email no one wants to receive ever … So instead of having boring videos and dry PowerPoints, I love how this training incorporated cutting-edge technologies that I believe this would make a huge difference. I

enjoyed the illustrations and the images; they are engaging, and they help me remember the information. (P#6)

- The training is well arranged and well designed, and it is visually refreshing unlike those compliance courses …, in a lighter mood, I don't normally complete those training, I would just have the video running in the background while I continue working on some other tasks or taking a break and then guess the answers if the training has quizzes. Since this training is compulsory, I would check the box for completing it without remembering any word from it. But it's interesting that I actually completed the eLearning program and actually remember the information. (P#1)

Theme 9. Manipulation tendency. Manipulation tendency is a criticism of persuasive learning design, which is not related to the research objectives but worth reporting because of its significance. Two participants mentioned that the eLearning program has the unintentional tendency to manipulate learners. Especially with the regular feedback and suggestions, these participants felt they were being "manipulated" or "deceived" with the prompt responses.

- At some point, I felt like being "manipulated" into some actions I was not planning to take in the training. I think the training already has a specific goal, and the hints feature was just steering us to the pre-determined "destination." I would love to take a course that uses this same approach with the ability to turn off the hints feature …, I love figuring things out myself, but the regular hints won't let me figure things out which seems like it was forcing me to go a certain direction. (#7)

- I think some individuals may interpret the regular feedback or hints as an attempt to control or manipulate them …, they may somehow interpret the prompts as an attempt to control or force them, instead of just leaving them to figure it out. I think it can deceive learners by suggesting an option even where there is no better alternative anyways. I know this is not the intention, but I think it's something worth mentioning because I felt that way. (P#3)

Research Question, Objectives, and Theme Correlation

The central research question of this study is, 'What is the experience of employees who completed eLearning programs developed using persuasive learning design?' The data analysis yielded nine themes; eight themes are related to the research objectives, while one theme is an unexpected finding from the analysis but relevant to the topic. Table 5 shows the research objectives with the identified themes. The researcher categorized the eight relevant themes into three groups, serving as the key findings in this study. Figure 8 shows the categorization of themes to form the key findings.

Table 5 *Research Objectives and Themes*

Research Objectives (RO)	Themes
RO1	Demographics
RO2	Theme 1: Flexibility Theme 2: Authentic control Theme 3: User-friendliness
RO3	Theme 4: Interactivity Theme 5: Personalization Theme 6: Regular feedback
RO4	Theme 7: Real-world application Theme 8: Visual representation
Unrelated	Theme 9: Manipulation tendency

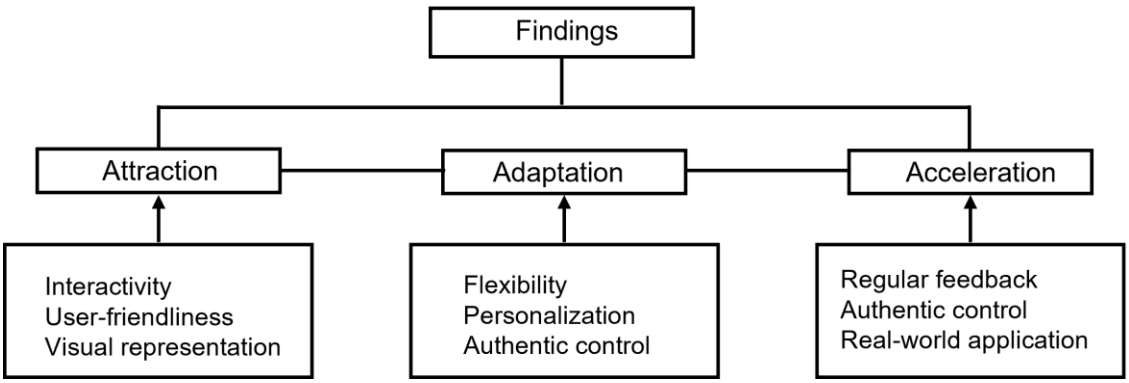


Figure 8. Themes Categorization.

Summary

This chapter begins with a description of the data analysis process and the alignment with the hermeneutic cycle and Miles and Huberman's framework (1994). The researcher described the data analysis steps and the coding procedures to identify emerging themes related to the research objectives. The findings yielded nine themes; eight themes are related to the research objectives, while one theme is an unexpected finding from the analysis. All research objectives are met, and the findings are also linked to the research question. The chapter ends with a description of the research question, objectives, and theme alignment. Chapter V provides the interpretation of the findings, conclusions, and recommendations for future research.

CHAPTER V – CONCLUSIONS

This study explores the effectiveness of developing workplace eLearning programs using persuasive learning design. Chapters I - IV contain the background information, research purpose, literature review, methodology, and findings. Chapter V interprets the findings and provides conclusions and recommendations. Additionally, the chapter discusses the research limitations and recommendations for future research.

Summary of the Study

The current business environment is forcing organizations to embrace eLearning exclusively, resulting in a significant increase in the budget allocation to eLearning programs across industries (Kshirsagar et al., 2020; Shahzad et al., 2020). Despite massive investment, most eLearning programs do not achieve the desired outcomes, and employees and business leaders are dissatisfied (Dellagiacoma et al., 2020; Patel, 2017). The dissatisfaction occurs because most eLearning programs do not engage learners, thus adversely impacting learners' information retention (Jones, 2016). Therefore, this phenomenological study explores the effectiveness of persuasive learning design in developing workplace eLearning programs from the employees' perspectives.

