2017

Virtual Learning Environments' Impact on Adult Learners' Motivation in the Workplace

Clarence Eugene Bashshar
Walden University

Walden University

College of Education

This is to certify that the doctoral dissertation by

Clarence E. Bashshar

has been found to be complete and satisfactory in all respects,
and that any and all revisions required by
the review committee have been made.

Review Committee
Dr. Jennifer Smolka, Committee Chairperson, Education Faculty
Dr. Heather Pederson, Committee Member, Education Faculty
Dr. David Bail, University Reviewer, Education Faculty

Chief Academic Officer
Eric Riedel, Ph.D.

Walden University
2017

Abstract

Virtual Learning Environments' Impact on Adult Learners' Motivation in the Workplace

by

Clarence E. Bashshar

MS, Chestnut Hill College, 2005

MSA, Central Michigan University, 1993

BS, University of Maryland, 1990

Dissertation Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Philosophy

Education

Walden University

February 2017

Abstract

Virtual learning environments have become prevalent in the workplace to improve talent development. However, because there are so many different types of design options, not all learners are finding success in the virtual learning environment. This mismatch can negatively impact employees' motivation and learning outcomes. The purpose of this study was to explore how design features of a virtual learning environment impacted adult learners' motivation in the workplace. Constructivist and self-determination theories were used as theoretical frameworks. The research question in this study explored how social and external contextual factors influence an adult learner's motivation to learn in a virtual learning environment. A qualitative case study was used to explore the data collected from 8 federal employees who used a virtual learning environment for professional development. Data were collected from interviews, surveys, and direct observations and analyzed using inductive coding to determined patterns and themes for study. The results from the study indicated the participants viewed visual learning, learner control, ease of use, technical competence, instructor support, and technical support as critical factors that must be addressed when using a virtual learning environment to improve talent development. The findings from the study can provide insights that could be used by training developers for how to design virtual learning environments to provide a positive environment. The social change impact will be to improve the virtual learning environments for the federal workforce to improve motivation and create a culture of talent development for individual growth and organizational capabilities.

Virtual Learning Environments' Impact on Adult Learners' Motivation in the Workplace

by

Clarence E. Bashshar

MS, Chestnut Hill College, 2005

MSA, Central Michigan University, 1993

BS, University of Maryland, 1990

Dissertation Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Philosophy

Education

Walden University

February 2017

Dedication

I am most grateful and give praises to the Creator of all the worlds and all systems of knowledge for giving me the gift of life and for sustaining my life. I am forever grateful to my grandfather and grandmother, Fred G. Settles and Annie M. Mullins-Settles, for teaching me good work ethics, the love for the Creator, family and humanity. Special thanks to my mother, Bettye J. Daniels and my spouse, Jessica L. Taylor-Bashshar for their continuous support and encouragement to me throughout this journey. My mother's words " Son finish what you started" were a constant reminder to me to keep going no matter what. Special thanks to my children, Khalinah, Clarence Jr, Takelia, Jasmin and to my grandchildren, Lyric, Jayla, Tatiana, Kimaggio, Lyanardrah, Leonnard Jr, Yakira, Asariah and JaCai for motivating me to complete this worthwhile journey. Lastly, thanks to all of my supporters and advisors who gave me encouragement and guidance in completing this journey.

Table of Contents

List of Figures

Chapter 1: Introduction to the Study

This descriptive case study explored the impact that learning in a virtual

environment had on adult learners' motivation in the workplace. The study was based on

data collected from interviews, direct observation, and a questionnaire that were

administered to federal government employees participating in a training session using a

virtual learning environment. Virtual learning environments are becoming ubiquitous in

the workplace (Oproiu & Chicioreanu, 2012; Saleeb & Dafoulas, 2010). A *virtual*

learning environment (VLE) is a design information space that is not restricted to

distance education and that allows for multiple technologies to be used and integrated in

one system. It also provides social spaces that allow learners to learn and collaborate

with each other without regard to physical location (Dillenbourg, 2000). Many learning

leaders have made claims that VLEs are beneficial in helping learners improve their

knowledge, skills, and performance (Hampel, 2014). VLEs have been credited with

saving organizations millions of dollars on travel funds due to the fact that learners do not

have to attend training offsite (Mueller & Strohmeier, 2011). They also allow learners to

attend training without any physical boundaries (Hampel, 2014). Although there are

many benefits cited for VLEs, there has been very little research on how they impact

learners' motivation (Hartnett et al., 2011). The aim of this case study was to investigate

how learning in a VLE impacted adult learners' motivation to learn in the workplace. In

this chapter, I discuss the study's background, problem statement, purpose, research

questions, conceptual framework, and nature. Additionally, I provide definitions of terms

and address the study's assumptions, scope and delimitations, limitations, and positive

social impact.

Background of the Study

The 21st-century workforce is very diverse. Employees in the 21st-century workforce consist of digital natives and digital immigrants, groups that need to be taught using different strategies (Prensky, 2001). *Digital natives* are individuals who have spent their entire lives with digital technologies. *Digital immigrants* have not had the opportunity to engage with technology since their childhood. According to Prensky (2001), most digital immigrants require more assistance with their technology usage. In order for the workforce to succeed in the 21st century, learning leaders must be able to explore and choose education options that are appropriate for the 21st century (Mirci & Hensley, 2010). Greenstein (2012) argued that 21st-century learning should include tasks that help learners improve their skills in critical thinking, creativity, problem solving, metacognition, communication, collaboration, and information and technology. VLEs can support 21st-century learning by providing learning leaders with the opportunity to create effective learning opportunities for learners that are appropriate for the 21st century (Knutsson et al., 2011). They afford learners an opportunity to learn based on their individual needs and learning styles (Mueller & Strohmeier, 2011). VLEs also provide organizations with cost-effective means to train a diverse workforce regardless of their geographical locations. According to Mueller and Strohmeier (2010), these factors make VLEs ideal learning vehicles for corporate training. Web- and digital-based technologies, online learning, and VLEs have promoted wide interest in the activities of knowledge creation and knowledge sharing (Bell, 2011). They are widely used today as

workforce learning solutions (Knutsson et al., 2011). Fagan (2014) argued that online learning is suddenly becoming a key part of organizational success strategy. The Talent Development 2016 State of the Industry Report, sponsored by Bellevue University and Training Associates, revealed that technology-based and online learning accounted for 41% of all learning hours (Ho, 2016). This was 10 percentage points higher than training delivered through technology-based and online learning in 2008, and 15 percentage points higher than technology-based and online learning in 2003 (Ho, 2016).

Although VLEs are used quite frequently in the workforce, there is still a need for further research (Saleeb & Dafoulas, 2010). This is due to the fact that VLEs are diverse in their capabilities and functionalities. Their systems design and characteristics range from simple to complex (Burton & Martin, 2010; Mogus et al., 2012; Mueller & Strohmeier, 2011). Design characteristics are critical to an effective VLE (Mueller & Strohmeier, 2011). Research is still needed to understand how learners learn in VLEs.

The purpose of this study was to explore how a VLE impacted adult learners' motivation in the workplace. Very little research was found that addressed motivational concerns in the VLEs. Research from this case study adds to the literature on designing and developing VLEs that are effective in increasing motivation and improving learner perceptions and learner satisfaction. Additionally, the aim of this study was to help improve the overall learning experience and learning outcomes of learners.

Problem Statement

With the prevalence of VLEs in the governmental workplace (Ellis, 2013), employees' motivation and learning outcomes are impacted by poor design and usage of

the VLE (Saleeb & Dafoulas, 2010). This can result in poor learning transfer and ultimately affect overall job performance. Additionally, it can result in loss of productivity, poor work quality, high employee turnover, loss of revenue, and overall organizational failure (Saks & Burke-Smalley, 2014). The issues for VLEs are centered on their design and on how learners use the VLE. There is no one-size-fits-all formula for the design of a VLE (Mogus et al., 2012). This can pose problems for learning leaders because there is limited research on which design factors and characteristics yield the most effective learning opportunities for employees in workplace training. Learning leaders in the workplace have the responsibility of finding innovative technologies to provide effective and efficient learning interventions for employees (Li, D'Souza, & Du, 2011). A key concern is that many of these technologies used for learning and development must be customized for educational or training purposes (Chapman & Stone, 2010). Additionally, there is limited agreement as to how the use of technology directly impacts students' learning or performance (Chapman & Stone, 2010).

Research in academic settings has shown that online learning has been associated with students feeling disconnected with their learning environment (Baxter & Hancock, 2014). This could contribute to lower levels of motivation for learners. Motivation is the precursor to learning and is a heavy influencer of individual learning (Mayer, 2011). However, there is very little research on motivation in VLEs in the workplace (Hartnett et al., 2011). Understanding how information and communication technology (ICT) and collaborative learning in VLEs impact motivation in adult learners can provide valuable information on design decisions for VLEs. Research on VLEs can help to inform

learning leaders in the workplace on best practices for using VLEs as a platform for delivering training and development to adult learners (Chapman & Stone, 2010).

Purpose of the Study

The purpose of this study was to explore how a VLE impacted adult learners' motivation in the workplace. A secondary focus was investigating learners' opinions and perceptions of learning in a VLE. Qualitative case study is consistent with Yin's (2014) framework for instrumental case study. Adult employees using a VLE in the workplace to complete a training session constituted the unit of analysis for this study. Data collection consisted of interviews, direct observations, and questionnaires. The methodology was modeled after Yin's framework for a case study.

Research Questions

The research questions were the main impetus for this research design. All of the other parts of the design were connected to the research questions (Maxwell, 2013). Three research questions were explored. The research questions were based on the literature and the research problem. Maxwell (2013) argued that research questions for a study sometimes evolve over the period of the study. However, the four areas of the research design should influence the construction of the final research questions (Maxwell, 2013). The four areas of the research design consist of theories/conceptual frameworks, data collection, methods, and data analysis. Four areas of the research design influenced the research questions for this study. The research questions were as follows:

- How do social and contextual factors influence adult learners' autonomy and relatedness needs in a virtual learning environment?

- How do adult learners' beliefs about their technical skills influence their motivation to learn in a virtual learning environment?

- How do learners' preconceived beliefs about learning in a virtual learning environment impact their motivation to learn when using a virtual learning environment?

The research questions were designed to aid in exploring and understanding adult employees' learning experiences as they related to motivation in a VLE. The research questions served as a guide for the literature review in this study. The questions are explored in more detail in Chapter 3, under the Methodology section.

Conceptual Framework

Constructivism (Vygotsky, 1978) and self-determination theory (Deci & Ryan, 1985, 2002) were used as the conceptual framework for this study. The principles of constructivism and self-determination theory can help inform educators and learning leaders on the instructional design of learning materials, instructional activities, and learning strategies that are used in a VLE. These principles also assisted in understanding the information that is received from the investigation of the three research questions in this study. Each research question was tied to at least one of the conceptual frameworks used in the study. A more detailed explanation of the two conceptual frameworks is presented in Chapter 2.

Constructivist Approach

The constructivist approach has been used extensively as a conceptual framework for research involving virtual learning environments (Mikropoulos & Natsis, 2010). Driscoll (2005) noted that constructivism does not fall under one theory of instruction but rather relates to a variety of approaches. Various researchers doing research in different domains have developed specific aspects of constructivist theory. Within the constructivist approach, learners construct knowledge in an attempt to make their experiences meaningful (Driscoll, 2005). The constructivist approach was also selected as a conceptual framework for this study due to its strong emphasis on collaborative and active learning (Adamo & Dib, 2012). According to Adamo and Dib (2012), the constructivist approach is the leading theoretical framework used for research on VLEs. Research Question 1 is related to the constructivist approach.

Self-Determination Theory

Self-determination theory has been used to frame many research studies involved with education (Hardnett et al., 2011). Self-determination theory is a key concept to use to understand the quality of motivation that a learner exhibits (Deci & Ryan, 2008). The theory is concerned with learners' autonomy, competency, and interaction in their environment. Self-determination theory postulates that all individuals have an internal desire to control their own destiny as well as to feel competent and connected with others in their space (Deci & Ryan 2008). Hardnett et al., used self-determination theory to frame their study investigating learners' motivation in online environments. Self-

determination theory assisted in understanding the quality of motivation for learners learning in the VLE for this study. It is related to Research Questions 1, 2, and 3.

Nature of the Study

A qualitative case study was conducted for this inquiry. Qualitative research is appropriate for understanding the impact that VLEs have on adult learners' motivation to learn (Creswell, 2009). Qualitative research relies on the perception of the participants and their experiences. It is also descriptive in nature (Creswell, 2009). This study consisted of a single case design. The participants included eight adult learners from a federal government organization who had previous experience using a VLE. Interviews, surveys, and direct observations were administered to participants to explore their opinions about learning in a VLE. Interviews, surveys, and observations were also used to explore participants' beliefs about their technical skills, perceptions, and attitudes toward a VLE. Description and analysis of the case are presented. The qualitative analysis helps to provide an understanding of how learning in a VLE impacts an adult learner's motivation to learn.

Definitions of Terms

The following definitions are provided to add clarity to terms and definitions used throughout this study.

ARCS: Motivation model used to provide insights into how motivational factors (attention, relevance, confidence, and satisfaction) influence instructional design and learning (Keller, 2010).

Best practice: Most effective and efficient way to achieve an outcome or procedure when applied to a particular situation or condition (Baghdadi, 2011).

Distance learning: Learning environment that provides learners with the ability to learn at locations and times of their choice without being in the physical space of the learning environment (Sun & Rueda, 2012).

E-learning: Term used to describe teaching and learning process supported by information and communication technologies that does not require students and teachers to meet in the same physical location (Cartas, 2012).

Engagement: Actions that a learner takes to achieve quality performance and to achieve a learning outcome (Sun & Rueda, 2012).

Learning styles: Thinking strategies that are used to process and make connections with new information (Cartas, 2012).

Information and communication technology (ICT): Technologies to assist individuals or organizations in using information (Heaton-Shrestha et al., 2009).

Online learning: Internet-based learning that uses both synchronous and *asy*nchronous learning applications (Demir & Horzum, 2013).

Presence: Perceptions of having an authentic physical environment in a VLE (Persky et al., 2009).

Theory: "Scientific set of principles used to explain a phenomenon" (Schunk et al., 2014, p. 6).

Virtual learning environment (VLE): Design information space that is not restricted to distance education and that allows for multiple technologies to be used and

integrated in one system. It also provides social spaces that allow learners to learn and collaborate with each other without regard to space (Dillenbourg, 2000).

Assumptions

One of the assumptions for this study was that employees are motivated to learn in VLEs. Research has indicated that motivation and engagement are important factors in successful learning and performance outcomes (Kelly, 2010). Another assumption was that employees' external motivation would be a factor because they had no choice but to attend the training session in the VLE. For this study, I also assumed that the participants would answer the questions in the questionnaire and interview truthfully and that the questionnaire and the interview questions would be effective in gathering valuable information that would be used for analysis. The final assumption was that all of the participants would answer truthfully that they had some experience learning in VLEs.

Scope and Delimitations

This study took place in a federal government training facility located in the northeast. The participants attended a training session. The participants consisted of eight adult students age 18 and older who had some experience learning in a VLE. The study did not give special consideration to ethnicity or gender. The participants were employees assigned to a facility in the workplace who participated in the training sessions from their work location. The results from this study could be used to address motivational and design issues in VLEs in other environments that have adult learners.

Limitations

In a qualitative study, the researcher is the key instrument for data collection. The skills and the diligence of the researcher directly influence the credibility of the methods used in the research (Patton, 2002). High-level skills are required to facilitate interviews and conduct observations in a study (Patton, 2012). My novice skills as an interviewer and observer were a limitation for the study. In order to mitigate this, I used interview protocols. The interview questions were peer reviewed to ensure their quality, appropriateness, and validity. Using a small sample size was a limitation because it made generalizing the findings to other populations virtually impossible. However, a qualitative study's purpose is not to generalize the findings but to provide an in-depth understanding of the phenomenon under study (Yin, 2014). To provide an in-depth understanding of the case, I ensured that I provided "rich thick data" (Merriam, 1998, p. 211).

Significance

An ineffective learning program can adversely impact employees' performance and may cause organizational failure. Poor performance by employees can result in decreased productivity, poor quality, and lost revenues. This study is significant because VLEs are widely used in corporate and government organizations to deliver training and education to adult learners. There is very little evidence that support the benefits that a VLE provides to instructional activities and learners (Johannsen, 2013). A recent survey conducted by ON24 INC., a webcasting and virtual services firm, indicated that over 91% of human resource departments intended to use some sort of VLE for training in 2013

(Ellis, 2013). Research that can provide evidence that VLEs have a positive impact on adult learners may help to justify decisions to use VLEs as a viable alternative to classroom training and to justify costs associated with VLEs as learning platforms. The results of this study provide insights to educators and learning leaders on adult learners' attitudes and feelings about learning in VLEs. The research also provides insights to human resource professionals on how to best use VLEs to improve organizational staff development (Li et al., 2011).

Summary

Chapter 1 has provided an introduction to the problem and the nature and significance of the study surrounding the use of VLEs as effective learning environments for adult learners. VLEs are prevalent in the workforce learning space (Ellis, 2013). Training departments have credited them as being very beneficial in training a diverse workforce. VLEs have been described as being diverse in their makeup (Adewale et al., 2012). This diversity and the fact that over 91% of human resource training departments plan on using VLEs to train their workforce warrant an investigation of their potency as delivery platforms. In Chapter 1, I discussed the importance of investigating how learning in a VLE influences adult learners' motivation and how the characteristics of a VLE influence learning. Three research questions were used in the study to guide the investigation and to organize the literature review. In Chapter 2, a review of the literature is provided as scholarly evidence for the validity of this study.

Chapter 2: Literature Review

VLEs are widely used in the workplace, and there is no standard design that is used to configure them for use. Employees' motivation and learning outcomes are impacted by poor design and configuration. The purpose of this study is to explore how a VLE impacted adult learners' motivation in the workplace. The framework for this literature review consists of the research questions and the theoretical and conceptual framework used in the study. Knowles, Holton, and Swanson (2005) argued that exploring learning theories and conceptual frameworks could be very beneficial to managers, policy-level leaders, learning leaders, and instructors. The understanding gained from learning theories, conceptual frameworks, and adult learning principles can lead to better instructional design decisions and better learning experiences for learners (Knowles et al., 2005). However, learning cannot be totally understood with theories and conceptual frameworks by themselves (Knowles et al., 2005). Theories and frameworks must be coupled with analysis of the following: (a) learners' learning environment, (b) learners' learning strategies, and (c) learners' transformation as they go through the learning process.

Understanding adult learning principles is also important to the conversation of adult learning. Mirci and Hensley (2010) argued that adult learning principles should be applied when implementing any policy, event, or program that calls for change to adults in the workplace because change leads to a feeling of uncertainty in an individual's life. This feeling of uncertainty can cause anxiety and lack of confidence in a person's ability to perform a task or skill (Mirci & Hensley, 2010). In the literature review, I examined

literature on constructivism, andragogy, self-efficacy, motivation, self-determination, technology and learning, e-learning, distance learning, online learning, and VLEs.

Literature Search Strategy

This literature review was gathered from articles from textbooks and peer-reviewed journals. The focus of the research was exploring the factors and variables that are essential to developing effective VLEs and exploring the impact that perceived usefulness, perception, belief, self-efficacy, self -determination, motivation, learner characteristics, and instructor characteristics have on VLEs.

Electronic databases from Walden University were the primary source of information. Databases such as ERIC, Google Scholar, ProQuest Central, Academic Search Complete, Education from Sage, Education Research Complete, and PsycINFO were used to explore topics of interest. The search terms used were *andragogy*, *constructivism*, *motivation*, *self-efficacy*, *self-determination*, *design characteristics for virtual learning environments*, *online learning*, *e-learning*, and *virtual learning environments*.

Conceptual Framework

Constructivism and self-determination theory were used as the conceptual framework for this study. Both conceptual frameworks provide an understanding of how adults learn, which learning environments and learning strategies work best for adult learners, and which teaching strategies are most effective for adult learners. Bear (2012) explained that the adult education process is concerned with learners constructing their own awareness and capacity for self-evaluation and reflection and that learning strategies

are skills and techniques that learners develop and use in order to complete a learning event. Each of the conceptual frameworks is a factor in motivation and thus influences motivation in adult learners. Constructivist learning supports the concepts of andragogy, or the theory and practice of educating through learning designs that promote adult learning. Self-determination is a motivational construct that influences how adults learn in a constructivist-influenced environment. Self-determination factors also influence adult learners' readiness to learn, their need to know, and their need to be self-directing (Hartnett et al., 2011).

Constructivist Approach

The constructivist approach is worthy of investigation by learning leaders and instructors who are involved with adult learning. This approach is based on the philosophy that learners should be responsible for constructing their own understanding by integrating new knowledge with prior knowledge and experiences (Cornelius, Gordon, & Ackland, 2011).

The research of Piaget, Bruner, Ausubel, Von Glaserfeld, and Vygotsky heavily influenced constructivist philosophy (Driscoll, 2005). There are two approaches within constructivism: (a) the cognitive constructivist approach and (b) the social constructivist approach. Piaget, Bruner, Von Glaserfeld, and Ausubel are associated with the cognitive constructivist approach, and Vygotksy is associated with the social constructivist approach (Driscoll, 2005). The cognitive approach is influenced by Piaget's theory that individuals' frame new meaning from information they received based on their previous experience, without the aid of their peers or teacher (Power & Kalina, 2009). This is in

contrast to social constructivist views, which are influenced heavily by Vygotsky's viewpoint that individuals construct new meaning from their experience and with the assistance of their social environment (Power & Kalina, 2009).

Social constructivist views are developed around the concept that learners want to work together collectively to solve problems. Each learner brings his or her own worldview to the learning environment and gets the opportunity to have this worldview challenged by others. Learners either verify what they thought they knew as truth or construct new truths (Lui & Matthews, 2005). These dynamics also allow learners to interact with each other and engage in the learning environment. The common ground in both approaches is that the role of teachers is that of facilitators and guides and that learning must be student focused (Power & Kalina, 2009).

The constructivist theory of instruction was drawn from the perspectives of researchers in science education, educational psychology, and instructional technology (Driscoll, 2005). Constructivist learning promotes the type of learning that Knowles (1977), Kolb (1984), and Senor (2010) suggested would provide instructors with the best instructional strategies for teaching adult learners. These strategies include (a) ensuring that the instruction is developed to take into account various learning styles, (b) ensuring that learning is learner centered, (c) designing learning to support experiential learning, and (d) designing instruction around learning activities that foster collaboration. Senior (2010) also noted that constructivist teaching provides learners with an opportunity to not only engage with each other, but also engage with their total learning environment. Learners constructed their own knowledge from their engagement with peers, instructors,

and the learning environment (Gash, 2014). This type of learning is very appropriate for organizational learning and organizational development. Preparing workers for the 21st century requires that learners collaborate with each other and know how to network in order to solve problems and increase productivity (Schrum & Levin, 2009). Further, in order for organizations to be competitive, productive, and innovative, workers have to become self-directed learners. Constructivist learning promotes self-directed learning (Knowles, 1977).

VLEs support constructivist learning by having the capacity to support self-directed learning and collaborative learning. VLEs can employ social media technology such as blogs, wikis, online social networking, and video streaming, all of which have the capacity to allow learners to engage and collaborate with each other (Friedman & Friedman, 2013). The interaction and engagement that often occur through these types of delivery tools ultimately lead to the construction of knowledge (Adewale et al., 2012; Gash, 2014). Gomez and Rodriguez-Marciel (2012) supported the viewpoint presented by Adewale et al. (2012). Gomez and Rodriguez-Marciel argued that VLEs have the capacity to support the key processes that are used to develop interactive and constructivist learning. They also support constructivist learning environments by providing the capacity for instructors to use various technologies to help learners use their critical thinking to construct knowledge and to construct new meaning (Sultan, Woods, & Koo, 2011).

