DESIGNING TECHNOLOGY- ENRICHED TRAINING AND MOTIVATING WORKFORCE
LEARNING

By

WANDA COLON

A Dissertation

Submitted to the

Graduate School of Education

Rutgers, The State University of New Jersey

in partial fulfillment of the requirements

for the degree of

Doctor of Education

Graduate Program in Design of Learning Environments

Written under the direction of

_____

Angela M. O'Donnell, Ph. D., Chair

_____

Brian Dashew, Ed. D., Member

_____

Diane Ambrose, Ph. D., Member

New Brunswick, New Jersey

October 2020

ABSTRACT

The effectiveness of workplace learning programs is linked to employee/learner motivation. However, our current understanding of workplace learning does not always acknowledge the importance of learner motivation to acquire new skills.   In this study, I proposed that to obtain learning success and engage employees to learn on- the- job, employers must incorporate motivational factors in designing training for employees to acquire the technological systems skills they need to perform their job. I reviewed studies of e-learning methods, expectancy theory of motivation, and computer self-efficacy theories that influence employee learners to engage in a blended learning training program. This paper describes how the integration of Keller's ARCS (attention, relevance, confidence, and satisfaction) model of motivation in the redesign and development of a *blended learning (classroom and e-learning)* course on grants and contracts accounting systems produced positive learning outcomes and encouraged employees to engage in learning. A case study approach and use of qualitative research methods allowed for the in-depth exploration and understanding of employee's attitudes and motivation for learning. The collaboration with subject matter experts, grants trainer, and financial systems consultants from the University Office of Research and Development grants and contracts accounting group helped re-design the course content for grants administrators. Tables and figures present the interface of motivational and instructional design, motivational categories of the ARCS Model, the conjecture map guiding the embodiments of the course design for a blended course, and suggestions for future e-learning course development. This research gathered data that supported a high-level conjecture map that proposed that using a technology-enriched instructional design intervention in the workplace to serve as a knowledge bridge can solve problems of technology self-efficacy for adult learners when using systems related to their business function. Further, incorporating the ARCS

motivation model embodiments in the blended instructional design produced learning outcomes and led to motivation to learn in the workplace. The findings in this small-scale case study conducted between Fall 2019 - Spring of 2020 suggest that grant administrators' learning goals are mostly motivated by short-term goals to perform their job efficiently. In addition, in live and synchronous webinars, the role of the instructor in guiding their learning was perceived as crucial. Participants valued the social interaction element as a motivator to continue learning as a group.

Keywords: adult learners, ARCS, blended learning, e-learning motivation, on- the- job training, self-directed learning, workforce learning

DEDICATION

To my loving dad, Humberto Colon Quilez, may he rest in peace, and mom, Angeles Colon Martinez, who taught me about persistence, humility, and strength. Their love and encouragement throughout my academic journey were constant, even when they thought I already had too many of those diplomas on my wall.

ACKNOWLEDGEMENTS

The completion of this dissertation was possible, thanks to Dr. Angela O'Donnell. She guided me through the process and, at many times, gave me the confidence I needed to continue pushing on. I thank Dr. Brian Dashew for his recommendations for improving my dissertation by pushing me to think like a researcher. I am appreciative of Dr. Dianne Ambrose, who contributed as a member of my dissertation committee. As a colleague, she provided opportunities for me to learn about institutional research and allowed me to poke around her department, asking questions. I am thankful to my colleague Nadia Akhtar for her trust and willingness to partner with me to rethink her course, even if that meant interrupting her classes and asking her to record more videos. Without her dedication to this project, the completion of this dissertation would not have been possible. Gracias Amiga!

And to my family, I am incredibly grateful to my son Mauricio, for his subtle way of showing his faith in me. I am thankful to Ileana and Evelio for helping me keep my sanity and endurance up for the final sprint to the finish line. I forever will be grateful to Sonia, the *Super Titi,* and to Juan for being the nurturing *familia* that was always *presente* for Mauricio during his years in college while I was pursuing my dreams. Neither of us would have completed our academic journeys without their support.

And finally, I am thankful for my cohort, friends, unconditional cheerleaders Maydelin Castillo, Juan Canizares, and the Castaneda family. It took a *barrio,* a village, to help me think that it was possible.