Employees who partook in an eLearning program developed using the persuasive learning design completed an open-ended survey and participated in a one-on-one semi-structured interview to explore their perceived learning satisfaction, learning engagement, and information retention. The researcher used a purposive sampling method called homogenous sampling to identify participants. Homogenous sampling is the method of selecting participants who share common traits or characteristics of interest to the researcher (Clark & Creswell, 2015). Twenty-five contract employees completed the

open-ended survey while seven participated in the interviews, and the researcher used the hermeneutic cycle and Miles and Huberman's framework to analyze the data collected.

Participants' demographic information was collected to satisfy RO1, the themes from the open-ended survey satisfied RO2, while the emerged themes from the interviews satisfied RO3 and RO4. The analysis yielded nine themes; eight themes are related to the research objectives, while one is an unexpected finding from the analysis but relevant to the topic. The researcher associated the themes with the research objectives and the research question, showing interrelationships.

Findings, Conclusions, and Recommendations

The study's findings capture employees' learning experience with an eLearning program developed using the persuasive learning design to determine factors influencing learning satisfaction, engagement, and information retention. Participants' responses provide insights into factors that enhance employees' learning experience. Three factors that enhance the learning experience in an eLearning program developed using the persuasive learning design are identified. The identified factors include attraction, adaptation, and acceleration, and the findings align with the existing literature on persuasive learning design and the theoretical foundation that underpins the study. The findings inform a suggested persuasive eLearning design model that may be adopted in organizations (See Figure 9). The researcher uses discussion to provide interpretations and the roadmap for future exploration and examination of persuasive learning designs.

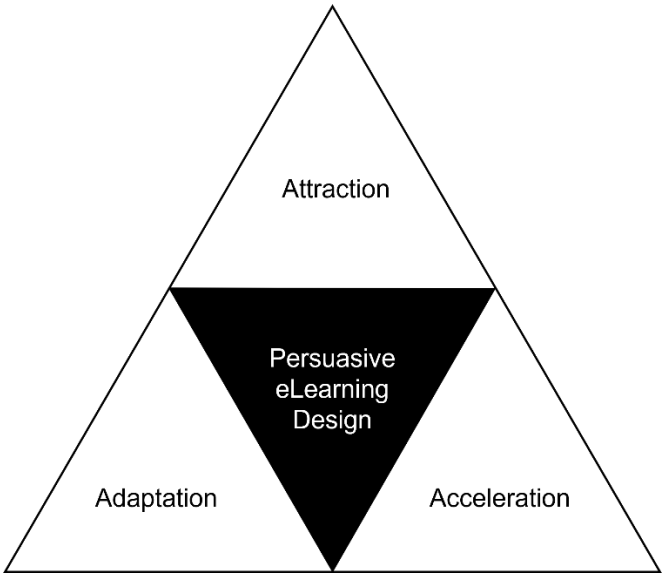


Figure 9. Persuasive eLearning Design Framework.

Finding 1. Attracting learners' attention and sustaining their interest enhance employees' learning experience.

Participants' responses suggest that attracting learners' attention and sustaining their interest in eLearning programs is critical in employees' learning experience. Their responses indicate that eLearning programs with features that stimulate and motivate active participation in the learning process lead to learning satisfaction, learning engagement, and information retention. Participants posited that eLearning programs that fail to attract attention and sustain interest might look like an intentional punishment if employees are mandated to complete the programs.

Conclusion. The literature supports the importance of motivating learners and stimulating their interest in eLearning programs. According to Sim (2000), learning motivation is the ability to sustain learners' attention and interest using features that produce interaction and connection between learners and the learning program, allowing them to engage with content. The interaction is achievable through interactive features,

regular feedback, hints, or suggestions that engage learners to create a great learning experience (Sidhu, 2019). Additionally, research shows that strategic use of multimedia such as interactive videos, animations, and simulation and visually appealing graphical illustrations appeal to learners' senses and emotions, sustaining their interest and enhancing their ability to retain the information (Mintz & Aagaard, 2012; Raymer, 2015; Widyasari et al., 2019).

This finding aligns with the persuasive learning design framework. Motivating learners through user-friendliness, interactivity, and visual representation is a core component of persuasive learning designs (Fogg & Hreha, 2010). Also, engaging learners using triggers, hints, or suggestions is another persuasive learning feature that provides regular feedback that motivates learners, mitigates frustrations, and sustains interest (Mintz & Aagaard, 2012). According to Behringer and Øhrstrøm (2013 (2015), learning motivation depends on users' interests and preferences and the ability to stimulate learners to learn more effectively. Attracting learners' attention and sustaining their interests influence their cognitive attitude and persuade users to achieve desired objectives without coercion or deception (Yusoff & Kamsin, 2015).

Recommendations. The learning and development (L&D) team, including instructional designers and learning experience designers, should create highly interactive instructional content that allows employees to listen, watch, and perform hands-on activities to demonstrate what they learn in the eLearning program. Reduce texts in eLearning programs and complement the texts with interactive media. The interactive learning content should be visually appealing and graphically illustrative to stimulate active participation and engagement. Active participation will sustain learning interest in

the material and engender learning motivation leading to learning satisfaction and information retention (Arghode et al., 2017).