Self-Determination Theory (SDT)

Chen and Jang (2010) posited that self-determination theory is most suitable for addressing motivation in nontraditional classroom situations such as online learning, web-based learning, and virtual learning. Self-determination theory addresses three components of an individual's needs: (a) independence or autonomy, (b) competency, and (c) feeling of belonging (Cheng & Jang, 2010). There are four factors that must be considered when discussing self-determination: (a) autonomy, (b) self-regulation, (c) psychological empowerment, and (d) self-actualization (Wehmeyer & Abery, 2013). Self-determination theory purports that individuals have a desire to be in a social setting with each other and have a need to have some sense of control and mastery over their environment (Hartnett et al., 2011). Self-determination in an individual is influenced by various internal factors and various external factors (Wehmeyer & Abery, 2013). Intelligence and mental maturity are among the internal factors that affect self-determination. Research has shown that there is a significant statistical correlation between IQ and self-determination. An individual's physical and social environments are external factors that affect self-determination. Research has shown that work settings that do not empower employees can negatively impact self-determination. Additionally, the size of an individual workspace can affect self-determination (Wehmeyer & Abery, 2013).

Self-determination theory provides an understanding for learner engagement (Skinner & Chi, 2012). Engagement is a very important motivational construct. Some research cites lack of engagement as the chief reason for poor motivation in students.

The need for social interaction is the driver for engagement. Individuals who embrace autonomous forms of motivation are learner focused and desire the freedom to control their own learning (Hartnett et al., 2011). Self-determination theory could help to address the problems of motivation associated with online learning because the requirements for successful online learning are constructs of self-determination theory (Chen & Jang, 2010). This theory is the leading theoretical framework for studying motivation in face-to-face and online learning environments (Hartnett, 2015). When self-determination theory has been used to study motivation in VLEs, the following factors have been cited as influencing learners' intrinsic motivation to learn (Hartnett, 2015, p. 88):

- Feedback
- Instructor's role in online discussions
- Choice
- Competence
- Challenge
- Interest
- Relevance
- Collaboration

Heutagogy is a form of self-determined learning that is suggested as an effective and practical approach to the design of self-determined learning. It is influenced by andragogy and employs a complete learning approach to improve employees' learning capabilities. It also helps learners to transfer knowledge more readily to real-life problems (Blaschke, 2012). A self-determined learning approach is needed in the

workplace to assist employees in becoming lifelong learners and to help them to improve

their competencies and capabilities so that they can succeed in the workforce. It is also

useful when using emerging technologies for education and training in organizational

settings (Blaschke, 2012). A self-determined learning approach is one that is learner

centered, allows learners to create and manage their own learning content, and allows

learners to have control over their learning paths. Self-determined learning is also

considered to be active and proactive learning. Learners are involved in their learning

sessions from start to finish (Blaschke, 2012).

Motivation

Although motivation beliefs influence learning outcomes, there is scant research

available on how learners' motivation impacts their learning environment (Clayton,

Blumberg, & Auld, 2012). Mart (2011) defined *motivation* as the impetus for getting

students interested in participating in a learning task. The learning activities and

environment must be stimulating in order to get learners to engage in their learning

environment. Because learners have different learning styles and preferences, learning

leaders must develop motivational strategies and plans in order to help improve and

maintain their motivation (Mart, 2011).

Motivational theories help to inform decision-making strategies for the design and

development of motivational strategies and motivational designs for learning and

performance. Motivational designs should be applied to the learning environment,

curriculums, materials, and activities (Keller, 2010). Schrunk et al. (2014) noted that the

"expectancy–value theory of motivation predicted students future choices, engagement,

persistence and achievement" (p. 47). Understanding this theory could assist

organizations in developing the most suitable training courses for their employees. This

could impact organizational effectiveness in a very positive way (Keller, 2010, p. 47).

Research conducted by Clayton et al. (2012) on motivation could help learning

leaders and teachers develop motivational strategies and motivational designs that could

promote motivation in learners. Clayton et al. explored how motivation impacted

postgraduate students who preferred nontraditional learning environments and blended

learning. Blended learning takes place when online learning and face-to-face classroom

learning are mixed as a learning modality. Qualitative and quantitative surveys were

used to examine how students felt about nontraditional and traditional learning

environments. One hundred and thirty-two students were sent Motivated Strategies for

Learning Questionnaires (MSLQ) created by Pintrich, Smith, Garcia, and McKeachie

(1991). The purposes of the MSLQs were to assess students' learning strategies and self-

efficacy beliefs about learning in an online environment. Eight items were used in the

MSLQ to measure the confidence students had in their abilities to complete an online

course. Qualitative data were coded to interpret the meaning of learners' responses on

the questionnaires. The research indicated that if students had low confidence in their

abilities to complete learning in a particular environment, their motivation was also

negative toward the learning environment. This phenomenon was in agreement with the

findings of Salter (2011), who argued that low self-efficacy is highly correlated with low

motivation. Clayton et al. indicated that 73% of all participants preferred face-to-face

classroom learning, 25% preferred blended learning, and 2% preferred online learning.

The findings of Clayton et al. revealed that self-efficacy, learning strategies, and students' learning objectives had a major impact on their motivation to learn in any learning environment.

Motivation and learning strategies of learners impact their usage of the various information and communication technologies in VLEs (Valentin et al., 2013). Clayton, Blumberg, and Auld (2012) argued that learning styles also had some influence on learners' motivation to learn in a nontraditional, blended, or online learning environment. This supports research by Mohr et al. (2012) that revealed that learning preferences and learning styles of individuals should be taken into consideration when designing learning environments in general and when designing VLEs in particular.

Due to the popularity of VLEs, e-learning, online learning, and web-based learning, learners' motivation can be impacted positively or negatively depending on what they have heard or what they believe regarding the effectiveness or usefulness of these approaches. Holbrugge and Berg (2012) noted that learners have certain expectations about what type of learning environments they would like to learn in based on their degree of experience with learning environments and based on their perceptions. Learners' perception of the effectiveness of technology in helping them to accomplish their learning goals has a major impact on their motivation to use technology as a learning delivery tool in a particular learning environment (Mohr et al., 2012). The popularity of VLEs, e-learning, online learning, and web based learning has had an impact on learners' perceptions and preferences for them as learning environments.

Hossainy et al. (2012) research on how to design and determined situated learning environments impact on learners' motivation indicated that three aspects of motivation should be examined to determine learning motivation impact on learners: (a) learning motivation, (b) intrinsic motivation and (c) extrinsic motivation. Hossainy et al. research used questionnaires as their instrument. The questionnaires were given to the participants before and after the intervention. It asked questions that assessed the level of learning motivation, intrinsic and extrinsic motivation. The results of the study showed that intrinsic motivation had the biggest impact on learners' motivation. The study further showed that collaborative learning environments, active learning, consistent feedback, positive learning environments, and contextual learning served as the catalyst that increased intrinsic motivation. Contextual learning is merely learning that simulates learning in the real world (Westera, 2011). Kasworm (2011) argued that knowledge and contextual learning in the workplace drive the world economy. Kasworm further argued that contextual learning is essential for employees to be able to drive innovation and productivity.

Mellard, Krieshok, Fall, and Woods's (2013) research on dispositional factors affecting motivation during learning in adult basic and secondary programs found that expectancy and task value had a considerable amount of influence on adults learning motivation. Mellard et al. noted that motivational theories framed around expectancy and task value are leading theories in explaining the variables that affect learning motivation or motivation from a psychological position. Mellard et al.'s research supports McGill & Hobbs's (2007) study on how students and instructors using a VLE perceive the fit

between technology and task. McGill and Hobbs's (2007) research indicated that learners exhibited high levels of satisfaction with their learning environments when VLEs had the appropriate levels of task-technology fit for the learners and the content was designed for contextual learning. Chan and Kao's (2012) research on the importance of learners' learning motivation for workplace e-learning showed that motivation was essential for successful learning outcomes in e-learning. This will hold true for learning with VLEs due to the fact that VLEs supports e-learning by delivering the learning activities (McGill & Hobbs, 2007). Mayer (2011) had a contrasting view to McGill and Hobbs on how technology-based learning environments positively influenced learners' motivation. Mayer argued that technology supported learning environments could adversely impact learners' motivation and could adversely impact learners' completion rates. The reason for this is that technology supported learning environments cause some learners to put more stress on themselves when they try to improve their motivation (Mayer 2011). Chan and Kao argued that learning motivation was the impetus for learners' accomplishing their learning objectives. Therefore, any learning program should consider the impact that motivation has on learners' performance. Consequently, motivation was cited as a key reason that online learners had high dropout rates in academic settings (Hartnett et al., 2011). Instructional design and motivational design are key components that will have a major impact on learners' motivation in any learning environment (Hartnett et al., 2011; Keller, 2010). Learning leaders should make sure that quality instructional and motivational designs are developed in parallel in an attempt to improve learners' motivation toward the learning experience (Hartnett et al, 2012; Chan

& Kao, 2012; Keller, 2010). The reason for this is that instructional design and

motivational design influences each other and they influence learning outcomes (Keller,

2010). The ARCS Model created by Keller (2010) addressed motivational, instructional,

and learning environment design. The ARCS Model was based on general motivation

theories but Keller (2010) applied them to a learning context. The model was concerned

with four motivational constructs: (a) attention, (b) relevance, (c) confidence, and (d)

satisfaction. The ARCS Model requires educators and instructors to be responsible for

learners' motivation. They had to develop learning content, training materials and

learning environments that accomplish the following objectives: (a) get and maintain

learners attention, (b) develop, improve, and sustained the confidence that learners had in

their abilities to learn and perform the learning activities, (c) improve learners satisfaction

for the learning experience and (d) develop learning content, training materials, and

learning environments that was meaningful to the learners (Keller, 2010). Every step in

the instructional process including the learning materials and learning environment

should be evaluated to determine the impact it had on motivation (Keller, 2010). This is

consistent with Hartnett et al.'s viewpoint on the instructors' role in learners' motivation.

Hartnett et al. argued that instructors must be very vigilant and keep the lines of

communications open because situations can occur and learners will need them

addressed. This is critical because when problems are not addressed learners can become

less motivated. Attention, relevance, confidence, and satisfaction should be addressed at

each of the five phases of instructional design: (a) analysis, (b) design, (c) development,

(d) implementation, and (e) evaluation (Keller, 2010).

Technology and Motivation

Educators and learning leaders do not have enough dialogue about motivation when addressing technology supported learning environments (Mayer, 2011). Educational technology tools and technology supported learning environments impacted motivation because they can be customized to allow learners to do activities that elicit motivation (Mayer, 2011). This is very important because motivation is not static or one dimensional but highly contextual and multifaceted (Hartnett et al., 2011).

Hartnett et al. (2011) used a qualitative case study to research motivation in distance learning environments. The data for the research was collected using questionnaires and interviews. The study indicated that online environments provided learners with various avenues to increase their motivation. Learners can accomplish this through their engagements with their learning activities and with their learning environment. Technology-based learning environments have the capacity to deliver learning that provides learners with challenge, curiosity, control, and fantasy (Schunk, Meece, & Pintrich, 2014). Technology-based learning environments can also create a burden on some learners and teachers who have to use extra cognitive skills to learn the technology. This could result in learners and instructors being apprehensive about engaging with the technology. Additionally, instructional time and learning can be adversely impacted when technical issues occur with the technology (Rodriquez et al., 2016).

Learning environments that provide challenge, curiosity, control, and fantasy promote intrinsic motivation in learners (Schrunk et al., 2014). Therefore, educators

should highly consider these variables when designing learning activities and learning

environments. The four sources: challenge, curiosity, control, and fantasy introduced by

Schunk et al. (2014) are similar to the ARCS Model introduced by Keller (2010).

Learning activities that are created to provide challenge, curiosity, and fantasy help

learners to maintain attention. Learning activities that are developed to provide learners

with control help students to develop and maintain confidence and self-efficacy. When

learning activities are created with the appropriate degree of challenge it can help

maintain learners attention and provide learners with confidence. The literature on

learning motivation firmly supports the notion that educators should design learning

activities and learning environments with the appropriate characteristics that will promote

motivation. The responsibility for this lies with educators (Keller, 2010). Motivation and

collaboration are also key factors to entertain when using VLEs to educate learners

(Haverila, 2012). VLEs impacts learners' motivation because of the control they afford

learners in these environments (Sansone et al., 2011). For example, VLEs afforded

learners with the flexibility to interact with their learning content, learning resources,

instructors, and other learners in any manner that they choose. However, there is still a

need for research on how technology influences collaboration and interaction in computer

based learning environments because the outcome from collaboration and interaction

between individuals and groups is not consistent when technologies are used (Blake &

Scanlon, 2013).

Task-Technology Fit

In order for learners to be successful using VLEs the technology has to be able to

support the learner in accomplishing their learning tasks. The technological make up of a system can dictate how learners use the system or how they will be motivated to use the system in the future (Mohr et al., 2012). Learner characteristics and self-efficacy must be taken into considerations when matching technology characteristics for a learning system. Both will determine the level of engagement and the satisfaction level that learners will have with the system (Yu & Yu, 2010). Technology fit exists when there is a match between the technology and the learner's characteristics (Yu & Yu, 2010). Learners obtain optimal performance when the technology fit compliments their learning needs (Yu & Yu, 2010).

Technological functionalities, technology fit, and perceived usefulness by the learner influenced their attitudes and perceptions for using technology. All of these factors can ultimately influenced motivation (Yu & Yu, 2010; Mohr et al., 2012). Research on perceived usefulness showed that there was a high correlation between perceived usefulness and utilization (Mohr et al., 2012). When learners had a positive perception of the usefulness of the technology they were motivated to use the technology (Mohr et al., 2012). Additionally, when learners were provided with the technology that fit their learning orientation they were motivated to used it more (Yu & Yu, 2010; Mohr et al., 2012). The higher the perceived usefulness is for the learner and the greater the technology match is with the learner the higher the motivation and utilization for the technology will be. This implies that the more educators know about their learners' attitudes, learning styles, and preferences, the better inform they would be when making decisions for the selection and design of educational technology (Mohr et al., 2012). The

learning environment and delivery platforms for learning have to fulfill the expectations of learners in order for them to want to engage in the learning environment (Mohr et al., 2012). This argument supports Mogus et al.'s (2012) research on the technology acceptance model. The technology acceptance model holds the view that in order for learners to become motivated to use new technology they must be convinced that the technology has the capacity to allow them to perform the same tasks that they were performing using the old technology (Mogus et al., 2012).

Celik and Yesilyurt's (2013) research used a computer anxiety scale and an attitude scale to evaluate learners' attitude toward technology supported learning environments. Celik and Yesilyurt's research showed learners' attitudes and their self-efficacy toward computer technology affected their usage of technology-supported environments. Celik and Yesilyurt further explained the importance of teachers' attitudes towards using technology. Teachers' attitudes can impact how they use education technology to deliver instruction. They need to be able to use the technology and they must believe that the technology can make a difference to their instructional strategies in order for them to want to use the technology in their instructional activities (Celik & Yesilyurt, 2013). McGill and Hobbs (2007) argued that teachers who use technology supported learning environments to deliver instructional support to their students have different requirements for task to technology compatibility. This is because teachers and students have different roles. The research that McGill and Hobbs completed on how students and instructors who used a VLE perceive the fit between technology and task showed that teachers scored lower on task technology fit than the students. McGill and

Hobbs argued that this was a result of instructor tasks and purposes for using the technology-supported environment being different and more complex than student tasks.

Technology acceptance models are also concerned with an individual's perceptions and attitudes towards using technology (Mogus et al., 2012). Mohr et al.'s research supports Mogus et al.'s argument on learners' perceptions and attitudes towards technology. The technology acceptance model theory should be considered when trying to understand how individuals made their decisions on using educational technology (Mogus et al., 2012). This view is supported by research that shows that individuals have various reasons for choosing to use the technology that they use (Yoon & Lim, 2010). Yoon and Lim noted the following reasons as the main influencers: (a) their perception, (b) the perception of their peers, and (c) how well they perceived the technology as fulfilling their needs. These points are important to understand because they could affect the organization's decisions as to what modality to use to deliver training.

Penjor (2016) argued five adoption personalities in learners must also be taken into consideration when rolling out new technologies or upgraded technologies. Innovators, early adopters, early majority, late majority and laggards are the five adoption personalities that Penjor were referring too. The five adoption types come from Roger's theory of diffusion of Innovation (Rogers, 2003). Roger's theory is a very popular framework used for technology adoption (Penjor, 2016). Penjor (2016) research on VLEs revealed that learners' motivation to use a VLE was influenced by whether they were an innovator, early adopter, early majority, late majority or laggard.

An internal communication plan and a pilot program for the training are two strategies that could be used to promote positive perceptions and attitudes toward accepting new technology as a learning tool (Penjor, 2016). Hall and Hord (2011) noted that the communications plan is very important and is integral to implementing any new technology in the organization. The communication plan should include a change management strategy for learners and instructors that address their beliefs, opinions and current practices. The communication plan should address how the technology will benefit the training and how that will translate into advantages for the learners (Reidsema, Cameron, & King, 2013). A pilot study can provide instructors and course developers with an understanding of how the training was perceived, utilized and how effective it was. The results of the pilot program could assist educators and course developers in designing and developing training that could help create a good learner-technology fit and provide positive learner perceptions (Hall and Hord, 2011). Yu and Yu (2010) used pilot programs along with surveys and questionnaires in their study on modeling factors that affect an individual's utilization. The pilot programs allowed Yu and Yu to explore how learners interacted with the technology. The surveys and questionnaires were used to explore learners attitudes and perceptions and the perceive usefulness for the technology. Yu and Yu's (2010) study revealed the importance of good instructional design. This topic will be discussed in the next section.

Instructional Design

Yu and Yu's (2010) research revealed that most researchers agreed that instructional design is important to achieve learner satisfaction and effective outcomes

regardless of the technology that is used as a delivery platform. Effective instructional

design should drive the development of scenarios and learning activities in virtual

learning environments (Port et al., 2012). A collaborative effort amongst administrators,

instructors, subject matter experts, and instructional designers is needed in order to build

effective instructional design for VLEs (Baghadi, 2011). Instructional design decisions

should be informed by business and learning objectives and by learning theories (Port et

al., 2012). Instructional designers should complete a learner analysis to get an

understanding of the learners' background (Saxena, 2011). Doing a learner analysis is

critical because individuals have diverse learning preferences and learning orientations

(Devaney et al., 2009, & Jansen et al., 2011). As previously discussed, learning styles

should be an area of interest when performing learner analysis for the instructional

design. A key reason for exploring learning styles is that learners have their preferred

way they would like to learn (Truong, 2016). Additionally, if learners are given the

opportunity they would choose the learning alternatives that allow them to make the

learning connections that they need in order to acquire knowledge (Jansen et al., Mohr et

al., 2011 & Cartas, 2012). Jansen et al. (2011) noted that the learning designs should be

designed with learning affordances that will provide learners with the opportunity to

choose different paths to make learning discoveries. Instructional design should also

include learner evaluations (Port et al., 2012; Saxena, 2011). Pilot programs should also

be developed and employed to evaluate the effectiveness of the learning environment

before it is fully implemented. The pilot program will provide learning leaders the

necessary feedback that they need to ensure that the learning environment will be

effective and will provide learners with the capacity to meet their learning objectives (Port et al., 2012).

The roles of the instructors and learners should be an area of emphasis for the instructional design of VLEs because there is a contrast between those roles in traditional classrooms and VLEs (Devaney et al., 2009). In order for effective instructional design of instructional activities in technology-based environments to be accomplished the integration of content knowledge, pedagogy, and learning technologies are required (Arinto, 2013). Finally, the instructional design strategy of VLEs should consider how knowledge is negotiated inside of the learning environment (Devaney et al., 2009). There are three main areas of concern: (a) knowledge authority which is concern with who control the knowledge, (b) teaching or instructional approach which is concern with the instructional strategies, and (c) knowledge approach which is concern with the instructional objectives (Devaney et al., 2009). These areas of concern are very influential to the stability of the learning environment and can impact learners' motivation.

Collaborative Learning

Collaboration is a key factor in constructivist learning. It promotes creativity and critical thinking in learners. Collaboration allows learners to construct knowledge through social interaction (Palloff & Pratt, 2005). The overall learning process is more robust when learners are allowed to collaborate. It is also purported that collaboration increases learners feeling of connectedness (Palloff & Pratt, 2005).

Collaboration causes social interaction. This is critical in the learning environment because social interaction assists individuals in the development of knowledge creation (Burton & Martin, 2010; Hernandez, 2014). Social interaction also helps to direct the groups' actions, thoughts and feelings (Mascolo & Fischer, 2010). In face-to-face environments social interaction is led by physical presence and continuous communications (Mascolo & Fischer, 2010). This is not the case in online environments. In online environments communication is often delayed and learners do not always feel the sense of presence. To improve collaboration in online environments physical presence and continuous communication must be established to support social interaction (Hernandez, 2014). In order for online communication to be effective it should be designed specifically to the learning content and the goals of the learning objectives. The communications should provoke social interaction amongst the learners and it should influence engagement. Learning reaches its goal when it influences learners to construct and share knowledge and to build social networks in the learning community. Additionally, when learners change their attitudes and behaviors because of the learning acquired, the goal of learning has been met. Collaboration is a key component that helps learners achieve their learning objectives (Ionita & Pastae, 2015).

Collaboration in VLEs needs to be studied in order to determine how to collaborate effectively due to the fact that the audience is not in the same location (Burton & Martin, 2010). Burton & Martin's research indicated that when learners had the opportunity to collaborate and interact they were able to construct knowledge creation. Students and teachers benefit from collaboration when collaborative learning is

evident in learning environments. Therefore, collaborative learning should have a vast

amount of influence on the pedagogical, organizational, and technological design

decisions of a VLE (Hernandez, 2014). Collaboration is not accomplished by technology

along. Just having the technical tools available will not motivate students to collaborate

with each other (Laux, Luse, & Mennecke, 2016). Learners must create a sense of

community and connectedness with each other in order to have the trust, respect,

accountability, and willingness to work together (Laux et al., 2016). VLEs need the

proper tools and collaborative activities in order to facilitate collaboration (Othman &

Othman, 2012). Constant assessment is needed to evaluate the degree of social

interaction between individuals and groups and to evaluate the effectiveness of the

technological tools that are used to facilitate communication between learners and

between instructors and learners (Johannesan, 2013).

The way in which learners use the tools for communication in the VLE should

also be continuously evaluated (Laux et al., 2016). Assessments on how learners use the

technological tools and on the effectiveness of the technological tools in the virtual

learning environment is important so that learning activities will not be created for

students that come across to them as force exercises to drive interaction (Ke & Kwak,

2013). Ke and Kwak's research revealed that learners who had to multi task between

work, training, family, and other important commitments felt over whelmed by

interactive activities that they felt were not necessary. For example, if learners felt that

they had to post discussion posts for the sake of trying to make the learning interactive

instead of the need to build on the knowledge construction they were less incline to post

unless posting was part of their grade. Additionally, learners felt less engage if they felt that the postings lack substance and they were posting for the sake of posting (Baxter and Hancock, 2014).

A Sense of Presence in Virtual Learning Environments

Casey and Kroth (2013) defined *presence* as an entity that depicts the manner in which human beings interact with each other. It is important for instructors and learners to understand how presence operates because understanding this phenomenon can help improve their perception of the quality of the learning experience (Casey & Kroth, 2013). Chow (2016) argued that learners needed to feel a sense of presence in their learning environment in order to have a positive learning experience. When learners have a sense of presence it allows them to identify and make a connection to their space. It also helps them to create a context for their learning activities (Kalay, 2004; Wei & Kinshuk, 2012). Active and didactic learning activities and the complexity of the VLE impacts the way presence is felt by learners (Persky et al., 2009). Divergent strategies are needed to provide learners with a sense of presence. The main reason for this is that learners have different learner characteristics (Chow, 2016).