TECHNOLOGY- ENRICHED TRAINING AND MOTIVATION

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

CHAPTER I

Introduction

Designing Technology-Enriched Training and Motivating Workforce Learning

Although an increasing number of organizations are adopting e-learning strategies to train their workforce to perform more technologically challenging tasks, research is needed to explore if these learning models motivate employees to enroll in and engage in learning at work.   Most organizations recognize that motivation plays a crucial role in employee training and influences learning (Billet, 1999). Knowles (1984) affirmed that motivation is an essential component of adult learning. If a learner does not feel motivated, does not see an intrinsic or extrinsic value to learning, they will not engage in the process. However, Keller (1987) warned that motivation was highly unpredictable and changeable, thus challenging to activate and to sustain with design alone. Recognizing the challenges of teaching adults, others cautioned that, without knowing the value of the information taught, adults might not be very willing to seek new knowledge in the workplace or outside the workplace, either online or in a classroom (Chan, 2010).

However, there still is a need to examine the possibilities of leveraging the benefits theoretically. 1) on-the-job, face-to-face systems training with 2) user-centered online learning designs to motivate employees to participate in competency building activities offered by their employer. I propose that blending the two instructional models and improving the motivational appeal of the instructional design by applying Keller's (1987) expectancy-value ARCS Model approach of motivation categories (i.e., attention, relevance, confidence, and satisfaction) will create an effective learning environment to address employee engagement in workplace learning.

Most literature does not strictly define the blended-learning model, and definitions vary and can range from face-to-face classes adding technology, active learning with virtual resources hosted on a site, use of technology for facilitating interaction and communication, or a place to house online course assessment tools, to a transformative redesign process. On the other hand, web-based online courses are better defined. For example, computer-based training (CBT) or computer-assisted instruction is interactive training where the computer content provides much of the stimulus to the learner. CBTs incorporate presentations with graphics, audio, and text, the learner is quizzed and tested on mastery of the content, and the learner is instantly provided with feedback on success (Munger, 1996 cited by Giannoukos, Hioctour, Galiropoulos & Besas, 2017). CBTs are self-paced, flexible methods of learning for adults in on-the-job training. The flexibility of online courses requires a design that incorporates strategies that give the learner a choice to disengage if other job demands call upon their attention. The course design and content combination of elements must be such that they will become self- motivated to engage in it to achieve success. However, not all CBTs are created with the same features, nor are all adult learners self-motivated to complete these courses.

The literature reviewed for this paper on e-learning revealed that an instructional design in educational technology, where the physical and virtual learning environment is blended to support learning in the classroom, is standard in colleges. Academic institutions have generally accepted blended learning as a viable alternative to instructional practice, but have often negotiated their meaning of it (Sharpe, Benfield, Robert & Francis, 2006). However, there is not much research about the use of this blended model design for motivating employees to learn systems technologies in the workplace. Designing and delivering instruction via the blended learning model has the potential to improve workforce training. Still, there are challenges,

especially in responding to the complexity of coordinating the two environments as a legitimate employee-learning environment. This research study is worth pursuing because little is known about what can be built into a blended systems training course to motivate employee learners to pursue learning in the workplace.

Defining the successful design of a blended e-learning course requires acknowledgment of the learner's experience. The instructor of the live portion of the course must be aware of their influence, their presence on learner's motivation. What occurs with motivation as the learner moves from a fully guided learning session to more self-guided online learning content? The instructor must explicitly identify and link training objectives to the employee's relevant work competencies. Objectives will help learners understand the connection between the learning activities of the online course and their own personal or professional goals in a work context. Providing the right level of scaffolding support will help employees recognize the value and relevance of the e-learning learning activities of the blended training course (Hartnett, St. George, & Dron, 2011). Still, more challenges of online training exist that relate to how employees perceive technology. Employees differ in the level of confidence they possess in their use of computers to learn new concepts and tasks. They will not be motivated to learn if: (1) they have problems accessing the online delivery system used to train them (i.e., complex learning management system (LMS) interface, modules that freeze, old computer equipment, confusing module layout, or additional add-ons requirements); (2) they have no experience with e-learning; and (3) they do not trust their organization's capabilities to deliver the online and the classroom training virtually (Muilenburg & Berge, 2005). Overall, in addition to motivating employees to learn, the design must consider ease of use, learner's prior technology experience, and trust they have in their employer to deliver it.