Simulate instructional material to mirror real-life situations and help employees relate the information to various real-world applications. The instructional content should be well-arranged with periodic interactive knowledge checks that allow connection with the eLearning program and prevent distractions. The design should trigger personalized feedback such as hints and suggestions based on learners' choices to keep learners focused and motivated. All links and buttons should be clickable and respond to learners' actions as simple as a button changing color when learners hover their mouse over the button or links to acknowledge their actions.

Finding 2. Adapting instructional content to align with individual learning needs leads to effective learning.

Participants' responses suggest that customizing instructional content based on individual learning needs and preferences is essential in employee development. Employees have diverse backgrounds and experiences; having features that adapt eLearning programs to individual learning needs allows them to personalize learning. Their responses favor custom delivery of learning content that recognizes unique learning styles and preferences and addresses employees' uniqueness, allowing suitable customization for a great learning experience.

Conclusion. According to Tadesse et al. (2020), learner-centric methods that allow employees to make learning decisions based on learning needs and preferences produce desired outcomes. Employees have different learning needs and prefer different learning styles; therefore, a one-size-fits-all eLearning program disadvantages some

employees (Chen, 2014; Truitt, 2011). Hence, there is a need to allow customization and personalization of learning to replicate the real world, where employees must be agile and adapt the information to different situations based on the business needs (Hameed & Waheed, 2011). Giving learners authentic control over their learning journey will allow them to experiment in a safe environment boosting their confidence and making learning permanent (Yang, 2004). This feature will enable them to prioritize their preferences and determine the most suitable customization that matches preferred learning styles (Sidhu, 2019).

This finding is congruent with the persuasive learning design concept. The capacity to measure learners' prior knowledge and personalize instructional material to align with learners' needs is a component of persuasive learning designs (Toor, 2016). Effective persuasive learning designs center on the customization of learning programs based on individual needs, adapting content to various learning stages, and creating unique experiences that appeal directly to learners (Gerling, 2013; Raymer, 2015). Additionally, the trigger is another persuasive design feature that provides alternative explanations or illustrates the idea using alternative formats to make the interface suitable to different types of learners and accommodate different learning styles for learning effectiveness (Hall et al., 2012; Khaddage et al., 2016; Price et al., 2016).

Recommendation. The L&D team should adopt a learner-centric framework that focuses on enhancing information retention by reducing obstacles and barriers that may obstruct learning (Hall et al., 2012). Develop instructional materials to adapt to learners instead of making learners adapt to the information. Focus on building flexibility that can be adjusted based on learners' strengths, learning needs, and learning differences to make

it easier for learners to leverage their strengths over their weaknesses. Provide guidelines that can be adapted to meet the diverse needs of all learners and implement an inclusionary approach that provides an enhanced learning experience to learners across the board (Yang, 2004).

Create responsive eLearning programs that adapt to various devices and screen sizes and offer information in more than one format. Provide multiple means of representing ideas to give learners different ways to acquire information and knowledge. Give learners more than one way to interact with the material, give them multiple means of expression, and provide learners alternative ways to demonstrate proficiency. Offer various engagement methods, tap into learners' interests, challenge them appropriately, and motivate them to learn. Create a progress bar in the eLearning program to give learners a cursory look into their performance based on decisions they make in the program.

Finding 3. Giving learners authentic control and flexibility to accelerate learning is essential in employee development.

Participants' responses suggest that employees prefer eLearning programs that mirror real-world situations where people need to learn faster and quickly utilize the information on the job. Their responses indicate that employees need just-in-time learning materials with authentic control over the pace, order, and the ability to proceed to another section at their own speed. Participants favor the importance of having eLearning programs that enable employees to proceed at their pace and accelerate learning based on their competencies and prior knowledge.

Conclusion. The current workplace is so dynamic that employees need to learn fast and adapt to constantly changing situations (Kraiger et al., 2020). There is a need for eLearning programs that measure prior knowledge and competencies and allow employees to accelerate learning based on proficiency (Zha et al., 2017). This self-paced approach will enable learners to build on existing knowledge and focus on a chunk of information needed to perform essential functions on the job (Ng & Yee-shun, 2015). The chunking method will enable the information to be processed in bite-size pieces instead of presenting everything at once, resulting in information overload (Varga & Bauer, 2017). The approach will provide the opportunity to shorten the learning duration without compromising the quality of the knowledge gained in the program.

Ability recognition is a persuasive learning design feature that hinges on the capacity to measure prior knowledge and allows learners to accelerate when necessary (Zha et al., 2017). This feature assesses the performance and triggers hints or suggestions that facilitate progress based on learners' knowledge of the subject matter (Clark & Mayer, 2016). The trigger produces immediate feedback to expedite progress and gives learners the freedom to make decisions based on prior knowledge and ability (Ng & Yee-shun, 2015). The customization persuades learners and provides a flexible learning pace and duration (Ng & Yee-shun, 2015; Papert, 1998).

Recommendations. Conduct a functional or task analysis that articulates all learners' competencies or behaviors after completing the eLearning program. Create competencies based on predetermined learning outcomes and align with the real-world application of the knowledge. Create a more granular micro-learning content and map each micro-component to align with competencies, outcomes, and assessment activities.

Curate learning resources that address each competency in several formats to explain concepts from different perspectives, provide examples and real-world scenarios to illustrate the information, and create a specific assessment to evaluate each competency.

Break the contents into chunks or micro components and make the information searchable by labeling, categorizing, and grouping various micro-components and tagging them to topics related to them. Allows learners to consume information in chunks to reduce the demands on working memory. Enable the authoring tool to recognize each component's metadata and description, making them retrievable when necessary. Set the system to trigger different interventions or suggestions to assist learners based on their ability in the course and enable learners to accelerate learning after displaying proficiency in a competency.