Research indicated that presence was highly correlated to learners' engagement. Some researchers claimed that presence was the main feature that defined a learner's experience inside a VLE (Persky et al., 2009). VLEs have to be designed with the proper hardware and software in order to provide users with a good sense of presence (Kalay, 2004). The design of the user interface is a key indicator of perceived social presence. A well-designed learning system should give users an accessible interface with

features including ease of use, naturalness, ease of understanding, and helpfulness (Wei & Kinshuk, 2012, p. 533). Chow's (2016) research revealed that learners' perception of how easy the system is to use, their confidence in their computer skills, and their perception on how useful the technology was in terms of solving their problems accounted for over 52 % of the total variance for factors providing learners with a sense of presence. This supports Wei and Kinshuk's (2012) research.

Presence allows the learner to personalize their learning experience. It also influences the authenticity of the learning experience. Kalay (2004) suggested using virtual inhabitation and presence (VIP) software to provide the VLE with a sense of presence. VIP software provides the learner with the means to enter and act in the virtual learning environment and the ability to interact with each other. VIP software also has multiple channels for communication modules that allow for social interaction. Additionally, using a three dimensional Virtual Reality Markup Language (VRML) viewer that allows learners to view each other and allows learners to view the learning environment is very useful in providing learners with a sense of presence. The VRML allow learners to become intimate with the space and place that is used for the virtual learning environment (Kalay, 2004). Technology should not be the only concern when exploring strategies to provide learners with a sense of presence in the VLE. Learner characteristics should be carefully considered because if given a choice acceptance and usage of a technology mediated learning system is largely predicated on the experiences and responses toward the technology (Chow, 2016).

Lastly, instructor presence should be considered when exploring strategies to create a sense of presence in a learning environment. Cicco's (2015) research showed that learners felt connected and a sense of presence to their learning space when instructors communicated with them regularly. Instructor presence was shown by the postings to chat sessions, emails, online discussion boards, and from providing formal and informal feedback to learners learning activities. Serdyuk and Sistek-Chandler (2015) argued instructor presence was critical to learners having a sense of presence in their learning environments and having a positive learning experience in both online learning and traditional learning. The instructor's role is to facilitate the learners through learning and social activities. In the VLE learners' socialization is accomplished through emails, threaded discussion posts, Google chats, audio tools, and web conferencing software (Serdyuk & Sistek-Chandler, 2015).

A Sense of Place in Virtual Learning Environments

The issue of *place* must be addressed when discussing VLEs because VLEs afford learners the opportunity to learn at any place and anywhere. There are no boundaries (Kalay, 2004). In VLEs place transforms spaces and activities into specific social events. In order for learners to have effective social interaction in their places there must be some rules for engagement. These rules must be must be developed and followed by each member in the VLE. Language and culture is also very important to having a sense of place in the VLE. They will also be important factors in the rules of engagement of each member. Therefore, they must be governed by social protocols (Mascolo & Fischer, 2010). Additionally, the user interface must be designed to have excellent

communication channels in order for learners to be able to transmit and receive social signals from each other (Wei & Kinshuk, 2012). Ensuring that learners have a thorough knowledge of how to navigate and use the collaborative tools in the VLEs can help to provide learners a sense of place. This would allow learners to become more intimate with the VLE. Thus, providing them with a strong sense of place (Sandy & Franco, 2014).

Place is also necessary in order for collaboration to take place because learners must have a place to meet (Palloff & Pratt, 2005). Unique and separate meeting spaces should be created in VLEs in order to transform the spaces into places. Communication tools should also be integrated in those meeting places in order for learners to have effective communications and authentic social interaction (Kalay, 2004).

Design Characteristics of Effective Virtual Learning Environments

The literature indicated that VLEs are multi-dimensional. They provide learners with the capacity to take various paths to learning and the opportunity to receive feedback and evaluations using multiple tools. Mueller and Strohmeier (2011) argued that there were certain elements in design characteristics of VLEs that made them ideal for providing learners with learning affordances. Mueller and Strohmeier further argued, "VLEs are electronic information systems used for the administrative and didactical support for learning processes in vocational settings by systematically providing corporate learners adequate learning materials as well as corresponding collaborative facilities to develop intended qualifications" (p, 209). Hall and Zentgraf (2010) defined VLEs as learning management systems that provided instructors and course developers

with the capacity to manage content and learners' administrative tasks. Some well-known names for learning management systems are Moodle, Blackboard, and WebCT (Liminous & Smith, 2010). These learning management systems provides learners with the capacity to access content, participate in learning sessions, engage with instructors and other learners, and they provide learners with the capacity to access learning materials and learning resources. Mikropoulos and Natsis (2011) view point of VLEs differed from Hall and Zentgraf and Mueller and Strohmeier in that Mikropoulos and Natsis viewed VLEs not as a network of technological tools but rather a system that were framed around a conceptual framework for teaching and delivering knowledge that is student centered. Researchers do not totally agree on how they define VLEs, but there is agreement amongst researchers on the fact that VLEs are not equal (Adewale et al., 2012). They are different in design and capabilities. There are certain characteristics that all VLEs have in common (Gomez & Rodriguez- Marciel, 2012). The characteristics listed below are common in all VLEs (Alario-Hoyos et al., 2013; Dillenbourg, 2000; Gomez & Rodriguez- Marciel, 2012):

- Capacity for multiple technologies to be used in the same environment
- Capacity for multiple integrations of external tools
- Capacity for customizations
- Designed environment where learners and instructors can collaborate with each other
- Designed to be used with physical learning spaces

- They are used in learning contexts that allow students and instructors to learn in the same classroom while actually being in different locations

- They require the use of the Internet

- They require information and communication technologies

- They allow for different content to be delivered using multiple formats. For example, text, hypertext, video and graphics can be distributed at any time

- They allow for collaboration and interactivity

Mikropoulos and Natsis (2011) argued, "The prerequisite for an effective learning environment is its pedagogical approach and the learning theory that follows in order to fulfill the educational goals and reach the desirable learning outcomes" (p. 774). Mikropoulos and Natsis examined empirical research of VLEs that spanned over 10 years. Their study revealed that the constructivist framework was the predominant conceptual framework used for the design of VLEs. The constructivist framework was discussed previously in this section under the conceptual framework topic. Out of 53 research articles reviewed all but one used a constructivist approach. This supports the literature on VLEs that indicated that a collaborative environment and a student centered focus for instructional activities were essential in order for VLEs to be effective. A constructive framework supports student centric learning and students learning in a collaborative environment (Senor, 2010). Gonzalez –Marios et al.'s (2016) research showed that learners felt that instructor responsiveness was more important to them than technological resources. Chakraboty and Nafukho's (2015) research revealed that teaching presence was a key factor in influencing learners' engagement in VLEs. Hence,

the design characteristics that allow instructor support are very significant (Stohr, Demaziere, & Adawi, 2016).

A well thought out design, development, implementation, and evaluation strategy is needed in order to have an effective VLE (Mueller & Strohmeier, 2011; Andronie, 2014). The affordances that a VLE provides to learners, teachers, and administrators coupled with the learners' satisfaction with the system are indicators that could be used to measure the system effectiveness. Mueller and Strohmeier's research methodology consisted of examining effective design characteristics. The examination was done in two phases. Thirteen experts from different disciplines participated in the study. Online questionnaires were administered to the participants. The purpose of the questions was to gather feedback on what functions and features the experts thought represented effective design characteristics for VLEs. The design characteristics developed from the questionnaires in Phase 1 was compared with the design characteristics that were developed from the questionnaires that was given to the 13 experts in Phase 2. The design characteristics listed in the Table 1 provides the characteristics necessary for an effective design of VLEs. The table also lists the evaluative measures for each of the characteristics. Mueller and Strohmeier's research supports the importance of perceived usefulness, perceived ease of use, and learners' satisfaction.

Table 1

VLE Characteristics

Design characteristics	Dependent success factors
System related	
Communicativeness	User adaptation
Feedback	Interactivity and control
Media Synchronicity	Course satisfaction
Perceived course/program/system flexibility	Perceived usefulness (PU; course
Perceived quality	satisfaction)
Perceived usability	Satisfaction
Perceived user interface/screen design	Satisfaction
(Perceived) System functionality	Perceived ease of use (PEOU)
Reliability	Perceived functionality, PU, PEOU
(System) Accessibility	PEOU
System adaptability	PEOU
System interactivity (and control)	PEOU, PU
System quality	PU
System response	Behavioral intentions (BI), satisfaction,
User adaptation	PU
User tools	PEOU, PU
	Satisfaction
	Enjoyment
Information related	
Content feature/quality	PU
Course attributes	PU
Course quality	Perceived e-learning satisfaction
Format	Feedback
Information quality	PU, relative advantage, satisfaction
Information relevance	PEOU, PU
Terminology (clarity)	PEOU

Note. Table of characteristics for virtual learning environment. Adapted from "Design Characteristics of Virtual Learning Environments: An Expert Study," by D. Mueller & S. Strohmeier, 2011, *International Journal of Training and Development, 14*(3), 209-222.

Cornelius et al. (2011) argued that VLEs should be designed to allow for less complex integration and implementation so that course developers, instructors, and administrators of the system can update and edit content. Alario-Hoyos et al. (2013) agreed with Cornelius et al.'s viewpoint on best practices for the integration and implementation of VLEs. According to Alario-Hoyos et al. VLEs should be designed with the capacity for less complex integrations. Most complex integrations required code to be developed. This could be a challenge for educators who do not know how to write code and it could make educators less motivated to use the VLE for instructional purposes (Alario-Hoyos et al., 2013). VLEs should also provide the flexibility for customization. Some stakeholders may want the opportunity to disabled and add functionalities and work flows that are pertinent to their learning organizations (Alario-Hoyos et al., 2013).

Web 2.0 Impacts on Virtual Learning Environments

The integration of Web 2.0 tools such as wikis, podcasts, slideshares, broadcasts, and social networking sites to VLEs made them very potent for learners. Dillenbourg (2000) argued that Web 2.0 tools made VLEs social spaces where learners could interact with the learning content, teachers and other students. Dillenbourg further noted " VLEs are different from other informational spaces because they are populated spaces" (p.5). In virtual learning environments users are inside the information space and can see a representation of themselves and others. Users can create representations of themselves using text, drawings or graphical representations (Dillenbourg, 2000). Avatars could also be used to represent learners if 3D virtual learning environments were used.

Web 2.0 tools allow learners to engage in their learning environment. They promote active learning in VLEs and they positively influence learners' perceptions and attitudes of online learning and VLEs. Additionally, Web 2.0 makes it possible for learners to take classes outside of the classroom and still feel a sense of connection with their instructors, colleagues and peers (Uzunboylu et al., 2011).

Advantages of Virtual Learning Environments

Various researches have revealed the advantages of using VLEs. VLEs have the capacity to support multiple learning styles (Mogus et al., 2012). They also have the capacity to employ multiple technologies simultaneously (Mueller & Strohmeier, 2011). This made them very suitable learning environments for corporate learning (Kasworm, 2011). The multiple technologies provided learners with the opportunity to learn in a very interactive environment and it provided learners with the ability to become actors in their learning environment. VLEs are also very flexible. For example, formal, informal social, and independent learning can be done in VLEs (Alario et al., 2013). They also have the capacity to be customized and accommodate multiple integrations with external technologies (Alario et al., 2013). This can also serve as a disadvantage (Alario et al., 2013). The reason for this is that the coding that is required for most integration could potentially cause delays in the project schedule and sometimes decision makers may not want to alter the system. Even though this could be a disadvantage, research supported the fact that integrations that were flexible enough to accommodate multiple external technologies provided a better overall experience for instructors and learners (Alario et al., 2013).

VLEs provide learners with the means to learn at any place and at any time. Learners do not have to travel to any particular place to attend learning sessions. This can provide flexibility to learners and could help organizations reduce their travel expenses that they spend for training. They also provided the capacity for learner centered training which puts the learner at the center of the learning (Mogus et al., 2012). When instructional activities are learner centered the learner becomes active agents in their own learning. VLEs offer learners the capacity to collaborate with each other and with instructors by using various technologies such as discussions boards, whiteboards, instant messaging, chat, and blogs. Learners can also access countless content without leaving the VLEs (Oprius & Chicioreanu, 2012).

VLEs are excellent delivery vehicles for blended learning (Limnious & Smith, 2010). Blended learning allows learners to participate in a face to face classroom and use the VLE to participate in online discussion forums or participate in simulations that support the face to face to learning (Limnious & Smith, 2010). Another advantage of a VLE is its capacity to allow adult learners the opportunity to use their prior experiences to learn new information. VLE can provide learners with individualize training curricula, social and simulated learning. Individualized, social, and simulated learning promotes learners to use their prior experiences to make learning connections (Wood et al., 2010). This supports Dewey's (1938) concept of experiential learning that purports learners learn best when they are afforded the opportunity to use prior experiences in their learning environments.

Research also indicated that VLEs had many benefits for instructors and educators. These benefits included providing dashboards which provided analytics on learners' performance, learners' activities, learner attendance rates, and learners' retention rates that could help provide very useful insights to decision makers (Limnious & Smith, 2010; Podgorelec & Kuhar, 2011)). Mogus et al. (2012) agreed with Limnious and Smith's viewpoint that VLEs afforded instructors with the opportunities to view learners' activities inside the learning environments. The VLE provided the capacity for instructors to run reports that provided information about learners' activities. Instructors could also upload learning content for classes and other learning materials and resources (Mogus et al., 2012). VLEs also provide educators with the means to transform workforce learning (Mogus et al., 2012). The review of the literature revealed many advantages that VLEs provides to learners, instructors, and educators. However, there were some challenges that were identified. The next section will identify some of challenges that were identified.

Challenges in Virtual Learning Environments

While technology supported environments provides many advantages and benefits to learners and instructors there are challenges that researchers have cited (Mayer, 2011). Technology supported environments could cause a motivation overload on learners due to the requirement for higher motivation that is needed for learner engagement (Mayer, 2011). Sometimes retention can be a challenge in technology-supported education due to cognitive overload (Sherman et al., 2010). Low completion rates and high dropout rates are also challenges for technology-supported learning. Research has revealed some

contributing factors to the high dropout rates for technology supported environments such as online and e-learning, and VLEs included: (a) competing interest from home, school and work, (b) lack of technical support, (c) expectations not met from faculty, (d) feelings of anxiety, and (e) feeling overwhelmed (Muller as cited in Sherman et al., 2010). Costs associated with design and development of VLES can also propose challenges for organizations. Technology-supported learning environments could present high costs due to integrations and design of the learning environment (Mayer, 2011).

There are challenges involved with technology-supported learning environments but research indicated that overall learners were satisfied with online, distance education, and e-learning (Mogus et al., 2012). The next section will address some of the learners' attitudes and behaviors that were identified in VLEs.

Learners' Attitudes and Behaviors

Mogus et al. (2012) research explored learners' activities in a VLE and how those activities affected their performance. The research used data mining and surveys to analyze how learners use discussion boards and course materials inside VLEs and their perceptions about using VLEs. The survey results showed that learners felt that the VLE were useful and assisted their learning outcomes.

Limnious and Smith (2010) performed an experiment with teachers and students to explore their views on learning in a VLE. During the research teachers were provided training on how to teach and deliver learning content in VLEs. They were asked to deliver learning content using traditional methods and to deliver the same content using a Blackboard virtual learning environment. The teachers were provided with a

questionnaire designed to gather information on their attitudes about delivering online content in the VLE. They were also asked to compare both environments. The students were asked to attend learning sessions in both environments. They were provided with a questionnaire after the learning sessions to compare their learning experience in both environments and to gather feedback on their learning experiences in the virtual learning environment. Table 2, provides a sampling of the questions on the questionnaire that Limnious and Smith provided to the student participants. The results of Limnious and Smith research indicated that learners felt that VLEs provided them with the opportunity to have greater interaction with online learning. Limnious and Smith's research also indicated that learners' views and attitudes on learning in VLEs were based heavily on their perception of the usefulness of the VLE to aid them in achieving their learning outcomes. The results from this research supported Yu & Yu (2010) and Mohr et al. (2012) findings on technology acceptance.

<div align="center">**Instructors' Roles and Training**</div>

VLEs will alter the traditional role of instructors and teachers. Instructors' instructional skills and competencies for delivering instruction in VLEs must be addressed. Teaching in VLEs will require a different set of competencies than those required in traditional learning environments. If instructors do not possess these competencies training must be available for them (Gausch, Alvarez, & Espasa, 2010).

Instructors will have to communicate quite differently in a VLE than they do in a traditional learning environment. The reason for this phenomenon is that in VLEs instructors are not in the same space as their students nor can they physically observe

their students (Gausch, et al, 2010). The VLE can limit instructors' abilities to make

instructional adjustments because instructors cannot physically observe their students.

Instructors teaching in a VLE will also have to share control of the learning environment

because in the VLE students will have the capacity to become knowledge producers.

Some instructors may find it very hard to share control with students. They will require

training to learn these skills (Gausch et al., 2010). Additionally, instructors who have

never taught in a VLE will have to be trained on how to use the functionalities for

instructional purposes (Liminous & Smith, 2010).

Gausch et al.'s case study of a teacher-training program designed to explore the

competencies required for teaching in virtual learning environments revealed that

teachers needed to be able to perform the following task in order to be effective

instructors in a VLE;.

- Ability to read texts

- Ability to debate in a forum

- Ability to facilitate collaborative exercises and

- Ability to teach content

- Ability to upload content and other multimedia technology

- Ability to use a computer

- Ability to plan activities

Limnious and Smith (2010) completed a study on teachers and students

perspectives on teaching and learning through VLEs. In this study teachers were given

training on how to develop and integrate online courses into their instructional approach

and on how use the functionalities of Blackboard to do instructional activities (Limnious & Smith, 2010, p. 647). A questionnaire was also given to teachers to gather information on their prior teaching experience and their prior experience using educational tools to provide instruction to students. The results from the questionnaire revealed that 75.76% of the teachers felt that the online learning module course was the most useful feature in the VLE, 48.48 % felt that assessments was the most useful feature in the VLE, 48.88% felt that announcement was the most useful in the VLE, and 42.42% felt that the discussion board was the most useful feature in VLEs. Teachers' comments indicated that they felt that they needed more support and training in order to be more effective at delivering online courses in the VLE.

Assessments

Assessments and evaluations are necessary to measure program effectiveness, instructor effectiveness, knowledge acquisition, and performance. Popham (2010) argued that it is important to know what one is trying to access when constructing a test or an evaluation tool. The impetus behind the construction of an evaluation or test is the purpose. The evaluations and tests will be designed to provide inferences as to whether or not the instructional materials, instructional approach, and training philosophy were effective in providing learners with the necessary skills to perform the learning objectives of the training. VLEs allow learners to take quizzes, tests, and exams (Mogus et al, 2012).

Training in the workplace is aimed at improving performance. Alternate assessments will allow learners to take performance based testing. Performance based

testing is critical to organizational effectiveness. Furthermore, performance based assessments helps some learners increase their engagement levels.

Some learners are more prone to stay engage in training if they know that they will have to complete some form of performance assessment during or after the training session (Mooney & Bergin, 2014). Mooney & Bergin argued that in order for training to be effective and engaging in VLE there must be some type of assessment for learners to complete.

Assessments in Virtual Learning Environments

Evaluating the effectiveness of VLEs provides critical and important information to learning leaders in organizations. This information can ultimately affect organizational effectiveness. Horton (2005) argued that new programs such as e-learning and VLEs should evaluate learners' reaction and how they felt about the learning in order to justify continue usage. According to Garrett and McMahon (2013) some of the factors that should be evaluated in VLEs are: (a) learner interaction and engagement, (b) learners attitudes and behavior characteristics, (c) instructor attitudes and behavior characteristics, and (d) knowledge acquisition. According to Kaufman et al. (2006) the questions that should be asked should lead to results and outcomes. The following questions should be addressed to evaluate the effectiveness of delivering training in VLEs;

- Did the learners like the training?
- Did learners learn the course objectives?
- Were learners able to transform their learning into performance?
- Were the identified training gap closed?

- Was the curriculum appropriate for virtual learning environments?

- Were the instructors' deliveries of training effective?

- How effective are VLEs as a learning space?

- How cost effective are VLEs for delivery training.

Park (2011) shared a different view of evaluations in VLEs than Garrett and McMahon (2013). Park posited that there was a possibility that VLEs might require a different set of evaluation standards than traditional training classrooms. According to Parks evaluations in VLEs should be focused on three main areas: (a) content structure, (b) space configuration, and (c) communication pathways. The VLE should also be evaluated to access its ease of use (Caminero et al., 2013) for users, instructors, and system administrators to perform their respective tasks.

Evaluation tools and metrics must be developed to facilitate the evaluation of the VLEs. Performance tests and surveys are some of the tools that are used to evaluate learning and system functionalities in the VLE. Park (2011) designed a questionnaire to assess the effective of a VLE. The questions on the questionnaire were designed to gather information on how learners felt about the site layout, the learning content, and the communication structure. Additional features such as assignment submission, learners and external social space, learning and system resources, and overall learning experience were also addressed. Garrett and McMahon (2013) used web-based questionnaires, observations, and input logs to evaluate learners' interaction. Performance measures to evaluated learners knowledge acquisition were also used as data collection tools to measure the effectiveness of their VLE. Garrett and McMahon posited that Kirkpatrick's

metrics for evaluating training effectiveness also provided an effective means to access

VLEs. The four levels of evaluation that Kirkpatrick developed were designed to

measured learner reaction, knowledge acquisition, behavior characteristics, and

organizational improvement. Kirkpatrick's evaluation model could also be used to

evaluate the site, content structure and the communication structure in a VLE. The

results of Kirkpatrick's evaluation will help learning leaders make inform decisions on

the following: (a) how to best utilize the system, (b) external integrations, (c)

customizations, and (d) software upgrades. The information gathered from the

evaluations will also provide learning leaders and stakeholders with the overall

effectiveness of the VLE (Garrett & McMahon, 2013).

Summary

This study will add to the literature on training and learning in VLEs. Although

there is research available for learning motivation there is very limited research on

motivation in technology based environments such as e-learning, online learning, and

VLEs (Mayer, 2011). There is also very scant research on training and learning in VLEs

in the workplace. Thus, motivation, training, and learning in VLEs in the workplace

serve as a gap in the literature. This study is designed to address this gap in the literature.

The literature review for this case study consists of the conceptual framework and

theories use to guide the study, a summary, and integration of the literature pertaining to

training and learning in VLEs. The topics for the literature review were guided by the

research questions for the study.

VLEs are very diverse in size and capabilities (Adewale et al., 2012). They have been giving various definitions by researchers. However, there are certain design characteristics that are common to all virtual learning environments (Mogus et al., 2012). VLEs provide learners with the opportunity to learn in a very engaging and collaborative environment. The fact that VLEs have the capacity to integrate multiple technologies makes them very attractive for corporate learning (Mogus et al., 2012). VLEs offer many advantages. Some of these include the opportunity to learn to learn in a learner focus environment, the opportunity to become contributors to their own learning, the capacity to connect prior learning experience with new learning, and the ability to collaborate with peers and instructors. VLEs also provide learners with the opportunity to take assessments. The assessments are essential in order for learning leaders to evaluate learning objectives, training programs and the learning environment. The literature has indicated that VLEs bring many advantages to learners, instructors, and to the organization. Researchers agree that learning leaders should evaluate VLEs to ascertain if they are effective learning environments. The literature review revealed that instructional design, motivational design, and design characteristics were critical elements for designing an effective virtual learning environment. Additionally, collaboration, social interaction, having a sense of place, and a sense of presence were also importance characteristics to have in a VLE in order for them to be engaging to learners.