Statement of the Problem

Training is "a planned effort by a company to facilitate employees' learning of job-related competencies" (Noe, 2018, Chapter 1, p. 2). Noe (2018) understood that in an organization, employee training was a key component of learning, "the overall goal of training in organizations is learning…that refers to employees acquiring knowledge, skills, competencies, attitudes, or behaviors" (pp. 2-4). Most training programs aim to enhance business performance. For any training program to be adequate, employee learners must learn the training content and then apply such learning in the workplace. The target environment for this study was in the offices of grants and contract accounting administration. University grant administrators should self-enroll in two-hour computer classes to increase their skills with Oracle financial systems. The grants administrator's role is to ensure that the grant award's budget, and other data elements in the Oracle system, accurately reflect the terms of the grants award and the completed endorsement forms. Grants administrators make sure that project expenditures are charged, using the application, following the terms and conditions of the award and the university policies (https://postaward.university.edu/grant-management/award-management).

The typically sponsored grants administration class consists of a lecture-style presentation with PowerPoint, basic hands-on exercises, and no interactive online content. When the grants administrator goes back to the office, he/she may or may not remember what he/she learned in the lecture-style session. He/she must then try to figure how to perform tasks in the system on his/her own, or informally by contacting work colleagues or calling a central office grants accountant for assistance. This ad hoc way of learning can lead grants administrators to make mistakes in reconciling grants. They may perform tasks inconsistently, which creates other financial reporting errors for the

Office of Research and Economic Development. Because they do not have demonstrations of the grants system steps to serve as a job aid or guided assistance for reference when they are back at their workstation, they may put off completing tasks until someone from the central grants accounting office tells them what to do, or completes the process for them. Ultimately, their lack of training negatively influences the organizations' business performance.

The Research Study

This case study research explored adult learner's attitudes and perceptions regarding blended training conducted in their workplace, a research-based academic institution. The literature reviewed focuses on theories of motivation, e-learning, blended learning, self - efficacy, and their implications for designing user-centered and interactive systems training. Exploratory findings and empirical studies informed the design of an enhanced interactive e-learning blended course intervention. The course examined in this study was designed for teaching grants administrators to perform business tasks with a cloud-based financial systems application. E-learning enhanced training provides an opportunity for introducing various interactive web-based technologies that complement classroom content and that support the employee with continuous self-paced learning.

The purpose of this paper is to gather evidence to support the use of the motivation expectancy-value ARCS Model approach (Keller, 1987) as embodied (or expressed) in the design of a blended environment to develop effective workforce learning. This study also examined the role of the employees' expectation of future success from learning efficient ways of performing their job by adopting these new technology-driven administrative systems. There may be a link between the successful adoption of technology and the employees' belief in their ability to succeed (self-efficacy). Through binding self- efficacy with motivational theories, I proposed that an

employee's successful technology adoption can be attributed to motivational factors. Additionally, these factors guide the employee to choose to spend more time and energy in learning technology that will lead them to achieve positive performance outcomes. Bandura (1997) posited that self-efficacy judgments influence whether or not people engaged in activities based on their perception of capability, "A self -efficacy assessment, therefore, includes both an affirmation of a capability level and the strength of that belief" (p. 382).

Research Questions

The questions I sought to answer, after introducing a blended e-learning intervention in grants administrators' systems training program, included the following:

1. What combination of Keller's ARCS Model (Keller, 1987) of motivational factors (attention, relevancy, confidence, and satisfaction) embodied in the design will result in motivating employees to engage in the blended courses (instructor-led and self-directed learning activities) that result in expected outcomes? (See *Figure 2* Conjecture Map Based on ARCS Motivation Model).

2. What blended course design embodiments will make the learning experience more enjoyable and satisfying for the adult learner and support motivation to continue learning at work.