Theoretical Alignment

The theory Andragogy, Gagne's Theory of Instruction, and Keller ARCS model are the theoretical foundations that underpin this study. The theoretical underpinning for this study supports the findings, conclusions, and recommendations. According to Knowles (1980), adult learners are self-motivated and purpose-driven; they prefer to learn on their terms and require higher engagement with the instructional content. The learning activities must build on previous knowledge and experience and allow the personalization and customization of instructional materials based on learning needs (Loeng, 2017). Finally, Andragogy requires creating a conducive learning environment for several learners and various learning styles and focusing on interactions, learners' interests, and real-world application (Arghode et al., 2017; Decelle, 2016; Loeng, 2017).

Gagne's theory of instruction focuses on how adult learners process information by responding to various stimuli such as prior knowledge and the learning environment (Ellington & Earl, 1996). According to Driscoll (1994), learning interaction and learning engagement are central to achieving learning outcomes in Gagne's model. Learners need internal and external stimuli that evoke interest in the learning program (Gagne et al., 1992). Hence, the model focuses on gaining learners' attention, stimulating their interest, and providing learning guidance and feedback (Oinas-Kukkonen & Harjumaa, 2009). The instruction materials must consider learners' characteristics, give them control over learning activities, and consider learners' prior knowledge, abilities, and preferences (Gagne & Briggs, 1974; Tikka & Oinas-Kukkonen, 2019; Toor, 2016).

Keller ARCS provides practical steps that underpin learners' motivation and engagement in eLearning programs (Dick et al., 2015). The first step is to attract learners' attention by appealing to their emotions and interest in the program. The second step is to make the content relevant to their experience and prior knowledge to maintain their interest. The third step is to ensure that learners are confident that they have the ability and capacity to accomplish the instructional goal. Finally, learners need to derive satisfaction from the program and have a great learning experience (Keller, 1987). Incorporating these components will increase learners' interests and enhance information retention in eLearning programs (Dick et al., 2015)

Discussion

This study explores the learning experience of employees who completed an eLearning program developed using the persuasive learning design. The study follows the six activities of hermeneutical phenomenology, including a concern of interest, a

reflection on essential themes about the nature of experience, a description of the phenomenon, a strong relation to the topic of inquiry, and balancing the parts of writing as a whole (Plano-Clark & Creswell, 2015). Participants shared their experiences through open-ended survey questions and one-on-one semi-structured interviews. This study suggests that participants are satisfied with eLearning developed using the persuasive learning design; the eLearning program highly engaged participants and enhanced their information retention.

The interpretation of their experiences produced factors that influenced their learning satisfaction, engagement, and information retention in the eLearning program. The identified factors include attracting learning attention, adapting instructional materials to align with learning needs, and giving learners the flexibility to accelerate learning. The findings align with the existing literature on persuasive learning design and the theoretical foundation that underpins the study (Andragogy, Gagne's Theory of Instruction, and Keller ARCS model). The findings produce an eLearning development model that may enhance employees' learning experience and information retention in workplace learning and mitigate the problems inherent in workplace eLearning programs.

The analysis, design, development, implementation, and evaluation (ADDIE) model is the most adopted instructional design framework in the corporate setting (Dick et al., 2013). However, there are several evidence-based models and frameworks for analysis, design, implementation, and evaluation, but very few evidence-based frameworks for the second D – development. Meanwhile, the outputs of the development phase are the eLearning programs that employees complete in the workplace (Sidhu, 2019).

Therefore, adopting the persuasive eLearning model (attraction, adaptation, and acceleration) identified in this study may help organizations optimize the investment in the eLearning authoring software applications to deliver effective eLearning programs, be it Articulate Storyline, Adobe Captivate, Lectora, or iSpring. Especially now that more than 90% of workplace learning is eLearning-based (Kshirsagar et al., 2020), this study provides insights into developing eLearning programs to engage learners and enhance information retention, satisfying the primary objective of learning interventions. The findings from this study should benefit employees by espousing the adoption of a learner-centric framework in developing workplace learning programs.

Recommendations for Future Research

The current research identifies factors that impact learning satisfaction, engagement, and information retention in eLearning programs from employees' standpoints. The study suggests implementing a process that ensures attraction of attention and interest, the adaptation of instructional content, and acceleration of learning in workplace learning. Opportunities exist to expand this research further. Future research recommendations include exploring the unexpected theme (manipulation tendency) yielded in the analysis, which does not align with this study's research objectives. This unexpected theme provides an avenue to criticize the concept of persuasive learning design from an ethical standpoint.

Persuasive learning design in the workplace can be examined using quantitative methods. For example, an experimental study with a control group and an experimental group may produce different outcomes. Also, exploring the topic using a grounded theory may produce a persuasive eLearning theory with a different outcome from the findings of

this study. The current study was conducted in a small federal government agency; exploring the topic in other settings, such as non-profit organizations and private firms, might produce different outcomes. The researcher explored the topic from the perspective of contract employees; there are other perspectives, such as business leaders, learning and development specialists, and instructional designers' perspectives.