The majority of the studies on VLEs were done using a qualitative research design. Questionnaires and observations were the predominant data collection methods

used for research on VLEs, The use of a qualitative research design, questionnaires, and observations will help the researcher find out why a phenomenon is occurring and will serve as a strength (Mikropoulos & Natsis, 2011). Some of the studies used experiments and pilot studies to investigate VLEs. Although these methods can be beneficial to explore phenomena in VLEs they will not provide the best strategies to explore this case study. This study was designed to explore the impact that VLEs have on adult learners' motivation in the workplace. The case study, surveys, and observations provided data on learners' attitudes and what their experiences while learning in a VLE. Chapter 3 will provide a detail discussion on the methodology used for the case study. It will address participants, instruments, and data collection procedures that were used to explore the research.

Chapter 3: Methodology

The purpose of this qualitative case study was to investigate how virtual learning environments impacted motivation in adult learners in the workplace. Yin (2014) noted that a case study is a common research method used to investigate educational phenomena. The aim of this research was to explore how engaging specific tasks and activities in a VLE affect learners' motivation. The secondary aim was to understand why adult learners' motivations are affected by these tasks and activities. Additionally, the goal was to discover other factors related to VLEs that could affect adult learners' motivations. In this chapter, I discuss the following: (a) the research questions, (b) data collection and analysis strategies, (c) participants, (d) my relationship to the participants as the researcher, (e) sample selection, (f) validity, (g) reliability, and (h) ethics.

Research Method and Design of the Study

This study used a single instrumental qualitative case design to explore how VLEs affected motivation in adult learners in the workplace. Creswell (2013) defined an *instrumental case* as a case focused on understanding a certain phenomenon. Yin (2014) defined a case study as "an empirical inquiry that investigated contemporary phenomena in depth and within a real-world context especially when the boundaries between the phenomenon and context were not exactly clear evidence" (p. 16). This study was consistent with Yin's model of a case study. VLEs are still considered as emerging technology, and the study was conducted in depth in a workplace setting. Yin asserted that there is no set rule for choosing to use case study as a research method. However, the impetus for the decision to use a case study or not to use a case study should be based

on the research question(s). Yin also asserted that if the aim of the research question(s) is to answer how or why a social phenomenon occurs, then a case study is appropriate to use as a research strategy (p. 4). The purpose of this study was to explore how a VLE impacted adult learners' motivation in the workplace. Therefore, a case study was appropriate to use for this study. A case study is bounded by time and place (Creswell, 2013; Yin, 2014). As previously stated, the case study was done in a workplace setting over a 2-month period. The participants in the study used a VLE to participate in professional development training.

There were three research questions for this study. The research questions were focused on trying to understand how adult learners' autonomy and relatedness needs influenced motivation when using a VLE. The secondary goal was to explore learners' opinions and perceptions of a VLE. The research questions for this study were as follows:

- How do social and contextual factors influence adult learners' autonomy and relatedness needs in a virtual learning environment?

- How do adult learners' beliefs about their technical skills influence their motivation to learn in a VLE?

- How do learners' preconceived beliefs about learning in a VLE impact their motivation to learn when using a VLE?

Case Study Rationale

A phenomenology study was considered as a possible approach to explore the research problem because a phenomenology study explores the lived experiences that

individuals have in relation to a phenomenon (Creswell, 2013). However, understanding the experience that participants had about VLEs would have allowed me to address part of the research problem but not all of the research questions. A narrative research design was also considered. A narrative research design also explores the lived experience of an individual. A researcher uses the lived experience in a narrative study to tell a story about the phenomenon (Creswell, 2013). Narrative design was not chosen as an appropriate research strategy because, like phenomenology research design, it would not have addressed the whole research problem or provided the best strategy for answering the research questions.

Qualitative case study allowed me to gain a deeper and more detailed understanding of the issues by engaging with people in their environments (Creswell, 2013). After careful consideration of the research questions and issue under study, I chose instrumental case study as the best strategy. An instrumental single case is concerned with exploring issues in one bounded case (Creswell, 2013). Creswell (2013) posited that qualitative case study is appropriate for researching issues that require the researcher to collect various forms of data such as interviews, observations, audiovisual materials, documents, and other artifacts in order to get a deep understanding of a real-life phenomenon.

The research questions also influenced the qualitative design (Yin, 2014). In this study, the research questions were considered explanatory research questions. Case studies are well suited to answering explanatory research questions (Yin, 2014). Yin

(2014) noted that explanatory research questions address the "how and why'' of a phenomenon (p. 10).

Bounded Case

Bounding the case is necessary after defining and selecting the unit of analysis in a case study. *Bounding the case* refers to distinguishing the context for the case. Specifying the time period and place for the case study is part of establishing a bounded system (Yin, 2014). This case was bounded by exploring motivation in adult learners age 18 and older in the workplace who had participated in a specific VLE-supported training session. The study was conducted over a 2-month time frame using a VLE as the delivery system.

Detail and Contextual Understanding

Case studies use multiple sources of in-depth information to study a real-life phenomenon (Creswell, 2013). Creswell (2013) argued "a case study is not a methodology but rather a design to study an object of the study as well as a product of the inquiry" (p. 97). Theory development can also be done in some case studies (Yin, 2014). However, the purpose for this case study did not require theory development. Patton (2002) argued, "A case study seeks to describe a unit in depth and in detail, holistically, and in context" (p. 55). The purpose of this study was to explore how a VLE impacted adult learners' motivation in the workplace. Multiple data collection techniques such as interviews, questionnaires, and participant observation were used in order to provide a detailed and holistic view of the case.

Role of the Researcher

In a qualitative study, the researcher acts as the key instrument (Janesick, 2011). My role as the researcher was to solicit and select the participants, perform the interviews with the participants, gather data for field journals, complete the observations on the participants and the VLE, administer the surveys, and interpret and analyze data. The survey was used to further analyze the responses from the interviews. I was not an active participant in the VLE. Additionally, I did not have any personal or professional relationships with any of the participants.

Participant Selection

The research population consisted of eight adult learners (18 years of age and older) from a federal government workplace who had previous experience participating in learning activities in a virtual learning. Purposeful sampling was used in this case study to recruit participants. In purposeful sampling, only participants, and locations with the greatest potential to be most useful in answering questions about the issue under study should be selected (Creswell, 2013; Patton, 2002; Yin, 2014).

Yin (2014) suggested that at least four and no more than five case studies in any one single study should be used in order to prevent the study from losing its in-depth detail. This study consisted of a single case. The training officer from the federal government organization provided the class rosters from the training class that would be observed in the study. Employees from the class rosters were contacted via email to request their participation in the study. The particular site was chosen because it used a VLE to deliver training.

Instrumentation

The quality of a qualitative case study is predicated on the strategies that the researcher employs to obtain validity and reliability for the study. The validity and reliability of the study depend on the experience of the researcher in interviewing, observing, and analyzing the data (Janesick, 2011). The interview protocol, survey, and direct observation protocol were the primary instruments used for this study.

Instrument Protocol

A semistructured interview was used in this case study to help answer the research questions and understand the phenomenon of interest. The questions in the interview were related to the three research questions and the two conceptual frameworks used in the study. Creswell (2013) suggested that "questions in the interview should consist of a subset of questions from the research questions in the study and should be further refined through pilot testing" (p. 165). Ten interview questions were developed for the semistructured interview. The interview questions were peer reviewed to determine their appropriateness. An interview protocol was developed and used as a guide to assist me in conducting the interviews. See Appendix A for the interview protocol. The interview protocol helped me to ensure consistency throughout the interview (Patton, 2002).

The survey consisted of 10 statements. The content for the survey was developed from an existing survey. The questions were revised from the E-Learning System Attitudes and Continuance Intentions Survey developed by Roca and Martinez (2006) and the Instructional Material Motivation Survey created by Keller (2010). Only the self-

efficacy portions of the original surveys were used in the revised survey. The questions were revised by replacing the phrase *e-learning systems* with *virtual learning environments* in order to be more specific, and tasks associated with the VLE were added to the survey. Permission to use the E-Learning System Attitudes and Continuance Intentions Survey was granted for educational and noncommercial purposes (Appendix G). Permission to use the Instructional Material Motivation Survey was granted for educational purposes (Appendix H). The survey was developed and administered using Survey Monkey. An email with a link to the survey and instructions for taking the survey was emailed to each participant. The survey was anonymous and was used to assess self-motivation of the participants and to support the results of the interview. Each survey was measured using a 5-point Likert scale ranging from *strongly disagree* (1) to *strongly agree* (5). A copy of the survey can be found in Appendix B.

An observation protocol was developed to guide me through the observation activities of the participants in the training sessions. The observation protocol related to the three research questions. A copy of the observation protocol can be found in Appendix C.

Content Validity

Content validity is concerned with ensuring that the data collection instrument consists of the appropriate items to measure or evaluate the phenomenon under study. The researcher often makes a judgment call to determine whether the instrument is sufficient to cover the whole phenomenon (Kothari 2004). A researcher can also set up a panel of experts to assist in making a determination on whether the instrument is

appropriate to cover the phenomenon under study (Kothari, 2004). A panel of three

instructional designers from my professional organization reviewed the interview

questions to determine if the content was appropriate for the field of research. All of the

instructional designers had over 10 years' experience in instructional design. The

dissertation committee reviewed the questions for the interview design.

Data Collection

A data collection plan was used to describe the strategies and data sources that

would determine how I would get the information that was needed to answer the research

questions within the conceptual framework of the study (Yin, 2014). The data sources

for this research consisted of semistructured interviews, questionnaires, and direct

observation of the learners' behavior while participating in the VLE. Collecting data for

a case study requires the researcher to go out into the real world and deal with real people

and situations (Yin, 2014). Conducting fieldwork is the primary activity in qualitative

studies. The researcher must come into contact with participants who are in their own

settings. This requires excellent communication skills in order to make the participants

feel that they are not being intruded upon (Patton, 2002). Data collection actually starts

after a research problem has been identified and the research design plan has been

developed (Patton, 2002). Data collection for this study started after I gained approval

from the Institutional Review Board (IRB approval number 04-04-16-0316408). After

receiving the participants' consent, I emailed a survey link with instructions for the

surveys to them, and I coordinated the scheduling of their observations and interviews.

Data collection from questionnaires was conducted online using Survey Monkey. Data

collection for the interviews, questionnaires, and observations was conducted over 3 months. All interviews were recorded using a digital voice recorder and a Live Scribe Smart Pen as backup. The supporting organization's human resource specialist provided me with access to the organization's VLE so that I could observe the participants' interaction in the training sessions.

Interviews

Interviews are among the most common but critical sources of evidence gathered in a case study (Yin 2014). The quality of an interview is predicated on the skills of the interviewer. The role of the interviewer is to get information from the respondents. Interviews allow respondents to provide information about how they see the problem or issues through their lens (Merriam, 1998). Interviews are also used to get information from respondents that cannot be collected from direct observation (Patton, 2002). Following the advice of Yin (2014), the respondents selected for the interviews were selected based on their experience learning in a VLE and meeting the age requirements of 18 years or older. I completed additional training on interview techniques by doing some of the interview exercises created by Janesick (2011). Each of the eight interviews was conducted over the telephone. The duration of each interview was approximately one hour. As stated previously, all of the interviews were audio recorded using an Olympus digital voice recorder and were transcribed by an external transcriber.

Follow-Up Interviews

Follow-up interviews may be needed to get clarity from participants on answers from an initial interview. During the initial interview, the participants were informed that

they would be contacted through email for a follow-up interview if additional information was needed. A follow-up interview may be needed during transcription or analysis (Janesick, 2011). However, no follow-up interviews were needed for this case study.

Interview Questions

The interview questions were related to the research questions and the conceptual frameworks used in the study. The interview questions covered everything that was to be measured (Yin, 2014). The sequencing of interview questions varies according to interviewing strategy (Patton, 2002). For example, a fixed sequence of questions should be used for standardized open-ended interviews. This is due to the fact that standardized open-ended interviews have a structured format (Patton, 2002). A fixed sequence of questions was used in the interviews for this study. All participants were asked the same questions. Tables 2 and 3 list the interview questions as they relate to the research questions and conceptual framework.

Table 2

Participant Interview Questions' Relationship to the Research Questions

Interview questions	Research questions			Conceptual framework
	RQ1: Impact on motivation	RQ2: Influence of technical skills	RQ3: Preconceived beliefs	
How do you engage with other learners in the virtual learning environment?	X			Constructivism
How do you engage with your instructor in the virtual learning environment?	X			Constructivism
Describe your experiences learning in the virtual learning environment.	X	X	X	Constructivism
What technology (ies) used in the virtual learning environment made the learning environment engaging?	X	X		Constructivism
How did any preconceived ideas about virtual learning environments affect your desire to want to use it to take training courses?	X		X	Constructivism
How did your computer skills impact your learning experience in the virtual learning environment?	X	X		Self-determination
How were you able to control your own learning in the virtual learning environment?	X			Self-determination
Describe your experience with the technical support you received while using the virtual learning environment.	X	X		Self-determination
How did the ease of use in the virtual learning environment impact your learning experience?	X	X	X	Self-determination
How was the training relevant to you?	X		X	Self-determination

Field Notes

Field notes are essential to data collection for qualitative inquiry. Field notes were taken from the interviews and from observing the participants and the physical settings where the observation took place (Yin, 2014). A field journal was used to record details about the research settings and the direct observations. Initially, the field notes for the study were handwritten in a field journal. They were later typed using Microsoft Word and integrated into the case study database as recommended by Yin (2014).

Data Analysis Plan

The data analysis in qualitative research is interpretive which means that there is no exact method for performing the task (Cohen et al., 2007). A data analysis plan was used to depict the analytic process. Wilkinson (2000) opined that a data analysis plan should be consider because it can serve as a guide and it will help the researcher to do an audit trail.

Data analysis can start at the beginning of data collection, during data collection or after data collection (Yin, 2014). The data analysis for this study started after the direct observations. Maxwell (2013) and Miles et al. (2014) suggested that data analysis could be done concurrently with data collection. The data from the direct observations consisted of field notes from observing the training in the VLE. However, the analysis for the interviews started after the information was transcribed (Maxwell, 2013) due to the fact that it had to be coded before analyzing it (Wilkerson, 2000). According to Miles et al. (2014) "code in qualitative research is a construct created by the researcher that symbolizes and attributes interpreted meaning to each individual datum for later purposes

of pattern detection, categorization, theory building and other analytic process" (p. 72).

Inductive coding was used for this study. Inductive coding is generated from the descriptions provided by the participants in the study. This could help eliminate researcher bias because according to Miles et al. (2014) inductive coding provides less chance for the researcher to try to fit the data to a conceptual framework or theory. All of the interviews were transcribed, coded, and categorized and placed into themes. The themes were constructed and put into pattern codes (Maxwell, 2014). The interview transcripts were coded based on experiences, beliefs, attitudes, and opinions. Data from the surveys were used to support the interviews and observations. The field notes from the direct observations were coded, categorized, and organized into the themes selected from the interviews. Miles et al. (2014) noted, "pattern codes are assembled into the following: (a) categories or themes, (b) causes/explanations, (c) relationships among people, and (d) theoretical constructs" (p. 87). After putting the data into pattern codes the next step was to put them into matrices and then into networks. Analytic "memoing" was also used to record my thoughts and reflection about the data. NVivo 11 software was used to organize code and analyze the data from the study. Figure 1 below provides an illustration of Nvivo 11 for the organization of the folders was how the data from the interviews, surveys, and observations were stored for analysis.
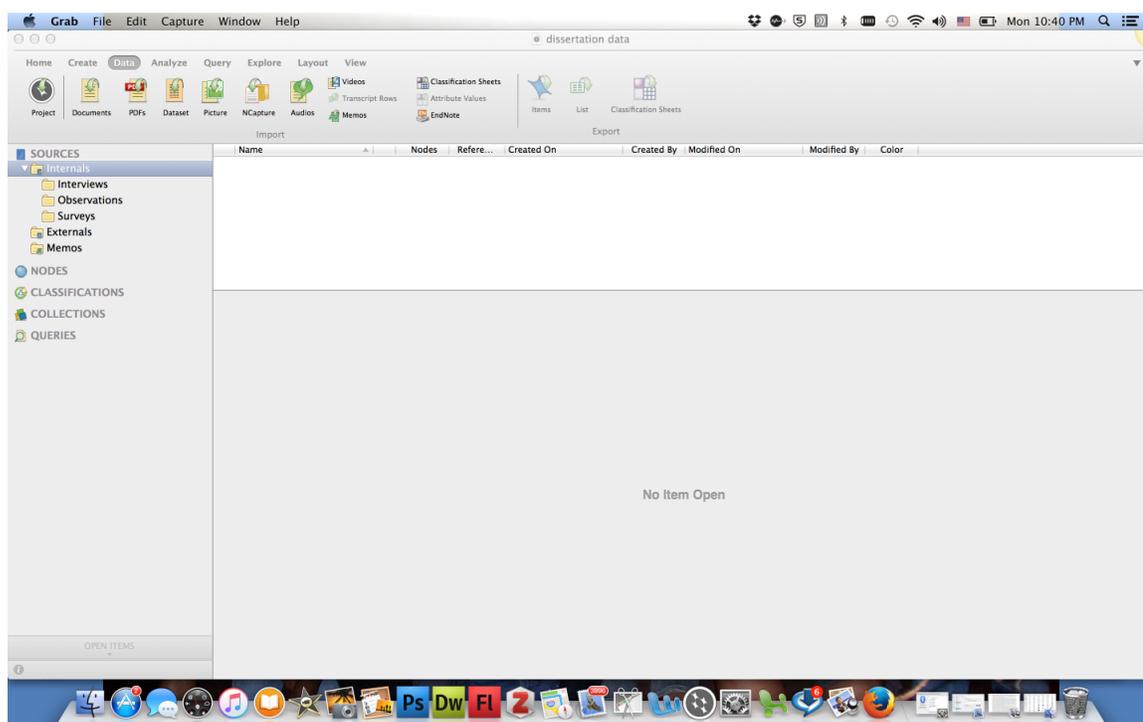
Figure 1. Screenshot of NVivo 11 layout for data collection folders.

Internal Validity

Internal validity is concerned with issues of trustworthiness and credibility and making sure that the information is meaningful (Merriam, 1998). It is also concerned with the question: are the findings of the study logical and rational (Miles, Huberman & Saldana, 2014)? Miles et al. (2014) argued that some researchers believed that the term internal validity was a quantitative construct and therefore should not be used in qualitative research. These researchers argued that the terms verisimilitude and persuasively written account should be used instead. Wolcott (1990) as cited in (Miles et al, 2014) argued that validity should be replaced with presenting a deep understanding of the phenomenon. Miles et al (2014) believed that the write up of the research was the most important factor when it came down to whether to use the term internal validity.

The opposing qualitative researchers argued that using the term internal validity in

qualitative research presents a more robust stance toward qualitative research (Miles et al,

2014). Some considerations for ensuring internal validity are:

> (a) Ensure that the data used in the research is related to the theoretical theories
>
> and conceptual frameworks, (b) ensure that instruments used to access the issues
>
> under observation actually access the issues under observations, (c) ensure that
>
> meaningful rich thick descriptions are presented, and (d) allow for participants to
>
> verify that the conclusions from the data collection were correct. (Miles et al,
>
> 2014, p. 313)

Triangulation of the data collection and getting participants feedback on the

interpretations of the interviews and observations are other ways that will improve

internal validity (Merriam, 1998). The strategy of triangulating the data was used in this

study as a means to improve the internal validity.

Researcher bias and reflexivity are also threats to internal validity that the

researcher must develop a strategy to eliminate (Maxwell, 2013). Researcher bias is

concerned with choosing the data from the research that fits the research paradigm,

conceptual framework or theoretical framework. Reflexivity is concerned with the

researcher's influence on the research setting or research instrument (Maxwell, 2013).

As a mitigating strategy for research bias and reflexivity, the respondents' words were

transcribed exactly from the audio recording. Maxwell (2013) warned that researcher

bias would exist. However, the important barrier to allowing it to become a threat is to

recognize it and to honestly put forth the effort to address it. Other strategies that were

used to help mitigate reflexivity were (a) respondents were not led into answering the questions (b) respondents were not convince to change their responses to the questions, and (c) spending enough time in the field to get an in depth understanding of the issue under research. These strategies were used to help improve internal validity (Creswell, 2009).

External Validity

Validity is concerned with ensuring that the findings of the research are correct and accurate from the perspective of the researcher and the participants (Creswell, 2009). External validity is concerned with how much of the research findings can be generalized from the research environment and samples to other research environments and samples (Yin, 2014). Internal generalizability is an important concern to consider when doing qualitative case studies (Maxwell, 2013). The validity of the case study conclusion depends on the internal generalizability. According to Maxwell (2013, p 137) "internal generalizability is concerned with the conclusion within the case, setting, or group studied, to persons, events, times, and settings that were not directly observed, interviewed, or otherwise represented in the data collection" (p. 137). The aim or focus of a case study research is to get an in depth understanding of the phenomenon that is being study and to provide findings that have rich and thick descriptions of the interpretations and analysis (Merriam, 1998). A rich and thick description means that a thorough and complete identification of the phenomenon that is under study is described (Merriam, 1998). Providing rich and thick description help readers to determine if a case's finding can be transferred to their situation or to other similar situations (Merriam,

1998).

Guba and Lincoln (1981) noted that the role of qualitative research is to emphasize, describe, evaluate, compare, identify, conjure images, and provide for the reader a sense of participating in the research environment (p.149). Achieving this could bring about user generalizability. User generalizability refers to providing enough descriptions of the case and letting the user or reader decide if the findings from the research can be generalized from one situation to another (Merriam, 1998). Thus, it can be assumed that external validity can be obtained when there is ample, rich, and thick descriptions provided for the case. The structure of the research questions can also help or limit external validity. The research questions should be "how" and "why" questions in order to help bring about analytic generalizations (Yin, 2014). Analytic generalizations are contrasts to statistical generalizations. Yin (2014) noted that "an analytic generalization consist of a carefully posed theoretical statement, theory, or theoretical proposition". Yin also noted, "analytic generalizations could take the form of lessons learned, working hypothesis, or principles that are believed to be applicable to other situations" (p. 68). Extrapolation is another concept that can be used by researchers to ensure external validity. It is similar to the concept of analytic generalizations. According to Patton (2002) extrapolations are "logical, thoughtful, case derived and problem oriented" (p.584). Extrapolations allow users to reflect on how the findings of the research can be used for analogous situations but not necessary the same situation.

Guba and Lincoln (1981) as cited in Patton (2002) suggested that qualitative researchers exchange the concept of generalizations to transferability and fittingness

when presenting their findings. Transferability is thought to be possible if there were similarity between two settings. The degree of transferability depends on the degree of similarity of the two settings. Fittingness refers to the degree of congruence between two settings. If both settings are congruent, then a fit will occur. The responsibility for determining the transferability resides with whoever is doing the generalizing. External validity was enhanced in this study by providing a rich, thick description, an in depth understanding of the case, and a thorough description of the research context. Additionally, a complete description of the sample population and other processes were used in the research to allow readers to compare with other research settings and populations were provided (Miles et al, 2014).

Reliability

The purpose for reliability in a study is to ensure the quality of the research. The process used to interpret and present the data and the techniques used to collect and analyze the data will ultimately determine the validity and reliability of the data (Merriam, 1998). Reliability is met when the procedures in the research are repeatable by other researchers and that they come to the same findings and conclusions as the original research if they follow the steps and procedures of the original research. According to Merriam reliability in a research design is predicated on a single postulate. In order to make this happen, the research steps and procedures should be carefully documented though out the research (Yin, 2014). Yin suggested that a case study protocol and a case study database be developed and used for the data collection phase of the research in order to ensure that reliability is obtained. Additionally, there are other strategies that

researchers can use to increase the reliability of the instruments and the overall study.