Research Significance

Ellinger (2005) defined the learning in a workplace setting as "the process, means, and activities in the workplace by which employees learn from basic skills to high technology and management practices that are immediately applicable to their jobs, duties, and roles" (p. 389). Today, technology-delivered instruction has increasingly become the method of supporting

workplace training, in particular, when addressing the need to train employees on the use of newly

implemented software systems.   This study is relevant given the economic challenges faced by

institutions of higher learning and their continued urgency to educate employees in mass. I suggest

that a blended learning approach, with instructor-led, web-based seminars, and self-directed

modules, can be used to engage employees and motivate them to learn. Practical designed training

involves clarity of learning objectives, understanding of trainees' characteristics, knowledge of

learning processes, and considerations of the learner's costs and benefits in participating in training

activities (Tannenbaum & Yukl, 1992).

I designed and tested a blended learning design intervention on a group of university

employees (identified as sponsored projects financial systems users) to evaluate their motivation to

learn**.** Through their narratives, I explored the practical applications of expectancy-value theories,

specifically Keller's (1987) ARCS Model of motivation. Based on the literature reviewed, and

drawing from my fifteen years of employee training experience, I believed there was potential to

teach unmotivated adult learners with enriched e-learning training that demanded their attention and

interest to learn and develop skills. Related to the way the employees are motivated to learn to use

technology to perform their job (Compeau & Higgins, 1995), this study also explored the debates in

the literature related to constructs of computer self- efficacy and their impact on motivation and

learning outcomes.

A gap exists in the research about the use of effective blended learning models for employee

workplace education. Conducting a case study research in one institution to investigate adult

learners' experiences with a blended instructional model was expected to yield answers to enlighten

similar organizations looking for strategies to motivate staff to enroll in organization sponsored

training programs related to systems initiatives.

CHAPTER II

Review of the Literature

Technology delivered instruction has increasingly become the method of supporting and training employees, in particular when addressing the use of new software systems.   Several large organizations are adopting different e-learning strategies (solely online, or a "blended" combination of face-to-face and online instruction) to address their training needs. However, more research is needed to explore online learning models theoretically and to identify critical factors that will enhance its effectiveness in the workplace context.

In reviewing a body of empirical literature drawn from psychology, education, business, and technology journals, my goal was to identify applicable motivation theories influencing adult's learners, explore the factors affecting employee motivation to learn about technology on the job, and find examples of effective blended learning used to train employees in a large organization. This case study attempted to uncover self-reported narratives about adult learners' experiences, attitudes, and motivation with a blended model systems content course. Additionally, exploring adult learners' perception of the learning delivery methods introduced was expected to yield answers as to whether this model of instruction is an effective method for creating workforce training that motivates workers to seek knowledge at work and identify what changes can be incorporated to accomplish positive learning outcomes. This literature review informed my research by exploring scholarship regarding studies about learners who are taught in the workplace with different learning designs, including computer-supported formats that involve the use of videos, self-directed online modules, webinars, instructor-led with computer labs, or a blended mix of all those embodiments or visible representations.

This chapter begins with background on institution-wide employee systems training, the is followed with a review of the literature on e-learning, blended instruction, the use of technology in workplace training, measurement of learner satisfaction, and discussion of the relevance of a motivational approach in training is presented. Here the theoretical foundation is presented and an examination of studies that address the research question: will using an expectancy-value theory ARCS motivation model promote workforce learning via a blended training design. The chapter concludes with a fully detailed explanation of the embodied conjectures and how these are linked to an employee's motivation to learn at work.

Background

Research on Workplace Learning

Employers invest in employee training, often when it will help introduce technology changes into the organization's operations. Employers seek to do this in cost-effective ways that will yield improved performance results and employee technology adaptation to the changes (Strother, 2002). Desired outcomes of employee training programs are economic benefits evident in a more skilled workforce, workforce change readiness, and lower rates of employee turnover (p.1). Employees need to be trained to know the knowledge-intensive systems and work processes of their specific organization to keep skills updated for current jobs, and prepare for innovation in the organization and their professional careers (Lepak & Gowan, 2016). Employees who maintain skills that are relevant to the organization's needs help the organization maintain a competitive advantage. These knowledgeable employees are also more likely to be high achievers and contribute to the goals of the organization (Lepak & Gowan, 2016).   Technology can be productively used to enhance workplace learning.