Other suggested future research includes studies that compare the outcomes of the research in corporate settings, higher education, and K-12 to determine similarities and differences of the findings. The researcher also recommends a study that examines the impact of persuasive learning design on employee turnover rate in organizations. Finally, since there is a massive investment in eLearning technology across various industries, the researcher recommends studies that focus on examining the return-on-investment (ROI) of the persuasive learning design to determine if it is a worthwhile investment in organizations.

Summary

This chapter summarizes the study, research findings, conclusions, and recommendations. The purpose of the study was to explore the learning experience of employees who completed an eLearning program developed using the persuasive learning design. The study explored the effectiveness of persuasive learning design in developing workplace eLearning programs from the employees' perspectives and the four research objectives that guided the study. These objectives included participant demographics, perceived learning satisfaction, learning engagement, and information retention.

The researcher used a hermeneutic phenomenological qualitative approach to collect data. Participants completed an open-ended survey embedded in the eLearning program and participated in an interview 30 days after the program. The data collected were analyzed and interpreted using the hermeneutic cycle and the Miles and Huberman framework (1994). The researcher categorized themes according to research objectives, perceived learning satisfaction, learning engagement, and information retention. The analysis produced nine themes, but only eight are related to the research objectives for this study. Learning satisfaction themes included authentic control, flexibility, and user-friendliness. Learning engagement themes included interactivity, personalization, and regular feedback, while information retention themes included real-world application and visual representation. The last theme, manipulation tendency, is a criticism of persuasive learning design unrelated to the research objectives.

Three factors that influence employees' learning experience in the eLearning program developed using the persuasive learning design were identified. The identified factors included attracting learning attention, adapting instructional materials to align with learning needs, and giving learners the flexibility to accelerate learning. These findings influenced employees' learning satisfaction, engagement, and information retention in the eLearning program. The findings align with the existing literature on persuasive learning design and the theoretical foundation that underpins the study (Andragogy, Gagne's Theory of Instruction, and Keller ARCS model). Based on the findings, the researcher recommends a persuasive eLearning model that may enhance employees' learning experience and information retention in workplace learning and mitigate the problems inherent in workplace eLearning programs.

APPENDIX A – Instructional Material Development

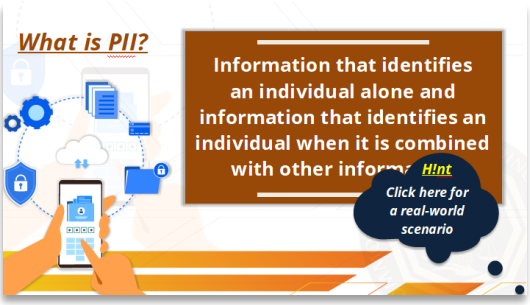
The instructional material was developed to align with the persuasive learning design framework.

Phase One - The developer conducted a functional or task analysis that articulates all competencies or behaviors learners must exhibit after completing the eLearning program. Specific activities are designed to align directly with each of the competencies. The researcher curated learning resources that address each competency in several formats to explain concepts from different perspectives and provide several examples and scenarios to illustrate the information. Afterward, the developer created a specific assessment to evaluate each competency.

Phase Two - The developer broke the contents into chunks or micro components and made the information searchable. This is achieved by labeling, categorizing, and grouping various micro-components and tagging them to topics related to them. This method will enable the authoring tool to recognize each component's metadata and description and make them retrievable when necessary. The approach will allow the tool to trigger different interventions or suggestions that are pre-programmed to assist learners in the course. Also, the method will enable learners to accelerate learning after displaying proficiency in each competency.

Phase Three - The developer set the course to trigger interventions based on the learner's ability. Several possible interventions, hints, or suggestions are pre-programmed with different conditions that prompt the triggers. Also, the developer used a combination of hypermedia and interactivity to create a user-friendly interface that appeals to learners through captivating visual, sound, and graphical representation to appeal to learners' senses.

Screenshots from the eLearning course



APPENDIX B – IRB Approval Letter

Office *of*
Research Integrity

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NOTICE OF INSTITUTIONAL REVIEW BOARD ACTION

The project below has been reviewed by The University of Southern Mississippi Institutional Review Board in accordance with Federal Drug Administration regulations (21 CFR 26, 111), Department of Health and Human Services regulations (45 CFR Part 46), and University Policy to ensure:

- The risks to subjects are minimized and reasonable in relation to the anticipated benefits.
- The selection of subjects is equitable.
- Informed consent is adequate and appropriately documented.
- Where appropriate, the research plan makes adequate provisions for monitoring the data collected to ensure the safety of the subjects.
- Where appropriate, there are adequate provisions to protect the privacy of subjects and to maintain the confidentiality of all data.
- Appropriate additional safeguards have been included to protect vulnerable subjects.
- Any unanticipated, serious, or continuing problems encountered involving risks to subjects must be reported immediately. Problems should be reported to ORI via the Incident submission on InfoEd IRB.
- The period of approval is twelve months. An application for renewal must be submitted for projects exceeding twelve months.

PROTOCOL NUMBER:	21-045
PROJECT TITLE:	Examining Workplace eLearning Programs Using Persuasive Learning Design: A Hermeneutic Phenomenological Study
SCHOOL/PROGRAM	Human Capital Development
RESEARCHERS:	PI: David Akanbi Investigators: Akanbi, David~Brown, Hamett~
IRB COMMITTEE ACTION:	Approved
CATEGORY:	Expedited Category
PERIOD OF APPROVAL:	18-Jan-2022 to 17-Jan-2023

Donald Sacco, Ph.D.
Institutional Review Board Chairperson

APPENDIX C – Interview Script and Protocol

Interview Script
Examining Workplace eLearning Programs Using Persuasive Learning Design

Interview #_____ Date_____/_____/_____Time_____Participant #_____

Welcome and thank you for your participation today. Before we begin, I would like to thank you for completing the course and the survey that follows despite your busy schedule. The purpose of this follow-up interview is to learn more about your learning experience in the eLearning program completed for this research.