Since the researcher is the primary instrument in a qualitative study getting extra training

and coaching in collecting and analyzing the data will help improve reliability (Merriam,

1998). Triangulation, which consists of using multiple methods of data collection and

analysis and incorporating an audit trail which consists of having another person verify

the findings, are other techniques that could help to ensure that reliability is met

(Merriam, 1998).   Recommendations on how to ensure reliability from Yin and Merriam

were implemented in the study to help to ensure that reliability was met. The techniques

below were used in the study to help make sure that the standards for reliability were

realized:

- Case study protocol

- Case study data base

- Steps in the procedures used for data collection and analysis was documented

- Triangulation method in data collection and analysis

- Audit trail

- Peer review for the interview instrument

A Qualitative Analysis Documentation Form created by Miles et al (2014) was used to

document the steps and procedures in the analysis process. The Qualitative Analysis

Documentation Form will also indicate to other researchers that rigorous procedures were

used in the case study. The Qualitative Analysis Documentation Form documents the

steps and procedures:

- Specific data sets that were used

- Procedural steps

- Decision rules

- Codes for analysis operations

- Conclusions drawn from analysis operation

- Research comments

Lastly, the Qualitative Analysis Documentation Form helped to improve the analysis tasks and it helped to conduct an audit trail of the analysis process (Miles at al., 2014).

Ethical Procedures

Qualitative researchers must be aware of the many potential ethical issues that they may face when gathering data for research. Creswell (2013) stated "ethical issues loom large in the data collection phase of qualitative research" (p. 174). In order to protect participants' rights, confidentially and privacy qualitative researchers must first be aware of the potential dangers that can occur when ethical issues are not addressed. Then they must design strategies that will help to safeguard the participant's anonymity and private data.

In following IRB guidelines, participants were informed that they were being solicited to be a part of a study. The participants were also informed of the purpose of the study and they were informed that they were free to stop participating at any point in the study. I was honest and truthful throughout the data collection and analysis phase of the research.

An informed consent was emailed to each name on the class rosters that was provided to me from the supporting organization [see Appendix E]. Each person that

wanted to participate in the study provided his or her consent through email. Only those who provided their consent was interviewed, sent a survey, and observed [see Appendix E].

The informed consent form addressed the following points;

- Rights of the participants

- The purpose of the data collection activities

- Who will use the information and how the information was used

- Risks and rewards involved in being a participant in the research (Creswell, 2013; Patton 2002).

Participants were informed that their confidentiality would be protected and their names would not be used. They were informed of the risks and benefits involved in being participants. All informed consent forms were emailed to the participants prior to the start of the data collection. Participants were asked to email the informed consent form back to my email address stating that they consented to participating in the study.

All Institutional Review Boards (IRB) procedures were strictly followed throughout the data collection and analysis process. Permission to gain access to participants was requested from the participant's organization. All promises made to the participants were strictly adhered to. Finally, to help improve ethnics my personal experiences were not shared with the participants during the interview process. Sharing personal experience in the interview process can compromise the amount of information the participants will share (Creswell, 2013).

The storage of data is also an ethical concern that should be addressed in qualitative research. Serious consideration should be given to who will have access to the data and how will the data be handled and secured (Creswell, 2013). I controlled the data handling in this study. All data was backed up on an external hard drive data and safely secured in my home office. An Olympus digital voice recorder was used to record the phone interviews. The information from the digital voice recorder was downloaded to a flash drive for back up and safely secured in my locked file cabinets. The interviews were also downloaded from the Olympus digital voice recorder to my document file and then emailed to the external transcriber for transcription. Lastly, pseudonyms were used for all names used in data analysis in order to protect the confidentially of the participants' name and their professional work place.

Summary

The purpose of this qualitative study is to investigate how VLEs impacted motivation in adult learners. Three research questions were used to explore students' feelings and attitudes about learning in a virtual learning environment. A case study inquiry was used to do an in depth investigation into how learners learned in VLEs.

Data collection consisted of interviews, surveys, and observations. The interview questions were peer reviewed as a measure to validate the interview instrument. The survey used in the study was developed from an existing survey. An interview protocol was used to help maintain consistency for the line of inquiry and an observation protocol was used as a guide for the direct observations.

Participants for the study were solicited from a class roster provided by the supporting organization. All of participants were informed of their rights and the purpose of the research.

Ensuring quality for the research and ensuring that the research is correct and accurate are very important in order for the research to be beneficial and useful. Reliability and validity are measures for this purpose. To ensure that the standards for reliability and validity were achieved a triangulation from multiple sources such as: interviews, observations, and surveys were used. Additionally, a case study database, member checking, and pattern matching was used. Lastly, NVivo 11 software was used to analyze the data and coding was used to categorize data into data chunks and to develop patterns and themes.

Qualitative research involves fieldwork and contact with individuals in their natural settings. Therefore, it is very critical that the researcher follow ethical procedures. Steps were taken to ensure that ethical procedures were followed. One main procedure used was to ensure that all individuals that would be participants for study were provided with an informed consent form. The informed consent of each individual was received before they were allowed to participate. The informed consent form served to inform the participants of the purpose of the interview, their rights, and to let them know that they could terminate the interview at any time. It also informed the participants that their confidentially and the confidentially of their organizations would be maintained at all times. Another measure used to ensure that ethical procedures were

followed was gaining approval to collect data for the study from the IRB. The

procedures from IRB were strictly adhered to.

Chapter 4: Results

The purpose of this descriptive case study was to explore the impact that learning in a VLE had on adult learners' motivation in the workplace. The study was based on data collected from interviews, direct observations, and surveys. The data were collected from eight adult federal government employees age18 and older who had previous experience taking training in a VLE. This section includes settings, demographics, data collection, data analysis, themes, evidence of trustworthiness, credibility and transferability, dependability and confirmability, and results. It concludes with a summary of the study.

Setting

The federal government agency that sponsored the study was located in the western region of the country. A VLE was used for the training sessions. The VLE that was used for the training was a design information space for web-based, online, and distance training that allowed for the implementation of multiple technologies. This was consistent with the definition of a VLE provided by Dillenbourg (2000). The virtual learning was integrated with Blackboard and allowed for video streaming and Adobe Connect. The VLE also afforded learners the capacity to register for courses and trainings, manage their training requirements, print certificates, run reports, take exams and surveys, and upload documents. Instructors could upload training courses and content, manage their classroom trainings, grade exams, and run reports.

Two separate training classes were observed. One class consisted of a seminar for retirement planning, and the other training consisted of project planning. Both training

sessions consisted of 8 hours of content covered in 4-hour segments over 2 days. Both of

the training sessions were listed as professional development. Attendance of the training

classes was voluntary. Registration and supervisor approval for the training were done

through the organization's VLE, and the classroom instruction was delivered using

Adobe Connect Pro. Learners were able to log into the VLE and access the link for the

Adobe Connect meeting. Participants completed the evaluations for the training sessions

in the VLEs. The training was delivered synchronously, and the instructor could be seen

via video camera on the Adobe Connect session. Participants could communicate with

the instructor and other learners using chat and audio. They could choose between using

their phones to dial into the session or used the audio with Adobe Connect Pro.

Participants also had the option to click on various icons to take quizzes, complete polls,

and raise their hands to ask questions. Additionally, participants had the option to share

their screens and be placed in breakout rooms for collaboration with each other.

Demographics

The participants were located on the West Coast and consisted of five males and

three females. All participants acknowledged that they were between 40 and 50 years of

age, and all had a 4-year college degree. The data for the demographics were collected

from the introduction interview question. Participants were asked if they were between

the ages of 18 and 29; 30 and 40; or 40 and 50. The responses for the first interview

question, which asked the participants to describe their experience learning in the VLE,

revealed that all of the participants had at least 1 year of experience taking courses and

training in the VLE. The participants in the study are identified as Tatiana, Lyanardrah,

Kimaggio, Leonnard, Jaylard, Jacai, Azariah, and Lyrick. These pseudonyms are used to

protect the confidentiality of the participants and the organization by which they were

employed. Table 3 provides information pertaining to the participants' demographics.

Table 3

Participant Demographics

	Pseudonym	Gender	Age	Experience using VLE
Participant 1	Tatiana	F	40- 50	1-5 yr
Participant 2	Lyanardrah	F	40-50	1-5 yr
Participant 3	Kimaggio	M	40-50	1-5 yr
Participant 4	Leonnard	M	40-50	1-5 yr
Participant 5	Jaylard	M	40-50	1-5 yr
Participant 6	Jacai	M	40-50	1-5 yr
Participant 7	Azariah	F	40-50	1-5 yr
Participant 8	Lyrick	M	40-50	1-5 yr

Data Collection

The data collected in the study were organized into folders on a desktop

computer. The data collection consisted of recorded interviews, transcripts, field notes

from the observations, and surveys. An interview protocol and an observation protocol

were used to guide the interviews and observations. All handwritten notes from the

interviews and the observations were placed in separate folders and secured in a locked

file cabinet in my home office. The audio recorder and flash drives were also secured in the locked file cabinet.

A survey link was emailed to each of the eight participants after receiving their consent to participate in the study. Participants were asked to rate their level of agreement with the statements on a 5-point Likert scale. The online survey was based on Keller's motivational questionnaire (see Appendix B). All surveys were completed over a 60-day period. The surveys were downloaded from Survey Monkey into a portable document format (PDF) and saved in a folder on the hard drive.

The observations were scheduled with each participant. I was allowed access to the Adobe Connect meeting where I was able to observe the participants in their learning environment. I observed three participants in the retirement seminar training for 4 hours for 2 days, and I observed five participants in the project planning session for 4 hours for 2 days. An observation protocol was used to guide the observation (see Appendix C). The observation consisted of observing the following:

- Learning environment

- How the session began

- Chronology of events

- Interaction that took place between instructor and participants

- Interaction that took place between participants

- Instructional activities

- Program activities

- Participant behaviors

- Closure of training session

The training sessions were 35 days apart, and eight observations were completed over 65 days. Field notes were taken from the observation of the learning environment and the exchanges with the participants and instructor using chat messages, audio, polling, and annotation tools. The interviews were scheduled for all eight participants and were conducted over a period of 90 days. Each interview was completed over the telephone and lasted approximately one hour. All eight interviews were audio recorded. Copies of the recordings were emailed to the external transcriber. After each interview was transcribed and emailed back to me, the transcript was stored in a folder for later review. The data collection process was completed over a 90 day period. The interviews, observations, and surveys were collected to answer the research questions identified for the study.

Data Analysis

The transcripts and data from the surveys and observations were uploaded into NVivo 11. The transcripts from the interviews, the field notes from the observations, and the surveys were uploaded into NVivo 11, where the data were coded and analyzed. All of the steps in the data collection and analysis were followed as previously discussed in Chapter 3. To identify and keep track of the data, each participant was assigned a pseudonym. All of the data were uploaded into a separate folder in NVivo 11. First- and second-cycle coding was used to code the data. First-cycle coding was used to group the material into chunks of data (Miles et al., 2014). Second-cycle coding was used for each interview question and each interview. NVivo coding was used for first-cycle coding.

NVivo coding uses participants' own language in the data files as codes (Miles et al., 2014). I highlighted all of the similar phases from the participants, and I did a text and word query on NVivo 11 to find the words or texts that were used with the greatest frequency. Second-cycle coding was used to find patterns and themes. The themes were then loaded into folders on NVivo 11 called *Nodes*. These Nodes allowed the storage of all related materials in one location. This made it more convenient to look at all of the material to find patterns and connections. NVivo 11 allowed me to use the system's default color coding to code the data and place the data into themes. Four themes were identified from the coding process. The themes identified were accessibility, engagement, visual learning, and time. The direct observations were analyzed to further examine the data from the interviews and surveys. The surveys were downloaded from Survey Monkey and analyzed to explore the impact on motivation and look for similarities and comparisons to the interview questions. The surveys were also analyzed per question and summarized by Survey Monkey. The results from the surveys are shown in Table 4.

Table 4

Survey Results

Survey question	SD	DA	N	A	SA	RQ1	RQ2	RQ3
Accessing the virtual learning environment was easy for me.	1	1	1	2	3		x	
There was something interesting at the beginning of this lesson that got my attention.	0	1	2	4	1	x		
The virtual learning environment was more difficult to navigate than I would like for it to be.	4	2	1	1	0		x	
I feel that I can receive quality training while learning using a virtual learning environment.	1	1	1	2	3			
Completing this lesson successfully was important to me.	1	0	1	3	3	x		
The collaborative assignments kept my attentions.	0	1	2	2	3	x		
The organization of the content helped me to be confident that I would learn this material.	0	0	2	5	1	x		
I believe that I have improved my learning experience by using the virtual learning environment.	0	2	1	3	2			x
Finding course materials in the virtual learning environment was easy.	1	0	2	5	0		x	
I believe that I have control of the learning by using the virtual learning environment.	1	0	2	2	3	x		

Themes

Coding was used to organize the data for further analysis. The data were color coded and used to construct the themes. Open coding was used to analyze the data. Open coding involves creating patterns and themes that emerge from the data (Miles et al., 2014). NVivo coding was also used. NVivo coding involved data that emerged from the interview responses. Thematic analysis was used to discover any patterns and relationships that were associated with the data.

The patterns, relationships, and themes were used to address the impact that VLEs have on adult learners' motivation in the workplace. Four themes were identified from the coding of the data that were collected from the interviews:

1. Accessibility is a key benefit of learning in a VLE.

2. Engaging with the instructor and others was important for having a positive experience in the VLE.

3. Visual learning was critical to engagement

4. Time was easily managed and controlled when learning in the VLE.

Theme 1: Accessibility

Accessibility is concerned with how accessible the learning environment, instructor, peer learners, and learning resources are to the learner. The learning resources can consist of help desk personnel, technical hardware and software, learning materials, and learning content. Theme 1 helped in exploring Research Question 1. It was identified by exploring the participant responses to Interview Question 1. Interview Question 1 asked respondents to describe their learning experiences in a VLE. Seven out

of eight participants reported that being able to take the training without having to travel

was very important to them and contributed to them having a good experience with the

VLE. Overall, the participants' comments indicated that accessibility was an important

benefit of learning in a VLE and that they felt that it was necessary in order to have a

positive learning experience. One of the respondents, Jacai, pointed out that accessibility

meant more than just being able to access the learning materials and classroom. He

commented that he felt that accessibility also meant being able to have access to the

instructors and learners. He opined that instructor presence was lacking in the VLE as

compared to the traditional classroom environment. Jacai stated,

> Most of the training I have taken in the virtual learning environment has not been
>
> in real time and the instructor is not always available when you need them. You
>
> don't get that immediate response that you might need at that time.

Jacai's statement was consistent with the literature on instructor presence. Instructor

presence and support are critical to learners feeling connected to the learning

environment and having a positive learning experience (Cicco, 2015). Additionally,

when learners have access to other learners, these connections help to provide them with

a sense of place and a sense of community (Sandy & Franco, 2015). As discussed earlier

in Chapter two, when learners have a sense of place and a sense of community, they will

be more apt to be engaged in their learning (Sandy, & Franco, 2015).

The participants cited the following factors that made the VLE more accessible

for learning than the traditional classroom: (a) not having to travel to take training

classes, (b) being able to control when and where they could take the training, and (c)

being able to connect with different learners in various locations at the same time. They felt that these factors made the VLE more accessible than the traditional classroom environment. Tatiana stated,

> Some of our classes are held downtown. I live maybe about 40 miles south of downtown and the traffic is horrible. Especially in the afternoon time, so I think that virtual training for me was the best because I was able to take the training from home.

Kimaggio commented that he felt that being able to take training at his desk location was an advantage that the VLE afforded learners. He stated, "The virtual learning environment allowed me to take the course right here at my desk."

Lyanardrah noted that being able to take asynchronous training in the VLE provided her with more accessibility than she could have received from a traditional classroom environment. She stated, "I was able to choose when it fits my schedule. I was able to take the training in the comfort of my own home." Lastly, Asariyah commented that she felt that the VLE provided more accessibility to organizations than traditional learning environments because it allowed them to send learners from around the country to same learning event without having them travel. She also opined that this allowed organizations to save travel dollars. She stated, "There can be people in Hawaii, there can be people in Florida, Washington, DC, just all over, just basically a click of a button and listening and watching and learning."

The comments made by the participants were consistent with the literature on accessibility being an advantage of training in a VLE.

Theme 2: Engagement

Engagement is a key motivational construct. Research showed that the lack of engagement was highly correlated to poor motivation in learners (Hartnett et al., 2011). Social interaction in learning environments is the impetus for engagement (Hartnett et al., 2011). Theme 2 was identified from the respondents' responses to interview question three and four. Participants were asked to discuss how they engage with other learners in the VLE and Interview Question 4 asked participants to discuss how they engage with the Instructor in the VLE. While exploring the themes, it was noted that all of the respondents welcomed the opportunity to be able to relate to each other and the instructor in the learning environment. For example, Jaylard stated, "Just the act alone to be able to engage with other people virtually and, and get things done is really awesome." The participants also communicated that engaging with the instructor and other learners were important for having a positive learning experience in the VLE.

The responses from the participants revealed that they felt that the VLE had the necessary technology that would allow them to engage with the instructor and other learners. Email was one technology outside of the VLE that participants commented that they felt was very useful in allowing them to communicate privately with the instructor and other learners in the training space. One of the participants, Kimaggio explained that he really liked using emails in his learning instead of the chats because he could ask questions privately or have discussions with other students on a one to one basis. He stated, "We also have an opportunity to email each other right there on the spot if there is something that we are seeking clarity on or just a general question that we don't really

want to pose to the entire field." Most of the participants seem to mention that the social media tools such as chat and polling made it engaging with other students easier and they felt that they was necessary in the VLE. For example, Asariyah stated, "I think the interaction in the class that happens when we take polls and when we chat to answer questions is good." The fact that some respondents preferred different social media tools to learn with supports the literature that suggest that different strategies should be use to assist learners to engage with other learners, their instructors, and their learning environment due to learners having different learner characteristics and learning styles (Chow, 2016).

Theme 3: Visual Learning

Visual learning provided learners with a sense of presence and made them feel more connected to their learning environment (Cicco, 2015). Chow (2016) argued that different learners required different learning strategies in order to feel a sense of presence. As mentioned in Chapter 2, presence is needed for engagement and learning acquisition. Visual learning was identified as a theme from the participants' responses to Interview Question 3 and 4. The majority of the participants indicated that visual learning was important for their engagement and focus. The majority of the participants also commented that they felt that the video camera used in the training sessions to view the instructor helped them to maintain their attention and focus. For example, Tatiana stated, "for me personally, I am a visual person, I was able to stay more focused than if I was just listening and not really able to make eye contact." She shared that she would have been less engaged if she had to attend training using a web conferencing tool and

there was audio but no image of the instructors face. She also noted that using videos

that only had audio and no image of the instructor or speaker was not the same as seeing

the instructor or speaker.

Most of the participants who commented that they felt that visual learning were

important to them when using the VLE also commented that they felt that using some

type of visual media would help them have a better learning experience in the VLE.

Asariyah opined that online training in VLEs that did not allow one to see the

presentation or the instructor was not interactive and engaging. She commented that she

felt that the VLEs that use this type of training were not as effective. She stated, "You

know I'd rather be there and see it instead of doing it online. I didn't like the online

training, but the virtual is a step further. I think it's more interactive. It's more exciting."

Lyanardrah stated, " I'm very visual so seeing the documents was great." The comments

from the respondents on the importance of visual learning to their engagement, focus and

attention are consistent with Ilie and Logofutu's (2015) research. Ilie and Logofutu's

research (2015) claimed that learning strategies that included visual imagery was

important for some learners to be able to focus, absorb and create knowledge.

Theme 4: Time

Time in the VLE can be used to gauge learners' perception of ease. Perception of

ease is concern with how easy learners felt for them to use the VLE (Chow, 2016).

Perception of ease could be negatively impacted if it took learners a great amount of time

to access the VLE, the learning content, and the learning materials. Perception of ease

was also influenced by the amount of time it took to receive instructor support and feedback and the amount time it took to receive technical support.

Learners' perception of the VLE as being useful was negatively impacted if they had to wait long periods of time waiting for instructor or technical support (Cicco, 2015). Time was identified as a theme from the respondents' responses to the interview questions that asked them to respond to how did the ease or difficulty in the VLE impact your learning; describe your experience with the technical support you received while using the VLE; and describe your experiences learning in the VLE. Exploring this theme revealed that the participants felt that time was critical to accessing the learning materials, the technological tools, the learning environment, and getting technical issues resolved in the VLE. This is because in the VLE the instructor or technical support is not there with you to assist. The respondents commented that they felt that if it took an enormous amount of time to access the learning environment, learning materials, content, or technical support it could be a factor in whether they had a positive learning experience. Only one participant said that it took a lot of time to navigate the VLE but after he got the hang of it the remaining time that he spent in the VLE went fine. Jacai stated, "It took time to learn how to navigate my way around the virtual learning environment, but after that I had no issues." The participants also commented that they felt that time could also be a contributing factor in their motivation or in whether or not they completed their training. None of the participants reported that time was an issue when they were waiting for feedback from the instructor or from technical support. The participants felt that technology used in the VLE afforded them the opportunity to get timely support from

the instructor. Tatiana commented that she felt that she had the opportunity to manage her time and learning strategies better in the VLE than in a traditional learning environment because in the VLE certain technologies allowed her to control her learning. She shared that when she take notes she could actually get loss because the instructor has moved to another point while she was writing her notes but in the VLE she could used the link to the training and not have to worry about missing valuable information. . Tatiana stated, "By the time you finish writing, you might have lost sight of what he said afterwards. But giving us the link to the presentation made things a lot easier for me."

Technical issues in the VLE could be the cause of delays in time. Kimaggio said that, "time could be an issue when there were connectivity issues because of technical issues due to inclement weather." When technical issues arise and they are not resolved by technical support in a reasonable amount of time learners can become frustrated and this can have a negative impact on their learning experience (Cicco, 2015).

The participants commented that they felt that the amount of time that the instructor took to provide support or feedback was an important factor that could influence whether they had a positive experience or not. Jaylard stated, "In the traditional classroom one was able to get instant gratification. If you needed a question answered all one had to do was raise their hand and they would receive an answer immediately." He commented that he felt that the VLE needed to have the capacity to allow feedback in a timely manner in order for her to want to use it to take training. Timely communications from the instructor and technical support is extremely critical in technology-based environments (Cicco, 2015).

Evidence of Trustworthiness

Data collection began after approval by the Institutional Review Board (IRB) approved the research study. All ethical standards mandated by IRB were strictly followed.   Confidentiality was maintained by sending separate emails to participants to solicit them to be a part of the study. The email addresses were obtained from the class roster provided by the point of contact from the supporting organization that invited them to be a part of the research study. Data collection did not begin until the consent was received from each participant. Additionally, pseudonyms were used for the participants throughout the research to protect their identity and confidentiality. Lastly, to protect the confidentiality of the research site the organization's name was not provided in the study.

Credibility and Transferability

As stated previously in Chapter 3, internal validity ensured that trustworthiness and credibility making sure that the information is meaningful (Merriam, 1998). To accomplish credibility for this study various strategies were used. The data collected related to the constructivist and self -determination framework. The interview protocol, observation protocol, and surveys were framed from the constructivist and self-determination conceptual frameworks and the research questions. Using the interview protocol, observation protocol, and surveys served as the triangulation method for collecting data. Member checking was accomplished by allowing the participants to read over their transcripts to verify that their statements were correct. The interviews were recorded and transcribed by an external transcriber word for word. NVivo coding was used as a coding method. NVivo uses the participant language and exact wording in

order to capture the cultural perspective (Miles et al, 2014). Notes from my observation

field journal were used to bridge connections with the responses between the interviews

and surveys. An adequate amount of data was collected from the responses to the

interviews and surveys. All of these strategies reinforced credibility for the study.

Triangulation was used as a strategy to be able to replicate the finding.

Triangulation of the data consisted of using an interview, an observation, and a survey to

collect the data for this study. The interview and observation protocol provided

structured steps and procedures for conducting the interviews and observations. Using

the protocols provides a strategy to assist with transferability. A rich, thick description of

the phenomenon is provided which will help the transferability of the findings. The

participants from the study represented one age group in the adult population and were

male and female. They all had some experience using VLEs. All of the participants were

from the workplace.