Research Institutions, such as the one I studied, recognize the importance of technology competency. They understand how the degree to which their employees (administrators, faculty, and staff) are technologically proficient is an indicator of the institution's own ability to compete with other research institutions for resources (i.e., endowments, government research grants, and corporate funds).

In 2017, the Association for Talent Development (ATD) published the State of the Industry Report that consolidated survey responses from their membership, large and small organizations that invest heavily in employee training and development. Overall, the report highlights its commitment to creating effective and efficient employee training. The average direct learning expenditure per employee was $1,273 across all the organizations that participated in a survey conducted by ATD. They found 26% of spending went to outsourced activities, 13% of expenditures went to tuition reimbursement, and 34.1% to formal learning hours used per employee. The top content area was for managerial and supervisory tasks. A significant finding was that 45% of learning options used technology-based training, and 65% of organizations strongly emphasized on-the-job learning.

Justifying the need to study workforce training and the importance of offering cost-effective, competency building learning for employees on the job, the report found that about ninety percent of the companies provided e-learning. This report also looked at how organizations distributed learning to employees; nearly half of the hours available at the average organization were delivered in a traditional classroom setting. The instructor-led live face-to-face classroom was the delivery mechanism for 51 percent of learning hours open in 2016. Only 45 percent of hours available were delivered in the traditional classroom for large organizations, many of which have workers scattered across multiple locations and time zones that may be easier to reach using technology. For these

organizations, 27 percent of the hours available were self-paced online learning environments. As

for the reported technology-based methods used to train employees, self-paced online delivery (e-

learning) was the most readily available and heavily used technology-based approach in 2016 (State

of the Industry, 2017).

Defining e-Learning approaches

Different terms are used for online learning, for example, e-learning, internet learning,

distributed learning, computer-assisted learning, web-based learning, and distance learning.

Technically, learners are engaged in e-learning when they are at a distance from the instructor, use a

computer or mobile device to access the materials, use technology to interact with a virtually

present instructor, and receive computer or content support (Means et al., 2013). However, e-

learning can also be defined from an educational perspective. Alonso, Lopez, Manrique, and Vines

(2005) argued that e-learning involves the use of new multimedia technologies and the use of the

Internet to improve the quality of learning by facilitating access to resources, services, remote

exchanges, and peer collaboration. The terms e-learning, distance learning, and online learning are

used interchangeably in this study. Also, in this paper, the term instructor-led training (ILT) will

refer to a learning session held in a digital, multimedia computer training lab setting and conducted

by one instructor or with a subject matter expert.

Stahl, Koschman, and Suthers (2006) provide a critique from a perspective of collaborative

online learning and suggest that e-learning is too often just a digitizing of classroom content. They

claim that this practice leads to several problems. Namely, when e-learning is only used to provide

resources for students, like a textbook, it can only be compelling for the student if it happens in a

broader interactive context. Stahl et al. (2006) recognize that there are misconceptions about the

amount of time required for a teacher to prepare material and continually motivate students through ongoing virtual interaction. Online learning is also challenging for students who find themselves merely learning in isolation. They argue that there is a need for space for students to express their questions, pursue lines of inquiry with the teacher and with other students, by seeing how others are engaging with the same materials. The blended design (combining face-to-face instruction and e-learning) suggested in this study supports such an approach to e-learning. I suggest that stimulating and sustained interest of the student will result in the purposeful coordination of pedagogy and technology (Stahl et al., 2006, p.2).

The relationship between learners and instructors positively influence the learner's experience and leads to a learner's motivation to achieve in the course. Challenges arise in building a positive learner-instructor relationship due to the limited opportunity for social support afforded in this type of distance learning environment. However, the use of video instructional elements in the proposed embodiments, or instantiations of design, creates the opportunity to cultivate student-teacher/trainer interaction and build a rapport and a relationship between them. Yanghee and Thayne (2015) implemented multimedia types of elements in online designs in a blended learning context. They compared online video-based instruction that utilized relationship-building strategies with online video-based instruction that did not use those strategies. The results indicated the relationship-building approach not only helped students adjust better to online learning, but its positive impact on learner attitudes also may explain higher learning gains. (Yanghee & Thayne, 2015)

This paper helped to support the incorporation of the use of video simulations and synchronous webinar lab sessions as part of the embodiments. The assumption was that these

elements would lead to learner satisfaction with the blended course, because of positive virtual

interaction experiences with the instructors and in the face-to-face portion of the course.