The interview will take approximately 45-60 minutes and will include 8 questions regarding your learning experience. I would like your permission to record this interview to capture your descriptions and explanations accurately. Please note that participation is voluntary. If you wish to discontinue the use of the recorder or the interview itself at any time during the interview, please feel free to let me know.

All of your responses will remain confidential, and I will not record personal information, such as your name or email. Your name will not be associated with the study in any way. Your response will be saved with a participant number that will serve as your identifier instead of your name.

Do I have permission to record the interview? (Researcher will press Record if the participant says yes. If the participant says no, the researcher will ask follow-up questions). May I ask why you do not want the interview recorded? (Based on the response, if refusal remains, researcher take written notes).

Interview Protocol
Examining Workplace eLearning Programs Using Persuasive Learning Design

Interview #_____ Date_____/_____/_____Time_____Participant #_____

Before we get started, please let me know if you have any questions or concern about the interview. If there is no question, I am going to begin the interview. As mentioned in the introduction, there will be 8 questions, and I may ask follow-up questions if necessary.

1. Describe your experience with the eLearning program you completed for this research *[**Probe:** Did you enjoy the program?]*

2. What aspects of this eLearning program did you find most interesting? *[**Probe:** Which aspect of the training did you find most engaging, which aspect did you find less engaging?]*

3. Describe what you like best and what you like least about this eLearning program. *[**Probe:** Why did they stand out?]*

4. Describe your interaction with the content and the interface.

*[**Probe:** Describe your satisfaction or dissatisfaction with the interface]*

5. What is the most helpful thing you learned in this eLearning program?

6. Describe a situation where you used the information you learned in this eLearning.
   *[**Probe:** Describe how you have applied what you learned in the program on the job.]*

7. How would you change how you do your job based on what you learned in this eLearning?
   [***Probe:*** Has the training been helpful in any way?]

Thank you so much for your time. I have one last question.

8. Do you have any comments or questions for me?
   [***Probe:*** Is there anything you would like to tell me that I did not ask?]

Exit Statement

Thank you! This is the end of the interview. As you are aware, this interview is being recorded. When the transcript is available, I will send you a copy for review. I will need you to read it closely to ensure that it accurately records our conversation today. Please feel free to suggest edits to the transcript and then return the changes to me by the deadline (date). If I do not hear from you by the deadline, I will assume that the transcript is accurate. Upon completion of the study, I will also send you a report of the results.

Do you have any questions at this point?
This concludes our conversation today. Thank you again for your help! This study is not possible without your insights and experiences. Thank you again for your time.

APPENDIX D – End-of-the-Course Survey Questions

The end-of-the-course survey will be used to understand learner satisfaction. The survey will be programmed to appear at the end of the training.