Dependability and Confirmability

To ensure dependability and confirmability a case study protocol, case study

database, and a qualitative analysis documentation form were used to document the steps

in the data collection and data analysis. Multiple data collection strategies and reflexivity

were used in this study to help ensure dependability. An audit trail was created by

closely reviewing the research design for the study and reviewing the notes from memos,

the case study protocol and the qualitative analysis documentation form. All of strategies

above assisted in ensuring dependability and confirmability.

Results

This research explored the impact that VLEs' had on adult learners' motivation in the workplace. Data collection consisted of interviews, surveys, and direct observations of the participants learning in their VLE. Eight employees participated in the research. The interviews indicated that all of the participants were over 18 and had some experience taking training classes in the VLE. The research questions, self-determination theory, and constructivist theory guided the study. The interview questions, surveys, and direct observations were used to explore the study's research questions.

Research Question 1

Research Question 1 was the following: How do social and contextual factors influence adult learners' autonomy and relatedness needs in a VLE?

To explore social and contextual factors the following factors were examined: (a) learning environment, (b) learner control, (c) learner engagement, (d) technical competence, (e) ease of use, (f) technical support, and (g) relevance of content. Multiple interview and survey questions addressed this issue and allowed for verification of results. The Table 5 below lists the relationship between the interview and the survey questions.

Table 5

Participant Interview Questions' Relationship to Survey Questions

Interview questions	Survey questions
How do you engage with other learners in the virtual learning environment?	The collaborative assignments kept my attention.
Describe your experiences learning in the virtual learning environment.	I believe that I have improved my learning experience by using the virtual learning environment
How did any preconceived ideas about virtual learning environments affect your desire to want to use it to take training courses?	I feel that I can receive quality training while learning using a virtual learning environment
How did your computer skills impact your learning experience in the virtual learning environment?	The learning environment was more difficult to navigate than I would like for it to be.
How were you able to control your own learning in the virtual learning environment?	I believe that I have control of my learning when using the virtual learning environment
How did the ease of use in the virtual learning environment impact your learning experience?	The learning environment was more difficult to navigate than I would like for it to be.

Learning environment. The learning environment has the potential to influence learning outcomes of learners. The learning environment also has the potential to influence learners' motivation. A constructivist learning environment focus is on learner-centered and collaborative learning (Friedman & Friedman, 2013). Self - determination is focus of learning environments that provide learners with autonomy, a positive learning atmosphere and an environment where learners could connect with each

other and the instructor (Hartnett et, al, 2011). The constructivist and self -determination theories are the frameworks for this study. Therefore, the VLE of the respondents was explored to see if the components of constructivist and self-determine learning existed. Interview Question 1, asked the participants to describe their experiences learning in a VLE and survey question eight asked them to rate their experiences in VLE. The responses were consistent between the interviews and survey.

Interview Question 1 asked participants to describe their learning experiences in a VLE. The responses from the respondents indicated that they felt that having access to learning on demand, being able to take training courses anywhere without having to be in a physical classroom, having access to the instructor, and being able see the instructor were important factors that they needed in order to have a positive experience in the VLE. The responses from the interview revealed that six of the participants felt that overall they had a positive learning experience in the VLE. Jaylard stated, "I've taken several courses, on online. The reason that I like taking them online is that you can do them virtually anywhere." Asariyah said, "We can take your polls and write in comments and, basically we can see power points. We can actually chime in and ask a question or answer a question. I think it's kind of cool how training has developed over the years.

One of participants, Leonnard, pointed out that he had some positive and negative experiences learning in the VLE. His positive experience was the accessiblility that the VLE provided and his negative experience was his inability to retain what he learned after the training. He stated, "The accessibility is high but the retainability is low." Lastly, one of the respondents, Jacai, felt that overall his experience in the VLE had been

negative. He stated, "Most of the training I have taken in the VLE has not been in real time and the instructor is not always available when you need them. You don't get that immediate response that you might need at that time."

The survey responses from the participants for Survey Question 8 asked participants to rate the statement " I believe my learning experience has improved by using the VLEs." Two participants selected *strongly agree*, three participants selected *agree,* one participant selected *neither agree nor disagree* and two participants selected *disagree* (Table 4). These responses indicated that the majority of the participants believe that the VLE provided them with a positive learning experience. These results were consistence with the results from the interview question one.

Learner control. Learner control is concern with learners having the ability to control the pace, time and flow of training. Learner control means that learners will also have the opportunity to control how they engage with the learning content and learning environment (Mogus et al., 2012). Interview Question 2 addressed how learners control their learning in the VLE. During the interview, all of the respondents provided examples of how they controlled their learning in the VLE. The majority of the participants stated that they felt that controlling their learning was very instrumental in order for them to feel that had a positive learning experience. The consensus from the interviews were that the participants felt that being able to control the pace of learning and being able to pause or stop the training and continue from where they stop from at a later date was very beneficial and useful. Kimaggio shared that most of the training that he took was self-paced. He commented that he felt that self-paced training was

conducive to his learning style and it provided him with the best opportunity to acquire and construct new knowledge. He stated, "Most of the training was self-paced. This gives you a better understanding. Questions are posted and you're able to read the question and not miss information versus the face-to-face classroom, where you can miss information if you are not paying attention. Leonnard pointed out that he felt that videos provided the best medium for delivering self- paced training. He stated, "I like the videos. You can stop it and pick it back up where you left off." Jaylard also commented that he felt strongly about the VLE having the capacity to deliver self-paced training. He stated, "Well the wonderful thing about it is its self-paced, so if you need a little bit of extra time to read or re-read for better comprehension you can always take the time and do that."

Survey Question 10 asked learners did they feel that they had control over their own learning in the VLE. The survey summary indicated that five out of the eight participants felt that they had control over their learning in the VLE. Two were *neutral* and one participant *disagreed.* These results were consistent with the opinions gathered from the interview question one.

Engagement. As stated previously engagement plays a central role in motivation (Hartnett et al., 2011). Technological functionalities in the learning environment and technology fit can influence learner engagement (Mohr et al., 2011). On the question of engagement, all of the participants felt that the VLE provided many opportunities for them to engage with each other as well as the instructor. Interview Question 5 was concerned with the technologies the participants felt made the VLE engaging. Chat,

instant messaging, email, and the telephone were the main technologies that learners cited. However, Blackboard discussion posts, and breakout rooms were also mention by two participants. The responses from the participants revealed that the respondents felt engagement with other learners were important in order to have a positive learning experience. However, they felt that engagement with the instructor was critical in order to have a positive learning experience.

The respondents also felt that having access to social media technology was necessary for communicating and collaborating with other learners and the instructor in the VLE. Tatiana provided an example of the important of having social media tools for communication by sharing an experience she had before class started. She shared that one time she and others had accessed the wrong meeting place for training and was not aware. She stated, "I sent them a chat that everybody could see to let them know that we're in the wrong meeting location. Lyanardrah shared how useful and beneficial Adobe Connect was to the learning environment. She stated, "Adobe Connect allow for uploading documents." Asariyah shared her points on how useful Goggle Chat and polls were to the learning space. Asariyah stated, "I think the interaction we have when we take polls and when we chat and have questions, we can feel free to basically just chat even amongst one another, so I think it's good." Most of the participants commented that they felt that Google Chat and the polls allowed them to communicate just as if they were in the traditional classroom.

One statement on the survey addressed the topic of learning engagement. The statement asked the participants to respond to the statement "The collaborative

assignments kept my attention" by choosing *strongly disagree, disagree, neither agree* nor *disagree, agree*, and *strongly agree*. One participant chose *disagre*e, two chose *neither agree nor disagree*, two chose *agree* and three chose *strongly agree*. The participants' responses indicated that collaboration in the classroom helped them to be engaged in the learning environment.

Observation of the training classes did not show much interaction between learners. However, observation of the training classes showed that participants used chat and polls to ask and to answer questions from the instructor quite frequently. The instructor had the participants to respond to polls, answer questions in the chat or over the audio at least every 5 minutes. Having learners to answer the questions in chat and respond to the polls every 5 minutes was consistent with the motivation strategies that Keller proposed for instructors to use in learning environments to keep learners attention and focus (Keller, 2010). Observations of the participants showed that they all participated in the chats and polls, which were indicative of them being engage.

Ease of use. Ease of use is concern with the perception that learners have for how easy the system is to use (Chow, 2016). Interview Question 7 addressed the ease of use or difficulty in the VLE.

The majority of the participants' commented that they felt that the VLE was easy to use and that this ease of use made the learning more engaging and easier to access. Lyanardrah stated, "The ease of use is a positive thing for me." Lyrick shared that the functionalities in the VLE was not difficult to use and this motivated her to want to use it for training. She stated, "It was not difficult so it had an impact, it made it easier to

participate in the training." Two of the respondents mention that the VLE was easy to

use if the Internet connection was good. Leonnard stated, "It's very easy as long as you

had Internet connection. If you don't have one, it's a rough time." Kimaggio stated,

"The only difficulty that I encountered was I had to make sure that the systems were up

online all the time. Sometimes it drops, you know, not often, but there's that possibility

and you feel like you, ah man all the learning I just did just went out the window."

Although the Internet connection is an external factor and not a functionality of the VLE

it can still have a direct impact of perceived ease of use and perceive usefulness (Yeou,

2016). Perceived ease of use and perceive usefulness can have a negative impact on

learners' engagement and it can have an impact on their overall learning experience

(Chow, 2016).

One statement of the survey addressed ease of use. The survey statement stated,

"The VLE was more difficult to navigate than the learner would like." In response to this

statement four respondents chose *strongly disagree*, two chose *disagree*, one chose

neither agree nor disagree and one chose *agree*. The results of the surveys were

consistent with the participants' opinions gathered from the interviews. Observations of

the learning environment did not reveal any situations where the participants had any

issues using any of the functionalities in the VLE.

Technical support. Technical support is a central external variable that can have

direct influence on learners' attitudes and motivation to use technology-based learning

systems. The quality of technical support and the amount of time that it takes for the user

to receive a response from the technical support personnel can also influence perceived

use and perceived ease that learners have about technology based learning systems. Technical support is required when users of a system have technical issues with the software, hardware, and Internet connectivity that they cannot overcome without assistant (Aishammari, Ali & Rosli, 2016).

Interview Question 8 explored how participants felt about the technical support they received from any issue they had with the VLE. Six participants revealed that they had a good experience with the technical support they received. Kimaggio shared that his experiences with technical support was that when he called he usually received a quick and timely response. He stated, "My experience with the technical support is that if there was any issue or anything that was going on with a particular course I'm able to call tech support and they're very rapid with their responses in getting us back up online or getting, an immediate action taken for what needs to be done to resolve the issue". Leonnard stated, "I've always had a positive experience with technical support. They've always been willing and, ready to help out." Asariyah stated that "every now and again something would freeze up and you could easily click that help button and the technician would assist you right there, so I think the ease of that is wonderful.

Two of the participants stated that they never had an issue where they had to contact technical support. Both participants stated they were confident that if they had to use technical support they would get a quick response and good experience. Jaylard stated, "I don't remember a time where I used a lot of technical support. I haven't had to use technical support. But I'm sure that it's easily and readily available to you at your convenience."

Relevance. Relevance is concern with learners' perception on how useful the learning outcome is to their goals (Keller, 2010). Relevance is a motivational construct and if learners feel that the learning objectives are not beneficial or useful they will not have the intrinsic motivation to want to learn them (Keller, 2010).

Interview Question 10 addressed relevance. All of the participants except for one reported that they felt that the training was relevant and useful to them in some way. Tatiana stated,

Ah, this particular one was very important to me and I'm going to tell you why. I don't know if you read on the first day, I posted my question and I said that I'm 40 years old. I would love to retire tomorrow, if I could, but the truth is, I'm not able to retire because I don't have the age or the means to do it, so I think that this was a great opportunity for me.

Lyanardrah shared that she thought the training session was extremely relevant. She stated the topic was retirement and I don't want to be working forever. I want to plan now and he gave key ideas, shared key ideas and thoughts for me to take care of now, so that I don't have to work forever and I can retire comfortably. Kimaggio shared that he worked in human resources so the he felt that the training was important and relevant. His comment was, "it was relevant because it assisted me in my job." Jacai shared that it did not keep him motivated because he felt that it was not job related. He stated, " it was more professional development and to understand the broader picture. It really didn't keep me motivated because I knew it was something that I wouldn't be using. It wasn't job related." The participants, who reported that the training was relevant, reported that

they felt this way because the training was useful to their goals. The one respondent that reported that the training was not relevant reported that he felt that the training was not relevant because it was not job related. All of the responses from the respondents were consistent with Keller's (2010) findings on relevance.

Research Question 2

Research Question 2 was as follows: How do learners' beliefs about their technical abilities/skills influence their motivation to learn in a virtual learning environment?

Learners' beliefs about their technical skills. Learners' beliefs about their technical skills are centered on computer self-efficacy. Computer self-efficacy is the beliefs that learners have about their ability to perform tasks and functions using the software and hardware of a computer system (Alshammari et al., 2016). Computer self-efficacy influences learners' perceived usefulness, perceived ease of use, and learning outcomes. When learners had high computer self-efficacy they also had positive perceived usefulness and positive perceived ease of use (Celik & Yesilyurt, 2013). Learners' attitudes and motivation to use technology-based environments could be negatively impacted when they had low technical skills and if they had low self-confidence in their technical skills (Hung, Sun, & Yu, 2015).

Research Question 2 was concerned with how learners' beliefs about their technical skills influenced their motivation to learn in the VLE. Interview Question 9 was used to explore this phenomenon. Interview Question 9 asked participants to rate their level of computer skills and explain how their computer skills impacted their learning

experience in the VLE. Five of the respondents communicated that they felt that there

was no impact; two respondents pointed out that they felt that it depended on the task and

one respondent shared that he felt that there would be some impact. All of the participants

rated themselves a 7 on a scale of 1 to ten and all of the respondents reported that they

felt that they had the required computer skills needed to be able to function properly in

the VLE. Leonnard reported that he rated himself a 7 on a scale from 1 to 10. He stated,

"Um, a 7 being average, it did not have a negative impact. That's all you need is about a

7 to work and manipulate most virtual training." Lyrick stated, "It didn't really hurt me

nor have a big impact on me."

Tatiana and Jacai reported that they felt that whether ones beliefs or ones actual

technical skills had an impact on one's motivation depended on the task or the course that

one had to encounter. Tatiana stated,

> I feel more confident. Obviously each situation is different. I am familiar with the
>
> system, so I know where to go in case our system crashes and how would I go
>
> back and try to find out a particular certificate or a particular class I had taken a
>
> few years ago. I mean you don't have to be an expert.

Participants commented that they did not feel that one had to be a computer expert

in order to successfully complete training in the VLE. However, they did feel that it was

important to have basic computer skills and having basic computer skills reduce their

computer anxiety. Jacai stated, "Like I said, it took time to learn how to navigate your

way around the VLE, but after that I had no issues, so the computer skills that I had were

sufficient." However, Tatiana stated, "If I did not have any computer skills, I would have been lost."

Kimaggio reported that he felt that having confidence and having computer skills made a great difference in one's motivation to participate in training in the VLE and responding to the question with the quote below. He stated, I mean, it impacted it greatly because again you have to know how to maneuver around, the different, learning environments that you're working with, so it helps to be able to know what you're doing."

Overall the learner responses indicated that they felt that they had the necessary computer self-efficacy necessary to perform the learning tasks in the virtual and they believe that operating inside of the VLE was fairly easy. They also reported that they had positive attitudes about learning in the VLE. The responses were consistent with Alshammari et al. (2010) research findings. However, the participants' responses indicated that they did not believe that having low technical skills negatively impacted their motivation to learn in the VLE. The participants' responses do not support the literature on computer self-efficacy.

Research Question 3

Research Question 3 was as follows: How do learners' preconceived beliefs about learning in a VLE impact their motivation to learn when using a VLE?

Preconceived beliefs. Preconceived beliefs are the beliefs that learners have about technology prior to using it. The preconceived beliefs are acquired from experiences they have had with older versions of the technology, comments from their

peers, how well they perceived the technology as fulfilling their needs, and communications published about the technology (Mogus et al., 2012). Learners' preconceived beliefs about technology could influence their perceived usefulness, perceived ease of use, and their motivation to use the technology (Mohr et al., 2012).

Research Question 3 was concerned with how learners' preconceived beliefs about learning in a VLE impacted their motivation to learn using a VLE. Interview Question 6 and Survey Question 4 were used to explore Research Question 3. Interview Question 6 asked participants to report on their preconceived beliefs about learning in the VLE and how those preconceived beliefs influenced their desire to train in them. The participants' comments indicated that five of the eight respondents had negative preconceived notions before using the VLE. Asariyah stated, "I would say back in the day I was more of an in house classroom learner. I'd rather be there and see it instead of doing it online. You know the initial online training. I didn't like that." Lyrick stated, "I thought that it would be boring, uninformative and that it wouldn't be engaging." Kimaggio stated, "Well, first it's the, unknown. Not knowing that this is really going to work or satisfy my needs or what I'm looking for."

Two participants reported that they had positive preconceived beliefs before using the VLE. Lyanardrah stated, "Well, I've been using it, probably on an off since 2005. So my notions were a bit more advanced, since I have used it before. Technology has in increased the ability for one to have a better experience with it." Jacai stated that his preconceived belief was, "it was more flexible on time and also that it was a lot easier than the traditional class room environment."

One participant, Tatiana, reported that she did not have any preconceived beliefs before using it the VLE. She stated, "Honestly, I did not have any preconceived notions. I think that this is something that is just has just been evolving."

Three of the participants who had some type of preconceived beliefs before using the VLE reported that they ended up enjoying the experience. Jaylard stated, "My native language is Spanish, so initially I would be hesitant to do something that would be virtual because of that. But in actuality, it's the best thing ever and it's available. It's, ah, accessible. It's really a great tool to use." Leonnard stated, "I thought I would not be able to manage and maintain online classes as easy as I could face-to-face but it turns out that was not the case." Kimmaggio stated, "It allowed us to kind of have fun with it because some of that stuff is animated and, and there's also video teachings of what the VLE gives you versus classroom training

The majority of the comments from the respondents indicated that their preconceived beliefs were derived from their own experiences. The comments from the respondents also indicated that the respondents did not feel that their preconceived beliefs impacted their motivation to use the VLE. The participants' belief that their motivation would not be impacted was not consisted with the literature on preconceived beliefs.

Survey Statement 4 asked the respondents to respond to the statement, "I feel that I can receive quality training while learning using a VLE." One respondent selected *strongly agree*, one *respondent selected disagree*, one respondent selected *neither agree nor disagree*, two respondents selected *agree* and three respondent selected *strongly*

agree. These responses indicated that the majority of the participants had positive beliefs that the VLE could provide quality training.

Responses to Discrepant Cases

There were no discrepant cases for this study. However, if discrepant cases existed they would have been reported. The data would have to re-examine thoroughly to find a reason for the outliers or discrepancies. If the discrepancies still occurred after the examination of data then the explanation for the discrepancies would be explained and discussed.

Summary

The purpose of this study was to explore how VLEs' impacted adult learners' motivation in the workforce. The study's finding will add to the scant literature on motivation in VLEs in the workplace. Eight participants participated in the study. All of the participants were adult employees in the federal government between the ages of 40 and 50 who had some experience learning in a virtual learning environment. Data collection consisted of interviews, surveys, and observation of participants taking a training class in the VLE.

Three research questions and two conceptual frameworks guided the study: (a) constructivist theory and (b) self-determination theory. The interview questions, surveys, and observation data were used to answer the following research questions (a) How do social and contextual factors influence adult learners' autonomy and relatedness needs in a VLE (b) How do learners' beliefs about their technical abilities/skills influence their motivation to learn in a VLE and, (c) How do learners' preconceived beliefs about

learning in a VLE impact their motivation to learn when using a VLE? The study also had four themes that were identified from coding the data from the interviews. The four themes identified were (a) accessibility, (b) engagement, (c) visual learning, and (d) time. The survey and observation data were compared with the data from the interviews to find consistency and parallels. The data from the surveys and observation were consistent with the data from the interviews.

Most of the participants revealed that overall they had a positive learning experience in the VLE. However, one participant felt that had although his experiences were positive overall he did encounter some negative experiences and one participant felt that overall his experience was negative. All of the participants indicated that having the proper tools that afforded them the opportunity to engage with each other were critical to them having a positive learning experience in the VLE. Five out of eight participants had negative preconceived notions about the VLE. However, they reported that they did not believe that their negative preconceived notions of the VLE had a negative impact on their motivation to use it nor did it negatively impact their learning experience inside the VLE. All eight of the participants shared their perspectives on their beliefs about their technical abilities and how their technical abilities impacted their motivation to learn in a VLE.

The participants' feedback indicated that having adequate technical skills made a difference when using a VLE. However, five of the participants commented that they did not believe that it impacted their motivation to learn in a VLE. Two of the participants commented that they believed that it depended on the situation or task. All participants

indicated that accessibility was a key benefit to learning in the VLE. The participants'

comments indicated that they felt that they were able to manage their time better in the

VLE than the traditional classroom. The participants' comments indicated felt that time

was an important factor when it came to being able to access learning materials, courses,

instructors and technical support. The focus of Chapter 4 was demographics, data

collection, data analysis, and the results for the study. Chapter 5 will focus on the

interpretations of the findings, implications for social change, recommendations for

action and future research, reflections, and conclusion.

Chapter 5: Discussion, Conclusions, and Recommendations

This chapter contains the conclusions and recommendations of the study. The purpose of this study was to explore the impact that learning in a virtual environment had on adult learners' motivation in the workplace. A single qualitative case study was used to investigate eight adult participants' attitudes, beliefs, technical skills, and perceptions in relation to learning in a VLE. Interviews, surveys, and observations were used to collect data for the study. Motivation is very important to learning in any environment, and there has been very little research on motivation in VLEs (Hartnett et al., 2011). This study was conducted to understand what is needed to improve the learning experience of learners in a VLE.

Interpretation of Findings

The challenges for learning in VLEs or online learning cited in Chapter 2 included learner engagement and keeping learners from feeling isolated or disconnected (Sherman et al., 2010). The literature in Chapter 2 indicated that engagement, collaboration, feeling a sense of presence, and feeling a sense of place are important indicators for measuring learner attitudes or motivation in a VLE. The findings in this study supported the literature. Overall, the findings revealed that motivational constructs could be examined from the data collected in the study. The findings for this study indicated that participants felt that the four themes of the study—(a) accessibility, (b) engagement, (c) visual learning, and (d) time—were critical to having a positive learning experience in the VLE. Participants' comments indicated that they felt that it was important to have access to the instructor and other students in order to feel connected to

their learning environment. Feedback from Kimaggio illustrates the importance of being able to engage with the instructor and other learners in the learning environment. Kimaggio stated, "Chat and instant messaging enables us to have additional contact with other people through the virtual learning." Kimmaggio pointed out that the chat allowed participants to ask and respond to questions while learning, just as they might in a traditional classroom. Additionally, he could use the phone or desktop for audio, and he could send emails to communicate. Kimaggio shared, " I liked the fact that I had a choice of how I could communicate to other students and the instructor when using the VLE." Kimaggio's comments validate the claim made by Mueller and Strohmeier (2011) that a VLE's capacity to accommodate multiple technologies at the same time made it very beneficial as a learning environment with options that are not available in the traditional classroom.

Asariyah provided a perspective on the difference between online training without any engagement and training in the VLE with the opportunity for engagement. She stated,

> You know, I'd rather be there and see it instead of doing it online. You know the
> initial online training. I didn't like that, but the virtual is a step further. I think it's
> more interactive. It's more exciting. You get to see; you know and do things in
> the virtual, so I think it's a great way to learn, especially for me, who really don't
> like online, the basic online training.