Motivating Workforce Learning with Technology

E-learning is not without its attendant problems. Monshinskie's (2001) research, from a

corporate training field perspective, focused on the problem with e-learning having a high attrition

rate. He posited that one contributing factor is that the learners are not motivated to attend, nor once

they enroll, to complete the course. However, he proposed that to engage motivational factors

related to relevance, designers should use case studies and reflections on work experiences. The

studies he cites in his research include work done at corporations like Motorola. Their success with

the use of e-learning for employee training resulted from creating authentic (relevant) work tasks

and providing meaningful feedback to e-learners about their performance on a course. In turn, these

instructional strategies helped to achieve student satisfaction with their courses (p. 36)

Moshinskie (2001), along with Keller (2001), suggested incorporating what Keller referred

to as motivationally adaptive feedback, since learners often ignore essential feedback. The notion is

that the motivational feedback should be aligned more to the specific learner's performance rather

than scores on assignments (Moshinskie, p. 34). This article informed my design and decision to

include feedback components in the e-learning environment where the student can e-mail the

instructor and also post comments visible to the teacher while responding within videos included in

their e-learning environment work.

In discussing how to design for motivation, Keller (2010) defined it as "the process of

arranging resources and procedures to bring about changes in people's motivation" (Keller, 2010,

p.22). Moshinkie (2001) agrees with Keller that the use of varied presentation formats in a design

should be used. He also clarifies the idea of knowledge transference resulting from corporate

training as "the attention and effort required to complete a learning task and then applies the new

material to the worksite" (p. 34). The strategy of varying the instructional delivery is valid in

design, and it is listed as a practice for motivating learners. The article by Keller (2010) provided

the scholarly motivational literature to justify my use of the ARCS model strategies (**A**ttention,

Relevance, **C**onfidence, and **S**atisfaction) to improve student's motivation, in particular, the ARCS

systematic process of designing learning by defining, designing, developing, and evaluating it

(Keller, 1987).

Curtis Bonk (2006) in *The Handbook of Blended Learning: Global Perspectives, Local*

Designs (2006) presented a comprehensive review of the blended learning model where courses

were conducted face-to-face with computers in the workplace. He laid the foundation for this model

of learning. He claimed that blended learning was a stepping-stone to future e-learning designs for

the workforce and that it should remind educators to look at learning challenges from many angles.

He challenged them to pick the right combination of computer training tools to do the job of

educating. Blended learning, he claimed, allowed training to be conducted virtually and efficiently.

The term "blended learning" became more popular in the early part of 2000 when referring to e-

learning models in the literature. Given the fact that blended learning is present in both higher

education and corporate training, it fits our context of educating university grants administrators.

There is still the need to focus on the pedagogy and technology that can be used in blended learning

environments for university employees.

When designing for the employee on the job training, we also have to recognize the

influence posed by the actual work setting. Berge and Muilenburg (2000) conducted studies that

gathered evidence on factors affecting perceived barriers to e-learning in the workplace. Some of

these barriers included: employee's job functions, e-learning delivery methods used, expertise with

technology, and expertise of the individual regarding distance education (Berge & Muilenburg,

2000). The methods used in delivering employee training could affect their workplace learning

experience. The course design must allow flexibility for employees to complete exercises during

work hours. The technology tools shared must be easy to use without an instructor's guidance (once

they return to work). The course must allow for quick access to online information and include

assistance to the employee as they apply what they learned or practice in the course. Nederveld and

Berge (2015) further affirmed that the use of e-learning and blended learning, which incorporates

available interactive technological options, was positively beneficial for teaching adults. For

Ozturan and Kutlu (2010), the level of employee satisfaction with e-learning options was found

critical in their desire to change behaviors and transfer that knowledge to their work.