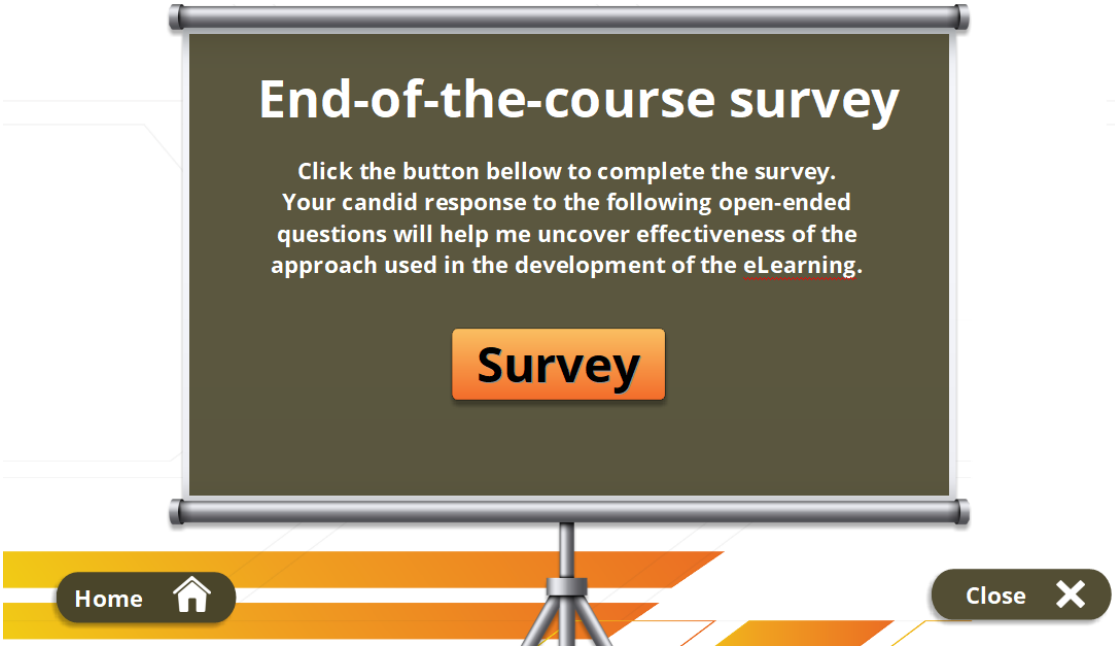
End-of-the-course survey

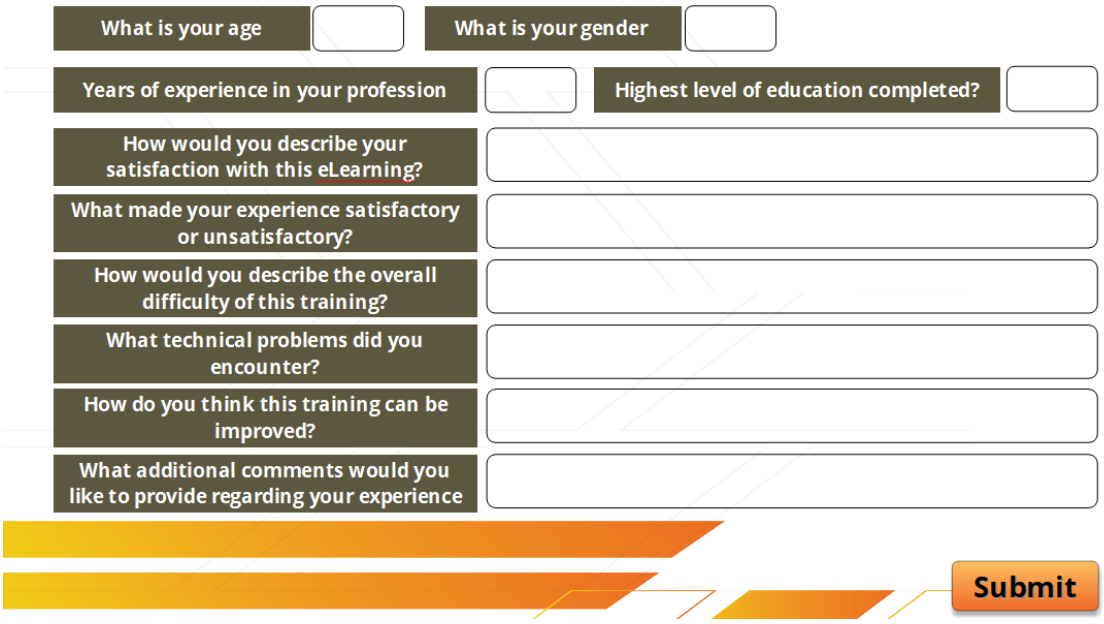
Thank you for agreeing to complete the eLearning program as part of this study. Now that you have completed the program, your candid response to the following open-ended questions will help me uncover the effectiveness of the approach used in the development of the program.

Questions:

1. What is your age?
2. What is your gender?
3. How many years of experience do you have in your profession?
4. What is the highest level of education you have completed?
5. How would you describe your satisfaction with this eLearning?
6. What made your experience with this eLearning satisfactory or unsatisfactory?
7. How would you describe the overall difficulty of this training?
8. What technical problems did you encounter?
9. How do you think this training can be improved?
10. What additional comments would you like to provide regarding your experience with this eLearning program?

Please note that I may schedule a one-on-one follow-up interview with you after 30 days to learn more about how the eLearning program has benefited you on the job.




What is your age
What is your gender
Years of experience in your profession
Highest level of education completed?
How would you describe your satisfaction with this eLearning?
What made your experience satisfactory or unsatisfactory?
How would you describe the overall difficulty of this training?
What technical problems did you encounter?
How do you think this training can be improved?
What additional comments would you like to provide regarding your experience
Submit

APPENDIX E – Informed Consent

ORI | Office of Research Integrity

INSTITUTIONAL REVIEW BOARD

STANDARD (ONLINE) INFORMED CONSENT

STANDARD (ONLINE) INFORMED CONSENT PROCEDURES

The Project Information and Research Description sections of this form should be completed by the Principal Investigator before submitting this form for IRB approval. Use what is given in the research description and consent sections below when constructing research instrument online.

Last Edited May 13th, 2019

Today's date:09/10/2021		
PROJECT INFORMATION		
Project Title: Developing workplacelearning programs using persuasive learning design		
Principal Investigator: David S. Akanbi	Phone: [redacted]	Email: w10047234@usm.edu
College: College of Arts and Sciences	School and Program: School of Interdisciplinary Studies and Professional Development (Human Capital Development)	
RESEARCH DESCRIPTION		

1. **Purpose**:

The purpose of this study is to explore the training needs of employees and determine if the use of persuasive learning design in the development of eLearning program could enhance employees' learning experience.

2. **Description of Study:**

Minimum of ten contract employees will complete an eLearning program developed using a persuasive learning design framework. They will complete an end-of-the-course survey and participate in an interview 30 days after the training. The interviews will be conducted using a video conferencing applicacation and each interview will span between 45 minutes to 1 hour. Each participant would determine the convenient time for the interview outside their office hour.

3. **Benefits:**

As a participant, this study may not benefit you directly; however, the results may provide valuable insights into how to develop effective eLearning programs for employees. Participants who work in the talent development unit of the agency may find the results useful while discharging their duties.

4. **Risks:**

Participation is virtual and anticipated risks are minimal and no greater than those which are normally encountered in daily work activity. As a participant, you may decide to disable the video feature during the interview, switch to a phone interview, or reschedule the interview if necessary. Participation is voluntary; participants can withdraw their participation at any time.