This view indicates that the learning environment is viewed more favorably when it is interactive and supports Limnious and Smith's (2010) research, which indicated that

learners felt that VLEs provided them with the opportunity to have greater interaction with online learning.

The findings also revealed that learners indicated that perceived usefulness and technology fit were important factors to consider when examining a VLE's impact on motivation to learn. This supports research by Mogus et al. (2012) that demonstrated that learners had to believe that the technology was effective enough to provide them the capacity to perform their tasks in order for them to want to continue using it. The findings also supported research by Yu and Yu (2010) and Mohr et al. (2012), which revealed that technology's functionality, fit, and perceived usefulness by the learner influenced individual attitudes and perceptions of its use, which ultimately influenced motivation.

The participants indicated that visual learning was very important in the VLE. Lyanardrah stated, "I'm very visual, so seeing the documents was great, I'm a visual learner and I know that about myself, so being able to put an image with a voice was great." Some of the respondents indicated that they felt even more connected and were able to maintain their focus and attention when the instructor used a video camera to present instructional activities. Tatiana stated,

> I am a visual person, so the mid-career seminar retirement training made things a lot easier because I was able to see the instructor's face. I was able to stay more focused than if I was just listening and not really able to make eye contact. When you can see a face, obviously to me that makes it a lot easier.

This supports Wei and Kinshum's (2012) research that revealed that when learners have a sense of presence, it allows them to identify and make a connection with their space and construct a context for their learning activities.

The findings showed that all of the participants felt that controlling how they learned and having accessibility were important to having a positive learning experience in the VLE. For example, Tatiana stated,

> There are some training classes that are available online in the virtual learning environment. The great benefit of these classes is that you can stop the class at any time and the great thing is that you can go back to the point where you left it off and continue on. So I think this is a better benefit because you would normally not be able to do that in a regular classroom environment.

Jaylard liked the fact that she could learn at her own pace when training in the VLE. She stated,

> Well, the wonderful thing about it is its self-paced so if you need, you know, a little bit of time to read, or re-read for better comprehension of some of the material, you can always take the time and do that.

Lyanardrah shared that she like having the ability to take training anywhere and on her schedule. She stated, "First and foremost, I was able to choose when it fits my schedule and I could take it in the comfort of my own home."

Additionally, the findings showed that the majority of the participants shared that they did not believe that their motivation was impacted due to their beliefs about their

technical abilities. However, all of the participants indicated that having adequate technical skills made a difference when using the VLE.

Self-determination theory addresses three components of an individual's needs: (a) independence or autonomy, (b) competency, and (c) feeling of belonging (Cheng & Jang, 2010). The findings in this study were in agreement with self-determination theory. Participants' responses showed that learning in an environment together with others and interacting with the instructor in real time were very important to them. The responses showed that participants desired a learning environment that afforded them the opportunity to have control over their learning. Participants shared that they wanted to be able to control the pace of their learning and wanted to be able to control when and where they learned. Participants reported that the VLE afforded them the opportunity to have control over their learning and fulfilled their need to relate to the instructor and other learners, thus providing them with the autonomy they desired. Last, the findings indicated that overall, the participants perceived the VLE as being capable of allowing them to learn in an engaging environment. The majority of the participants indicated that they had positive experiences learning in the VLE. The participants' responses confirmed that the technologies used in VLE and the instructional design of the learning materials were crucial to the participants having the interaction, autonomy, and accessibility that they needed in order to make their learning experience engaging and positive. The participants' responses were consistent with Gash's (2014) findings on research on VLEs.

Limitations of the Study

The study was limited to eight participants. This could be a concern for generalization of the study. Response bias was a serious limitation due to lack of verification for the self-reported data from the participants. It was assumed that their responses to the interview and survey were true.

Another assumption was that the participants did not behave differently because they were aware that they were being observed. To mitigate these limitations, the participants were reminded during the interview that their identity and their workplace would remain anonymous. I tried to be unobtrusive when observing the participants and to maintain a neutral position throughout each interview.

Additionally, some of the interview questions could have been changed in order to be clearer to the participants. During the interview, some of the participants did not seem to understand some of the questions; their feedback could have been affected by this lack of understanding.

Finally, a question should have been added that would have allowed the participants to discuss the learning activities that they felt would allow a robust collaborative experience with other learners in order to improve engagement. Not asking any questions about which learning activities participants felt would have allowed them to collaborate with each other inhibited my ability to collect rich data on collaboration.

Recommendations for Further Research

In this qualitative case study, I examined how adult learners' motivation in the workplace were impacted in a VLE. Further research could be conducted to examine

how the motivation of instructors in the workplace is impacted when using a VLE to facilitate learning. Limnious and Smith (2010) pointed out how important it is to study both learners' and instructors' attitudes and behaviors in VLEs when making instructional design decisions for VLEs. This study revealed that the way instructors used the technology to deliver instruction in the VLE influenced learners' attitudes, motivation, and learning engagement. Consequently, there is a need for further investigation on how the motivation of instructors in the workplace is impacted by teaching in a VLE. The review of the literature indicated that design characteristics are critical to the quality of a VLE. Therefore, I would also recommend further research on which technologies are needed in the VLE for learners to have greater engagement and a positive learning experience.

Implications

Implications for Social Change

Motivation is the precursor to learning and is a critical factor that must be taken into consideration when developing learning designs and designing learning environments (Mayer, 2011). However, there is very little research on motivation in VLEs in the workplace (Hartnett et al., 2011). Examining how information and communication technology (ICT) and collaborative learning in VLEs impact motivation in adult learners can provide valuable information on the design decisions of VLEs. Research on VLEs can inform learning leaders in the workplace on best practices for using VLEs as platforms for delivering training and development to adult learners (Chapman & Stone, 2010). This study can also help learning leaders create best practices

for developing instructional design for content and learning activities to make learning more engaging in the VLE. This study may also guide future learners in VLEs on how to get the best learning experiences when learning in a VLE.

Theoretical Implications

Constructivist theory and self-determination theory served as frameworks for this study. The constructivist approach was selected as a conceptual framework for this study due to its strong emphasis on collaborative and active learning (Adamo & Dib, 2012). Self-determination theory was used because it provides an understanding of learner engagement and motivation (Hartnett, 2015). The purpose of this research was to explore how VLEs impacted adult learners' motivation in the workplace. The principles of constructivism and self-determination theory can help to inform educators and learning leaders on the instructional design of learning materials, instructional activities, and learning strategies and technologies that will be used in a VLE.

Recommendations for Practice

We live in a digitized and virtualized world today. Many employees work remotely from their offices or organizations. VLEs and online learning are already prevalent in the workplace, and they will continue to grow as human resource and learning leaders try to meet the needs of their employees. Organizations will also increase the usage of VLEs and online learning as a means to reduce costs associated with travel for face-to-face training (Deming et al., 2015). Hence, I would recommend that learning leaders, trainers, instructors, and instructional designers attend professional development training, engage with communities of practice, and participate in self-

directed learning on VLEs (Deming et al., 2015). This would help them to remain

abreast of changes in technologies that impact VLEs. VLEs are diverse, and they are

only as good as their design characteristics (Gomez & Rodriguez-Marciel, 2012). VLEs

can integrate multiple technologies and be customized to fit the needs of the organization

(Dillenbourg, 2000; Gomez & Rodriguez-Marciel, 2012). It is good strategy for an

organization to ensure that education staff is kept up to date on technology. It is equally

important to have training support staff and technical support staff available to provide

assistance if learners require it. The study revealed that it is very important to learners

that they are provided technical support and training support when issues arise. The lack

of support can have a negative impact on the learning experience. I would also

recommend audience analysis so that instructional designers or trainers know how to fit

the technology to the learners. This would help to increase learner engagement.

Technology should also be a good fit for the learning task. This would also help to

increase learners' engagement. This recommendation was supported by the research of

Yu and Yu (2010) and Mohr et al. (2012) on technology acceptance. Lastly, the research

indicated that participants saw the value and the need for collaborating with others in the

learning environment. VLEs need proper tools and collaborative activities in order to

facilitate collaboration (Othman & Othman, 2012). However, learners and instructors

alike need to know how to collaborate in the VLE. Therefore, I would recommend that a

train-the-trainer program be developed to teach instructors how to teach their learners

how to collaborate with each other in the VLE.

Conclusion

Motivation is the impetus for getting students interested in participating in a learning endeavor (Mart, 2011). It is required for all learning. Additionally, VLEs are becoming very prevalent in the workplace today. However, there have been few research studies on motivation in VLEs for the workplace. Because VLEs are diverse in their capabilities and functionalities there is a need for further research (Saleeb & Dafoulas, 2010).

This study's aim was to explore how VLEs impact adult learners' workplace motivation. Constructivism and self-determination theory formed the conceptual framework used for the study. Both conceptual frameworks address factors in motivation for adult learners. Constructivist and self-determine learning supports the use of collaborative learning. Self-determination is a motivational construct that influences how adults learn in a constructivist-influenced environment (Hartnett et al., 2011). Self-determination factors also influence adult learners' readiness to learn, need to know, and the need to be self-directing. The results and findings from the study support the concepts in both conceptual frameworks.

Data collected using interviews, surveys, and direct observation of participants indicated that accessibility, engagement, visual learning, time involved in accessing the learning environment, learning materials, and time involved in receiving technical support were important factors that influence motivation in the VLE. The study indicated that engagement was the key indicator to having a positive experience in the VLE. Additionally, the study supported the constructivist and self-determination theory. The

participants' perspectives revealed that engagement as well as having autonomy in determining how, when, and where they learned was important. Moreover, the study revealed that learning with others in a social context assisted learners in having an engaging environment.

References

Abdelaziz, A. H. (2013). From physical benchmarks to mental benchmarks: A four

   dimensions dynamic model to assure the quality of instructional activities in

   electronic and virtual learning environments. *Turkish Online Journal of Distance

   Education*, *14*(2), 268-281.

Adamo-Villani, N., & Dib, H. (2012). Evaluating technology-based educational

   interventions: A review of two projects. *Journal of Educational Technology

   Systems*, *41*(4), 295-317. doi:10.2190/ET.41.4.b

Adewale, O. S., Ibam, E. O, & Alease, B. K. (2012). A web-based virtual classroom

   system model. *Turkish Online Journal of Distance Education*, *13*(14), 211-223.

Alshammari, S. S., Ali, M. M., & Rosli, M. S. (2016). The influences of technical

   support, self-efficacy and instructional design on the usage and acceptance of

   LMS: A comprehensive review. *Turkish Online Journal of Educational

   Technology, 15*(2), 116-125.

Andronie, M. (2014). Distance learning management based on information technology.

   Contemporary Readings in Law & Social Justice, 6(1), 350-361.

Ardichvilli, A. (2008). Learning and knowledge sharing in virtual communities of

   practice: Motivators, barriers, and enablers. *Advances in Developing Human

   Resources, 10*(4) 541-554. doi:10.1177/1523422308319536

Arinto, P. B. (2013). A framework for developing competencies in open and distance

   learning. *International Review of Research in Open and Distance Learning*,

14(1), 167-185.

Baghdadi, Z. D. (2011). Best practices in online education: Online instructors, courses, and administrators. *Turkish Online Journal of Distance Education*, *12*(3), 109-117.

Baker, S. C., Wentz, R. K., & Woods, M. M. (2009). Using virtual worlds in education: Second life as an educational tool. *Teacher of Psychology*, *36*(1), 59-64. doi:10.1080/00986280802529079

Batalla-Busquets, J., & Pacheco-Bernal, C. (2013). On-the-job e-learning: Workers' attitudes and perceptions. *International Review of Research in Open and Distance Learning*, *14*(1), 40-64.

Baxter, J. A., & Haycock, J. (2014). Roles and student identities in online large course forums: Implications for practice. *International Review of Research in Open and Distance Learning*, *15*(1), 20-40.

Bear, A. (2012). Technology, learning, and individual differences. *MPAEA Journal of Adult Education*, *41*(2), 27-42.

Bell, F. (2010). Connectivism: Its place in theory-informed research and innovation in technology-enabled learning. *International Review of Research in Open and Distance Learning*, *12*(3), 98-118.

Blake, C., & Scanlon, E. (2013). Design for collaboration. *Journal of Interactive Media in Education 10,* 1-15.

Blaschke, L. M. (2012). Heutagogy and lifelong learning: A review of heutagogical practice and self-determined learning. *International Review of Research in Open*

and Distance Learning, *13*(1), 56-71.

Burton, B. G., & Martin, B. N. (2010). Learning in 3D virtual environments: Collaboration and knowledge spirals. *Journal of Educational Computing Research*, *43*(2), 259-273.

Casey, R. L., & Kroth, M. (2013). Learning to develop presence online: Experienced faculty perspectives. *Journal of Adult Education*, *42*(2), 104-110.

Chakraborty, M., & Nafukho, F. M. (2015). Strategies for virtual learning environments: Focusing on teaching presence and teaching immediacy. *Internet Learning Journal, 4*(1), 8-37.

Chan, S. (2010). Designing an online class using a constructivist approach. *Journal of Adult Education*, *39*(1), 26-39.

Chapman, D. D., & Stone, S. J. (2010). Measurement of outcomes in virtual environments. *Advances in Developing Human Resources, 12*(6), 665- 680. doi:10.1177/1523422310394792

Chen, H., & Kao, C. (2012). Empirical validation of the importance of employees' learning motivation for workplace e-learning in Taiwanese organizations. *Australasian Journal of Educational Technology*, *28*(4), 580-598.

Chen, K.-C., & Jang. S.-J. (2010). Motivation in online learning: Testing a model of self-determination theory. *Computers in Human Behavior 55,* 741-752. doi:10.1016/j.chb.2010.01.011

Chen, W., Looi, C. K., & Tan, S. (2010). What do students in a F2F CSCL classroom? The optimization of multiple communications modes. *Computer & Education 55,*

1159-1170, doi: 10.1016/j.compedu.2010.05.013

Cheng, K. (2013). Exploring the gap between a pre- and post-installation of a corporate

e-learning program in an accounting workplace. *Turkish Online Journal of*

Educational Technology - TOJET, 12(4), 80-89.

Cheng, Y., & Yeh, H. (2009). From concepts of motivation to its application in

instructional design: Reconsidering motivation from an instructional design

perspective. *British Journal of Educational Technology*, *40*(4), 597-605.

Chou, S., & Liu, C. (2005). Learning effectiveness in a web-based virtual learning

environment: A learner control perspective. *Journal of Computer Assisted*

*Learning, 21(*1), 65-76.

Chow, M. M. (2016). Determinants of presence in 3D virtual worlds: A structural

equation modelling analysis. *Australasian Journal of Educational Technology,*

32(1), 1-18.

Chu, R. C., & Tsai, C. C. (2009). Self-directed learning readiness, Internet self-efficacy

and preferences towards constructivist internet-based learning environments

among higher-aged adults. *Journal of Computer Assisted Learning*, *25*(5), 489-

501.

Chu, R., Chu, A., Weng, C., Tsai, C., & Lin, C. (2012). Transformation for adults in an

internet-based learning environment--Is it necessary to be self-directed? *British*

Journal of Educational Technology, *43*(2), 205-216

Cicco, G. (2015). Virtual learning and instructional tools: Perfecting the weekly roadmap.

Journal of Educational Technology, 12(2), 1-6.

Clayton, K., Blumberg, F., & Auld, D. P., (2010). The relationship between motivation,

    learning strategies and choice of environment whether traditional or including an

    online component. *British Journal of Educational Technology, 41(3), 349-364*.

Cohen, L., Manion, L., & Morrison, K. (2007). Research methods in education (6th

    Edition). Florence, KY, USA: Routledge. Retrieved from http://www.ebrary.com

Cornelius, S., Gordon, C., & Ackland, A. (2011). Towards flexible learning for adult

    learners in professional contexts: an activity-focused course design. *Interactive*

    Learning Environments, *19*(4), 381-393. doi:10.1080/10494820903298258

Creswell, J. (2009). Research design: Qualitative, quantitative, and mixed methods

    approaches (3rd ed). Thousand Oaks, CA: Sage Publications.

Creswell, J. W (2013). *Qualitative inquiry and research design: Choosing among five*

    *approaches (*3rd.ed). Thousand Oaks, CA: Sage Publications.

Criu, R., & Ceobanu, C. (2013). E-learning implications for adult learning. *Turkish*

    Online Journal of Distance Education (TOJDE), *14*(2), 56-65.

Deci, E. L., & Ryan, R. M. (2002). *Handbook of self-determination research*. Rochester,

    NY: University of Rochester Press.

Deci, E. L., & Ryan, R. M. (2008). Self-determination theory: A macrotheory of human

    motivation, development, and health. *Canadian Psychology, 49*(3), 182-185.

    doi:10.1037/a0012801

Deming, D.J Golding, C., Katz, L. F., & Yuchtman, N. (2015). Can online learning bend

    the higher eduction cost curve? *American Economic Review, 105*(5), 496-501.

Demir Kaymak, Z., & Horzum, M. (2013). Relationship between online learning

readiness and structure and interaction of online learning students. *Educational Sciences: Theory and Practice*, *13*(3), 1792-1797.

Dillon, P., Wang, R., & Tearle, P. (2007). Cultural disconnection in virtual education. *Pedagogy, Culture and Society*, *15*(2), 153-174.

Dunst, C. J., Trivette, C. M., & Hamby, D. W. (2010). Meta-analysis of the effectiveness of four adult learning methods and strategies. *International Journal of Continuing Education & Lifelong Learning*, *3*(1), 91-112.

Driscoll, M. P. (2005). *Psychology of learning for instruction* (3rd ed.). Boston, MA: Pearson Education, Inc.

Ellis, R. K. (2013, January). Technology headlines for January 2013. *Learning Circuits Archives*. Retrieved from http://wwwtd.org/publications

Fagan, M. H. (2014). Exploring a sociomaterial perspective on technology in virtual human resource development. Advances in Developing Human Resources, 16(3), 320-334. doi: 10.1177/1523422314532094

Falasca, M. (2011). Barriers to adult learning: Bridging the gap. *Australian Journal of Adult Learning*, *51*(3), 583-590.

Friedman, L., & Friedman, H. H. (2013). Using social media technologies to enhance online learning. Journal of Educators Online, 10(1).

Foley, J. M., & Kaiser, L. R. (2013). Learning transfer and its intentionality in adult and continuing education. *New Directions for Adult & Continuing Education*, (137), 5-15. doi:10.1002/ace.20040

Garrett, M., & McMahon, M. (2013). Indirect measures of learning transfer between real

and virtual environments. *Australasian Journal of Educational Technology*, *29*(6), 806-822.

Gilmore, S., & Warren, S. (2007). Themed article: Emotion online: Experiences of teaching in a virtual learning environment. *Human Relations, 60*(4), pp. 581-608. doi: 10.1177/0018726707078351

Gonzalez-Marcos, A., Alba-Elia, F., Navaridas-Nalda, F., & Ordieres-Mere, J (2016). Student evaluation of a virtual experience for project management learning: An empirical study for learning improvement. *Computers & Education 102,* 172-187.

Guba, E.G., & Lincoln, Y.S. (1981). *Effective evaluation.* San Francisco, CA: Jossey-Bass Inc. Publishers.

Goddu, K. (2012). Meeting the Challenge: Teaching strategies for adult learners. *Kappa Delta Pi Record*, *48(4*), 169-173. doi:10.1080/00228958.2012.734004

Hall, A. G., & Zentgraf, C. (2010). Virtual learning environments through a different lens. *Campus - Wide Information Systems, 27*(3), 127-136. doi:http://dx.doi.org/10.1108/10650741011054438

Hampel, G. (2014). Learning in a virtual learning environment. *Acta Technica Corviniensis - Bulletin of Engineering, 7*(4), 35-40. Retrieved from http://search.proquest.com/docview/1618069503?accountid=14872

Hampel, R., & Pleines, C. (2013). Fostering student interaction and engagement in a virtual learning environment: An investigation into activity design and implementation. *CALICO Journal, 30*(3), 342-n/a. doi:http://dx.doi.org/10.11139/cj.30.3.342-370

Hartnett, M., St. George, A., & Dron, J. (2011). Examining motivation in online distance

    learning environments: Complex, multifaceted, and situation-dependent.

    International Review of Research in Open and Distance Learning, 12(6), 20-38.

Hartnett, M. (2015). Influences that undermine learners' perceptions of autonomy,

    competence and relatedness in an online context. *Australasian Journal of*

    Educational Technology, 31(1), 86-99.

Hatcher, T., & Bowles, T. (2013). Bridging the gap between human resource

    development and adult education: Part one, assumptions, definitions, and

    critiques. *New Horizons in Adult Education & Human Resource Development,*

    25(4), 12-28. doi:10.1002/nha3.2004

Haverila, M. J. (2012). The Biggs and Moore Model in e-learning: The role of motivation

    and collaboration as moderators. *Turkish Online Journal of Distance Education*

    (TOJDE), 13(2), 169-179.

Hernández, N., González, M., & Muñoz, P. (2014). Planning collaborative learning in

    virtual environments/ la planificación del aprendizaje colaborativo en entornos

    virtuales. *Comunicar, 21*(42), 25-32. Retrieved from

    http://search.proquest.com/docview/1476490596?accountid=14872

Ho, M. (2016, November). Investment in learning increases for four straight years.

    Talent Development, 70(11), 31-35.

Hossainy, F., Zare, H., Hormozi, M., Shaghaghi, F., & Kaveh, M. (2012). Designing and

    implementing a situated learning program and determining its impact on the

    students' motivation and learning. *Turkish Online Journal of Distance Education,*

13(2), 36-47.

Horton, W. (2005). Evaluating e-learning. *Training, 42*(9), 35-39.

Hung, C.Y., Sun, J. C. Y., & Yu P.T. (2015). The benefits of a challenge: Student

motivation and flow experience in tablet-PC-game-based learning. Interactive

Learning Environments 23(2), 172-190, doi: 10.1080/10494820.2014.997248

Hourdes, J. (2006). Andragogy and motivation: An examination of the principles of

andragogy through two motivation theories. *Online Submission.*

Ilie, M. M., & Logofatu, B. l. (2015). The effects of interaction of students'

characteristics and digital environments` characteristics on quality learning.

Elearning & Software for Education, (2), 163-166. doi:10.12753/2066-026X-15-

114

 Ionita, M. M., & Pastae, V. V. (2015). Didactic communication in the online

environment. *Elearning & Software for Education*, (1), 78-82.

doi:10.12753/2066-026X-15-011

Janesick,V. J. (2011). Case study research: *Design and methods* (3rd ed.). Thousand

Oaks, CA: Sage.

Jansen, K. J., Perry, B., & Edwards, M. (2011). Aligning the quantum perspective of

learning to instructional design: Exploring the seven definitive questions.

International Review of Research in Open and Distance Learning, 12(7), 56-73.

Johannesen, M. (2013). The role of virtual learning environments in a primary school

context: An analysis of inscription of assessment practices. *British Journal of

Educational Technology*, *44*(2), 302-313.

Kalay, Y. E (2004). Virtual learning environments. *ITCon.* 9, 195- 207.

Kasworm, C. (2011). The influence of the knowledge society: Trends in adult higher education. *Journal of Continuing Higher Education*, *59*(2), 104-107.

Kaufman, R., Guerra, I., & Platt, W. A. (2006). *Practical evaluation for educators: Finding what works and what doesn't.* Thousand Oaks, CA: Corwin Press.

Ke, F., & Kwak, D (2013). Online learning across ethnicity and age: A study on learning interaction participation, perception, and learning satisfaction. *Computers & Education 61*, 43–51.

Keller, J. M. (2010). *Motivational design for learning and performance: The ARCS model approach*. New York, NY: Springer.

Knowles, M. S., Holton, E. F., & Swanson, R. A. (2005). *The adult learner: The definitive classic in adult education and human resource development*. Amsterdam: Elsevier.