5. **Confidentiality:**

The interviews will be digitally recorded. The recorded data will be stored in the research folder on the researcher's personal computer. The computer is passworded with up-to-date windows security features, and the research folder also has a passcode only known to the researcher. All recordings will be anonymously labeled with a code number and pseudonym for each participant. Recordings will be immediately destroyed and replaced by anonymized transcripts after the transcripts have been reviewed for accuracy. The recordings will not be kept beyond their use for the study.

6. **Alternative Procedures:**

Participants may choose to write their answers to the questions and send their response to the researcher's email. Also, participants may choose a live chat through mobile applications instead of sending their responses through email.

7. **Participant's Assurance:**

This project and this consent form have been reviewed by the Institutional Review Board, which ensures that research projects involving human subjects follow federal regulations. Any questions or concerns about rights as a research participant should be directed to the Chair of the Institutional Review Board, The University of Southern Mississippi, 118 College Drive #5125, Hattiesburg, MS 39406-0001, 601-266-5997.

Any questions about this research project should be directed to the Principal Investigator using the contact information provided above.

CONSENT TO PARTICIPATE IN RESEARCH

I understand that participation in this project is completely voluntary, and I may withdraw at any time without penalty, prejudice, or loss of benefits. Unless described above, all personal information will be kept strictly confidential, including my name and other identifying information. All procedures to be followed and their purposes were explained to me. Information was given about all benefits, risks, inconveniences, or discomforts that might be expected. Any new information that develops during the project will be provided to me if that information may affect my willingness to continue participation in the project.

CONSENT TO PARTICIPATE IN RESEARCH

Please provide your signature and date

_____ _____

Signature Date

APPENDIX F – Participation Recruitment Email

Hello,

My name is David Seyi Akanbi, and I am a PhD Candidate at the University of Southern Mississippi. As part of my dissertation, I am conducting a study on how to develop eLearning programs that will provide an enhanced learning experience for employees.

I am looking for contract employees working with the agency to participate in the study. The participation will require completing a 30-minute-long training module, an end-of-the-course survey, and being available for a 45-minutes to 1-hour virtual interview after 30 days. I may also need participants to review the interview transcripts to correct errors, clarify their intentions, or provide additional information.

I will appreciate your willingness to assist with this study. Your participation will be instrumental in providing the data I need to explore the strategies needed to develop effective eLearning programs. This study could potentially provide insights into an effective way of developing eLearning content that will provide a great learning experience to employees. If you are willing to participate, please reply to this email, or you can call me at .

The Institutional Review Board has approved this project with an approval number 21-045 to ensure that research projects involving human subjects follow federal regulations. Any questions or concerns about rights as a research participant should be directed to the Chair of the IRB at 601-266-5997. Participation in this project is completely voluntary, and participants may withdraw from this study at any time.

If you agree to participate, I will forward you an informed consent form that will formally convey your rights as a participant. You would be able to sign the informed consent digitally and electronically. And if you have additional information or questions, please contact me via my email or phone number.

Thank you so much for your consideration,

David Akanbi
Doctoral Candidate
The University of Southern Mississippi

APPENDIX G – Participation Recruitment Reminder Email

Hello,
I recently sent out an email looking for individuals working with the agency to participate in a study as part of my dissertation. I am examining the use of persuasive learning design in workplace eLearning programs. Your participation will be instrumental in providing the data I need to explore the strategies needed to develop effective eLearning programs.

Please reply to this email, or you can call me at by [insert date here] if you are willing to participate. I will forward you an informed consent form that will formally convey your rights as a participant. You will be able to sign the informed consent digitally or electronically.

I will appreciate your willingness to assist with this study. The Institutional Review Board has approved this project with an approval number 21-045 to ensure that research projects involving human subjects follow federal regulations. Any questions or concerns about rights as a research participant should be directed to the Chair of the IRB at 601-266-5997. Participation in this project is completely voluntary, and participants may withdraw from this study at any time.

Sincerely,

David Akanbi
Doctoral Candidate
The University of Southern Mississippi

APPENDIX H – Permission Letter

May 1, 2020

Department of Human Capital Development
University of Southern Mississippi

To Whom It May Concern:

AvantGarde LLC is writing this letter to inform you that we understand our employee David Akanbi, who works in support of our client the [redacted] is a Doctoral candidate in the Department of Human Capital Development at the University of Southern Mississippi. While finalizing this educational program and as part of his dissertation, we understand that David may be in contact with other Federal government contractors at [redacted] to elicit voluntary, non-attributional information about their perceptions of David's use of persuasive technology in the development of eLearning modules. As is identified in his prospectus, we understand this study will be conducted under the close supervision of his dissertation chair, Dr. Hamett Brown, to ensure that the research adheres to acceptable standards and best research practices.

This work is not done on client time, is not sponsored by AvantGarde, LLC, and does not represent a conflict of interest. David is pursuing these efforts entirely on his own time and the findings expressed in the dissertations are solely his. The outcome of this educational effort will result in research and findings which will be for the good of human capital, employee development and learning overall that is applicable to his success in his current role with our company.

For these reasons, AvantGarde, LLC is fully supportive of these efforts and approves of David's involvement in the Doctoral program in the Department of Human Capital Development at the University of Southern Mississippi.

Sincerely,

[redacted]
Director of Human Capital Planning & Operations
[redacted]@avantgarde4usa.com
C – 703[redacted]

AvantGarde LLC ■ 51 Monroe Street, Suite 706 ■ Rockville, MD 20850

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