Knowles, M. S. (1980). My farewell address, andragogy-no panacea, no ideology. *Training & Development Journal*, *34*(8), 48.

Konstantinidis, A., Tsiatsos, T., & Pomportsis, A. (2009). Collaborative virtual learning environments: Design and evaluation. *Multimedia Tools and Applications, 44*(2), 279-304. doi:http://dx.doi.org/10.1007/s11042-009-0289-5

Kothari, C. (2004). Research Methodology: Methods and techniques. Daryaganj, Delhi, IND: New Age International. Retrieved from http://www.ebrary.com

Lepe, E. M., & Jiménez-Rodrigo, M. L. (2014). Project-based learning in virtual environments: A case study of a university teaching experience. *RUSC, 11*(1), 76-

90. Retrieved from

http://search.proquest.com/docview/1504941872?accountid=14872

Leese, M. (2009). Out of class-out of mind? The use of a virtual learning environment to

encourage student engagement in out of class activities. *British Journal of*

Educational Technology, *40*(1), 70-77.

LI, J., D'Souza. D, & Du. Y. (2011). Exploring the contribution of virtual worlds to

learning in organizations. *Human Resource Development Review. 10(*3), 264-

285, doi: 10.1177/1534484311406421

Liang, J., & Wu, S. (2010). Nurses' motivations for web-based learning and the role of

Internet Self-Efficacy. *Innovations in Education and Teaching International,*

47(1), 25-37.

Limnious, M., & Smith, M. (2010). Teachers' and students' perspectives on teaching and

learning through virtual learning environments. *European Journal of Engineering*

*Education, 35(*6) 645-653, doi:10.1080/03043797.2010.505279

Laux, D., Luse, A., & Mennecke , B, E. (2016). Collaboration, connectedness, and

community: An examination of the factors influencing student persistence in

virtual communities. *Computers in Human Behavior 57*. 452-454

Maltby, S., & Mackie. S. (2009). Virtual learning environment – help or hindrance for the

disengaged student? *The Journal of the Association for Learning Technology*

(ALT), 17(1), 49-62, doi: 10.1080/09687760802657577

Mancuso, D. S, Chlup, D.T., & McWhorter, R. R. (2010). A study of adult learning in a

virtual world. *Advances in Developing Human Resources, 12*, 681- 699, doi:

10.1177/1523422310395368

Mart, C. T., (2011). How to sustain students' motivation in a learning environment. Online submission. 1-15.

Martínez Cartas, M. (2012). Using an improved virtual learning environment for engineering students. *European Journal of Engineering Education*, *37*(3), 229-241. doi:10.1080/03043797.2012.678985

Maxwell, J. A. (2013). *Applied social research methods Series: Vol. 41. Qualitative research design: An interactive approach* (3rd ed.). Thousand Oaks, CA: Sage Publications.

Mayer, R. E. (2011). Towards a science of motivated learning in technology-supported environments. *Educational Technology Research and Development*, *59*(2), 301-308.

McGill, T. J., & Hobbs, V. J. (2008). How students and instructors using a virtual learning environment perceive the fit between technology and task. *Journal of Computer Assisted Learning, 24*(3), 191-202

Mellard, D. F., Krieshok, T., Fall, E., & Woods, K. (2013). Dispositional factors affecting motivation during learning in adult basic and secondary education programs. *Reading and Writing: An Interdisciplinary Journal*, *26*(4), 515-538.

Merriam, S. B. (1988). *Case study research in education*. San Francisco: Jossey-Bass Inc.

Mimirinis, M., & Bhattacharya, M. (2007). Design of virtual learning environments for deep learning. *Journal of Interactive Learning Research*, *18*(1), 55-64.

Mikropoulos, T. S., & Natsis, A. (2011). Educational virtual learning environments: A ten year review of empirical research (1999-2009). *Computers & Education*, *56*, 769-780.

Mirci, P. S., & Hensley, P. A. (2010). Leading for innovative practice: Melding theories of organizational change, adult learning, and conditions of learning. *Capea Education Leadership and Administration*, *22*, 9-29.

Miles, M. B., Huberman, A.M., & Saldana (2014). *Qualitative data analysis: A methods sourcebook*. Thousand Oaks, CA: Sage Publications.

Mogus, A., Djurdjevic, I. & Suvak, N. (2012). The impact of student activity in a virtual learning environment on their final mark. *Active Learning in Higher Education 13*(3): 177-189, doi:10.1177/1469787412452985

Mohr, A. T, Holbrugge, D., & Berg, N. (2012). Learning style preferences and the perceived usefulness of e-learning. *Teaching in Higher Education 17*(3): 309-322, doi:10.1080/13562517.2011.640999

Mooney, A., & Bergin, S. (2014). An analysis of alternative approaches for the distribution of lecture notes with the aid of a virtual learning environment to promote class engagement. AISHE-J: *The all Ireland Journal of Teaching & Learning in Higher Education, 6*(2), 1761-17613.

Mueller, D., & Strohmeier, S. (2011). Design characteristics of virtual learning environments: An expert study. *International Journal of Training and Development, 14*(3), 209-222.

Mundkur, A., & Ellickson, C. (2012). Bringing the real world in: Reflection on building a

virtual learning environment. *Journal of Geography in Higher Education, 36(3), 369-384.*

Oproiu, G. C, & Chicioreanu, T. D (2012). Using virtual learning environments in adult education. International Conference of Scientific Paper

Othman, M., & Othman, M. (2012). The proposed model of collaborative virtual learning environment for introductory programming course. *Turkish Online Journal of Distance Education*, *13*(1), 100-111.

Overton, W. (2010*). Life-span development: concepts and issues. In Lemer, R. M., & Overton, W. F. (Eds.). The handbook of life-span development: Volume 1: Cognition, biology and methods*. New York, NY: Wiley. (pp.149-194)

Palloff, R, M & Pratt, K. (2005). *Collaborating online: Learning together in community*. San Francisco: Jossey-Bass.

Park, J. (2011). Design education online: Learning delivery and evaluation. *International Journal of Art & Design Education*, *30*(2), 176-187. doi:10.1111/j.1476-8070.2011.01689.x

Patton, M. Q. (2002). *Qualitative research & evaluation methods* (3rd ed.). Thousand Oaks, CA: Sage Publications.

Penjor, S. S., & Zander, P. P. (2016). Predicting virtual learning environment adoption: A case study. *Turkish Online Journal of Educational Technology, 15*(1), 69-81.

Percival, J. C., Cozzarin, B. P., & Formaneck, S. D. (2013). Return on investment for workplace training: The Canadian experience. *International Journal of Training and Development*, *17*(1), 20-32.

Persky, S., Kaphingst, K. A., McCall, C., Lachance, C., Beall, A. C., & Blascovich, J. (2009). Presence relates to distinct outcomes in two virtual environments employing different learning modalities. *Cyberpsychology & Behavior*, *12*(3), 263-268. doi:10.1089/cpb.2008.0262

Peters, S., Barbier, M., Faulx, D., & Hansez, I. (2012). Learning and motivation to transfer after an e-learning programme: Impact of trainees' motivation to train, personal interaction and satisfaction. *Innovations in Education and Teaching International*, *49*(4), 375-387.

Pittenger, A., & Doering, A. (2010). Influence of motivational design on completion rates in online self-study pharmacy-content courses. *Distance Education*, *31*(3), 275-293.

Podgorelec, V., & Kuhar, S. (2011). Taking advantage of education data: Advanced data analysis and reporting in virtual learning environments. *Electronics & Electrical Engineering*, (114), 111-116.

Popham, W. J. (2010). *Everything school leaders need to know about assessment.* Thousand Oaks, CA: Corwin Press.

Powell, K. C., & Kalina, C. J. (2009). Cognitive and social constructivism: Developing tools for an effective classroom. *Education*, *130*(2), 241-250.

Reidsema, C. C., Hadgraft, R., Cameron, I., & King, R. (2013). Change strategies for educational transformation. *Australasian Journal of Engineering Education, 19*(2), 101-108. doi:10.7158/D12-008.2013.19.2

Roberson, D. R. (2002). *Andragogy in Color*.

Roca, J. C., Chiu, C., & Martínez, J. (2006). E-learning system attitudes and continuance intentions survey. *Psyctests*, doi:10.1037/t25685-000

Rodrigue, S., Soule, L., Fanguy, R., & Kleen, B. (2016). University student experiences and expectations in regard to technology. *Journal of Higher Education Theory & Practice, 16*(2), 59-70.

Rogers, E. M. (2003). Diffusion of innovations (5th ed.), New York: Free press.

Rogowsky, B. B., Calhoun, B. M., & Tallal, P. (2015). Matching learning style to instructional method: Effects on comprehension. *Journal of Educational Psychology, 107*(1), 64-78. doi:10.1037/a0037478

Rossett, A., & Marshall, J. (2010). What corporate training professionals think about e-learning: Practitioners' views on the potential of e-learning in the work place. *Journal of Asynchronous Learning Networks*, *14*(2), 19-27.

Ruey, S. (2010). A case study of constructivist instructional strategies for adult online learning. *British Journal of Educational Technology*, *41*(5), 706-720.

Saks, A. M., & Burke-Smalley, L. A. (2014). Is transfer of training related to firm performance? *International Journal of Training and Development*, *18*(2), 104-115.

Saleeb, N. & Dafoulas, G. (2010). Relationship between students' overall satisfaction for 3D Virtual learning spaces and their individual design. *International Journal of Computer Sciences Issues, 7*(4),1-8.

Salter, L. (2011). Preconditions for post-employment learning: Preliminary results from ongoing research. *International Review of Research in Open and Distance*

Learning,12(1),25-41.

Sandy, M. G., & Franco, Z. E. (2014). Grounding service-learning in the digital age: Exploring a virtual sense of geographic place through online collaborative mapping and mixed media. *Journal of Higher Education Outreach and Engagement*, *18(*4) 201- 232,

Sansone, C., Fraughton, T., Zachary, J. L., Butner, J., & Heiner, C. (2011). Self-regulation of motivation when learning online: The importance of who, why, and how. *Educational Technology Research and Development*, *59*(2), 199-212.

Saxena, M. (2011). Learner analysis framework for globalized e-learning: A case study. *International Review of Research in Open and Distance Learning*, *12*(5), 93-107.

Schunk, D. H., Meece, J. L., & Pintrich, P. R. (2014). *Motivation in education: Theory, research, and application* (4th ed.). Upper Saddle, NJ: Pearson.

Sealund, B. (2010). The power of virtual learning environments. *Journal of Interactive Instruction Development*, *21*(4), 9-12.

Senor, R. (2010) Connectivity: A framework for understanding effective language teaching in face- to -face and online learning communities. *RELC journal 41*(2), 137-147 doi: 10.1177/0033688210375775

Serdyukov, P. P., & Sistek-Chandler, C. C. (2015). Communication, collaboration, and relationships in the online college class: Instructors' perceptions. *Journal of Research in Innovative Teaching, 8*(1), 116-131.

Sherman, W. H., Crum, K. S., Beaty, D. M., & Myran, S. (2010). Perspectives on distance technology in leadership education: Transfer, meaning, and change.

Journal of Research on Leadership Education, *5*(13), 589-610.

Shin, D., Biocca, F., & Choo, H. (2013). Exploring the user experience of three-dimensional virtual learning environments. *Behaviour & Information Technology*, *32*(2), 203-214.

Skinner, E. A., & Chi, U. (2012). Intrinsic motivation and engagement as active ingredients in garden-based education: Examining models and measures derived from self-determination theory. *Journal of Environmental Education, 43*(1), 16-36.

Smith, R. O. (2011). Trust in online collaborative groups: A constructivist psychodynamic view. *Adult Learning*, *22*(2), 19-23.

Sinayigaye, S. A. (2010). The effectiveness of the virtual learning environment. *The ISM Journal of International Business, 1(1)*, 22-1I, 2I, 3I,4I ,5I ,6I ,7I, 8I, 9I, 10I, 11I, 12I, 13I, 14I, 15I, 16I, 17I, 18I, 19I, 20I, 21I, 22I. Retrieved from http://search.proquest.com/docview/883127211?accountid=14872

Snyder, M. M. (2009). Instructional-design theory to guide the creation of online learning communities for adults. *Techtrends: Linking Research And Practice To Improve Learning*, *53*(1), 48-56.

Stake, R. (2010). Qualitative Research: Studying how things work. New York, NY, USA: Guilford Press. Retrieved from http://www.ebrary.com

Stöhr, C. C., Demazière, C. D., & Adawi, T. T. (2016). Comparing student activity and performance in the classroom and a virtual learning environment. *Proceedings of The European Conference on e-learning*, 664-671.

Sullivan, F. R., Hamilton, C. E., Allessio, D. A., Boit, R. J., Deschamps, A. D., Sindelar, T., & Zhu, Y. (2011). Representational guidance and student engagement: Examining designs for collaboration in online synchronous environments. *Educational Technology Research and Development, 59(5), 619-644.*

Sultan, W. H., Woods, P., & Koo, A. (2011). A constructivist approach for digital learning: Malaysian Schools Case Study. *Educational Technology & Society*, *14*(4), 149-163.

Tennyson, R. D., & Sisk, M. F. (2011). A problem-solving approach to management of instructional systems design. *Behaviour & Information Technology, 30(1), 3-12.*

Troung, H. M. (2016). Integrating learning styles and adaptive e-learning system: Current developments, problems and opportunities. *Computers in Human Behavior, 55,* 1185–1193.

Uzunboylu, H., Bicen, H., & Cavus, N. (2011). The efficient virtual learning environment: A case study of Web 2.0 Tools and windows live spaces. *Computers & Education, 56(*3), 720-726.

Valentin, A., Mateos, P. M., González-Tablas, M. M., Pérez, L., López, E.,& Garcia, I. (2013). Motivation and learning strategies in the use of ICTs among university students. *Computers & Education 6,* 52–58.

Vygotsky, L. S (1978) *Mind in society*. Cambridge MA: Harvard University Press.

Wang, M., Ran, W., Liao, J., & Yang, S. H. (2010). A performance-oriented approach to e-learning in the workplace. *Educational Technology & Society*, *13*(4), 167-179.

Wang, Y., Peng, H., Huang, R., Hou, Y., & Wang, J. (2008). Characteristics of distance

learners: research on relationships of learning motivation, learning strategy, self-efficacy, attribution and learning results. *Open Learning*, *23*(1), 17-28.

Wei, C., Chen, N., & Kinshuk. (2012). A model for social presence in online classrooms. *Educational Technology Research and Development*, *60*(3), 529-545.

Wehmeyer, M. L., & Abery, B. H. (2013). Self-determination and choice. *Intellectual and Developmental Disabilities*, *51*(5), 399-411.

Wilkinson, D. (2000). Researcher's toolkit: The complete guide to practitioner research. Florence, KY, USA: Routledge. Retrieved from http://www.ebrary.com

Yeou, M. (2016). An investigation of students's acceptance of Moodle in a blended learning setting using technology acceptance model. *Journal of Educational Technology Systems, 44*(3), 300-318, doi: 10.1177/0047239515618464.

Yin, R. K. (2014). Case study research: *Design and methods* (5th ed.). Thousand Oaks, CA: Sage.

Yoon, S. W., & Lim, D. H. (2010). Systemizing virtual learning and technologies by managing organizational competency and talents. *Advances in Developing Human Resources 12*(6), 715-727, doi: 10.1177/1523422310394795

Yoon, C., & Rolland, E. (2012). Knowledge-sharing in virtual communities: Familiarity, anonymity and self-determination theory. *Behavior & Information Technology*, *31*(11), 1133-1143.

Appendix A: Participant Interview Protocol for Case Study

Instructions

Good morning/afternoon. My name is Clarence Bashshar. Thank you for participating.

This interview consists of ten questions and should last for approximately 1 hour. The

purpose is to get your perceptions of your experiences using a virtual learning

environment as a learning environment in your work organization. There is no right or

wrong or desirable or undesirable answers. I would like you to feel comfortable with

saying what you really think and how you really feel. You are free to quit this interview

at any time without any repercussions.

Tape Recorder Instructions

If it is okay with you, I will be tape-recording our conversation. What you say is very

important and I would like to ensure that I get everything you say just as you said it.

However, I assure you that all your comments will remain confidential. I will be

compiling a report that will contain all of the participants' comments without any

reference to the individuals.

Start Information with Statement Below

The purpose of this study is to find out how learning in a virtual learning environment

impacts adult learners' motivation. Thank you again for agreeing to participate in this

interview. Let's start by having you to tell me something about yourself.

Transition into the First Question

Interview Questions for Participants

1. Describe your experiences learning in the virtual learning environment.

2. How were you able to control your own learning in the virtual learning environment?

3. How do you engage with other learners in the virtual learning environment? Can you please provide some examples?

4. How do you engage with your instructor in the virtual learning environment?

5. What technology (ies) is used in the virtual learning environment that you felt made the learning environment engaging or not?

6. What were preconceived beliefs about virtual learning environments you had and how did they affect your desire to want to participate in the virtual learning environment?

7. How did the ease of use or difficulty in the virtual learning environment impact your learning?

8. Describe your experience with the technical support you received while using the virtual learning environment.

9. How would you rate your level of computer skills? How did your computer skills impact your learning experience in the virtual learning environment?

10. How was the training relevant to you?

Appendix B: Participant Survey

1. Accessing the virtual learning environment was easy for me.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

2. There was something interesting at the beginning of this lesson that got my attention.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

3. The virtual learning environment was more difficult to navigate than I would like for it to be.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

4. I feel that I can receive quality training while learning using a virtual learning environment.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

5. Completing this lesson successfully was important to me.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

6. The collaborative assignments kept my attention.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

7. The organization of the content helped me to be confident that I would learn the

   material.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

8. I believe that I have improved my learning experience by using the virtual learning

   environment.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

9. Finding course materials in the virtual learning environment was easy.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

10. I believe that I have control of my learning when using the virtual learning

environment.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

Appendix C: Observation Protocol

Date: Time Observation Began:_____   Time Ended: _____

Before the observation begins, briefly describe in #1 below, what you expect to be observing and why

you have selected it.

1. Subject of the Observation. The purpose of the observation is to help explore the social and contextual factors that influence adult learners' autonomy and relatedness needs and motivation in a virtual learning environment._____

At the very beginning of the observation, describe the learning environment. Note any

changes in setting of the learning environment as the observation proceeds.

```



```

2. **Describe how the session begins.** (who is present, what exactly was said at the beginning).

```



```

3. **Describe the chronology of events i**n 15 minute intervals.

4. Interactions that take place during the observation. Who is interacting? How do they interact? What technology/social media tools are used for interaction? Describe 1 example

5. **How does instructor provide instructions**?

6. **Describe program activities and participant behaviors** (i.e., what's happening during the session and how participants respond).

7. **How did participants respond or react to what was happening with the program during the observation**? What proportion (some, most, all) are actively engaged?

8**. How does the program end?** (What are the prompts that the program is ending? Who is present, what is said, how do participants react).

Appendix D: Participant Informed Consent Form

Hello, my name is Clarence E. Bashshar. I am a doctoral student at Walden University and I am conducting a study on Virtual Learning Environments' Impact on Adult Learners' Motivation in the Workplace**.** You are invited to take part in this study. The criteria for being a part of study is, adults who are 18 and older and have had previous experience taking training in a virtual learning environment to be in the study. I obtained your name/contact information from your Human Resource Specialist. This form is part of a process called "informed consent" to allow you to understand this study before deciding whether to take part.

Background Information:

The purpose of this study is to explore adult learners' experiences learning in a virtual learning environment.

Procedures:

If you agree to be in this study, you will be asked to:

- Be a part of an observation study. The observation will last approximately 15 minutes

- Participate in online questionnaire. The questionnaire will last approximately 15 minutes.

- Participate in an interview that would last approximately one hour. The interview will be audio recorded.

The Observation Activities will include:

- Observing participants engaging the virtual learning environment.

- Observing participants engaging the social media tools inside the virtual learning.

- Observing participants' interaction in the learning environment.

Here are some sample statements from the Survey:

The virtual learning environment was more difficult to navigate than I would like for it

to be.

| Strongly Disagree | Disagree | Neither Agree nor Disagree | Agree | Strongly Agree |

The virtual learning environment was more difficult to navigate than I would like for it

to be.

| Strongly Disagree | Disagree | Neither Agree nor Disagree | Agree | Strongly Agree |

Here are some sample questions from Interview:

- Describe your experiences learning in the virtual learning environment.

How do you engage with other learners in the virtual learning environment?

Voluntary Nature of the Study:

This study is voluntary. Everyone will respect your decision of whether or not you

choose to be in the study. No one at General Services Administration (GSA) will treat

you differently if you decide not to be in the study. If you decide to join the study now,

you can still change your mind later. You may stop at any time.

Risks and Benefits of Being in the Study:

Being in this type of study may involve some risk of minor discomforts that can be encountered in daily life, such as fatigue. This study would not pose risk to your safety or wellbeing. This study could help improve organizational training and development and increase the learning effectiveness of virtual learning environments and online learning.

Gift:

After completion of the study a Starbucks's Gift card of $10.00 will be mailed to the organization for each participant as a token of thanks for consideration of their time.

Privacy:

Any information you provide will be kept confidential. The researcher will not use your personal information for any purposes outside of this research project. Also, the researcher will not include your name or anything else that could identify you in the study reports. Data will be kept secure by using codes in the place of names, discarding names when possible and properly securing electronic data through password protection. All raw data will kept in secure files. Data will be kept for a period of at least 5 years, as required by the university.

:

1.

Please print or save this consent form for your records.

Obtaining Your Consent

If you feel you understand the study well enough to make a decision about it, please indicate your consent by replying to this email with the words, "I consent".

Appendix E: Qualitative Data Analysis Documentation Form

SPECIFIC DATA SETS IN USE	PROCEDURAL STEPS	DECISIO N RULES	ANALYSIS			CONCLUSIONS DRAWN	RESEARCH

Appendix F: Permission to Use Survey

E-Learning System Attitudes and Continuance Intentions Survey

Note: Test name created by PsycTESTS

PsycTESTS Citation:
Roca, J. C., Chiu, C.-M., & Martínez, J. (2006). E-Learning System Attitudes and Continuance Intentions Survey [Database record]. Retrieved from PsycTESTS. doi: 10.1037/t25685-000

Test Shown: Full

Test Format:
All items on the E-Learning System Attitudes and Continuance Intentions Survey were measured using a 7-point Likert-type scale with anchors form "strongly disagree" to "strongly agree." Some items are reverse scored.

Source:
Roca, Juan Carlos, Chiu, Chao-Min, & Martínez, Francisco José. (2006). Understanding e-learning continuance intention: An extension of the Technology Acceptance Model. International Journal of Human-Computer Studies, Vol 64(8), 683-696. doi: 10.1016/j.ijhcs.2006.01.003, © 2006 by Elsevier. Reproduced by Permission of Elsevier.

Permissions:
Test content may be reproduced and used for non-commercial research and educational purposes without seeking written permission. Distribution must be controlled, meaning only to the participants engaged in the research or enrolled in the educational activity. Any other type of reproduction or distribution of test content is not authorized without written permission from the author and publisher.

Appendix G: Permission to Use Figures and Tables

Dear Clarence,

You have my permission to use the figures and tables listed in your attachment.

Best wishes for a successful study!
Sincerely,
John Keller

John M. Keller, Ph.D.
Professor Emeritus
Educational Psychology and Learning Systems
Florida State University

9705 Waters Meet Drive
Tallahassee, FL 32312-3746
Phone: 850-294-3908

Official ARCS Model Website: http://arcsmodel.com. UPDATED 18 SEP 2013
Professional Website: http://mailer.fsu.edu/~jkeller/JohnsHome/
Keller, J.M. (2010), *Motivational Design for Learning and Performance: The ARCS Model Approach.* New York: Springer. Now available in English, Japanese, and Korean.

"When facing a difficult task, act as though it is impossible to fail.

If you are going after Moby Dick, take along the tartar sauce."

--Walter Smith