Scholars like Osguthorpe, Russell and Graham, (2003) contributed to the subject of blended

learning by incorporating diverse blended model components and by clarifying the need for having

a purposeful plan for a learning environment with a balanced mix of content and technology

elements. They argued that useful blended courses could take many forms, depending on the

organization and the learning objective of the educator.   Important to technology training and the

"just in time" philosophy commonly used with project-related systems training at the organization

being studied, is that the blended design must address the employee's need to access information

quickly about the business processes and the systems tasks they must perform. Incorporating

Osguthorpe et al. (2003) suggestions would support the creation of video simulations that mirror

learner's real-life work experience. Also, including a communication channel for employees to

access subject matter experts during the live session will contribute to the expected outcome of

increasing employee's confidence for success. This success may lead to their motivation to continue

to learn in this setting.

From Schrum's (1999) technology education perspective, I found relevant information on

the fear of adult learners with learning new technology. The studies she conducted provided insight

into the fear professionals have to innovate or change. Fear of technology can become a barrier to

an adult's motivation to learn new ways of performing an old job. Schrum (1999) suggested that

mandating technology training for employees' increased that resistance and created other

challenges. Schrum's conclusions that the lack of comfort in technology could be eased by

preparing the learner to learn content they would use in their job that is *relevant* to their work. In the

design of this study, the training conducted and the video simulations created aligned with the work

the employee must perform as a grant administrator and allowed them to make that connection with

learning and job interest. This connection was expected to lead to desired motivational outcomes.

Other scholars also discussed *interest* in the course content as a motivating factor for

learning (Lim & Kim, 2003). They developed assessments of online learning that I found to be

useful guides for assessing employee motivation of blended learning systems training as I

conducted qualitative data collection. They wrote about six learning motivation variables that

include reinforcement, course relevance, interest, self-efficacy, affect, and learner control. When

designing blended learning, we also need to consider the learners' affect. The emotions that learners

feel during the learning experience is part of the need to create the correct balance between the two

instructional learning settings and their potential to complement each other.

In the design of this study, the integration of interactive videos, job-relevant systems

simulations, and opportunities to communicate with the instructor in the live and virtual

environment was expected to result in increased learner motivation with the course content and lead

to the employee-learner increased expectation of success at work.

Measuring Satisfaction with Training

Noe and Wilk (1993) maintained that employee satisfaction and willingness to participate in

workplace training programs are influenced by the organization's perception of its learning needs.

When the organization understands the employee's training needs and how it should be delivered,

employees are more willing to participate in learning and skills development training hosted by the

organization. Employee satisfaction with the blended training will provide valuable feedback for

measuring its effectiveness and help to establish its strengths and weaknesses to improve the

training. Measuring the degree of satisfaction from their responses to the blended training course

will provide data about how they feel about the learning experience; if they are benefiting from the

classroom or online elements incorporated in the design. If the learner is not satisfied with the

training experience, they will not be motivated to engage in more blended learning.

Focusing on aspects of employee's satisfaction and effects of the e-learning component in

my design, I found that the following paper provided further analysis of factors that produce

measurable training outcomes related to worker satisfaction. *Employee satisfaction of corporate e-

training programs* (Ozturan & Kutlu, 2010) examined the level of employee satisfaction in

companies where e-learning was used as a corporate training tool. The authors surmised that the

level of employee satisfaction with e-learning options was critical in their desire to learn, change

behavior, and transfer knowledge acquired to their work.

Ozturan and Kutlu (2010) examined two levels of Kirkpatrick's classic four-level evaluation

model. The four segments are a reaction to training, learning from training, behavioral change, and

effects on the organization. First, end-user surveys measured reaction satisfaction levels; then, after introducing a learning intervention, they conducted a posttest survey using the evaluation to gather responses on the effectiveness of training. In addition to incorporating the first level of the evaluation, I sought to measure the degree to which the employee's behaviors change because of the training. If they are applying computer skills, they learned to perform their job. It is a useful tool, and I have used it in my years conducting and evaluating training for adult learners.

Finally, discussion of evaluation tools supported a commitment to use post live course evaluation instruments as part of the ADDIE training model. ADDIE is an acronym *for Analyze, Design, Develop, Implement and Evaluate*. The ADDIE systematic design of instruction is often used to construct user-centered training for performance-based learning (Branch, 2009, p 17). These evaluations help to find evidence about the elements that can be measured and provide evidence to support design embodiments that result in systems skills outcomes.

In considering the desired outcomes of the intervention, I used tools that were typically used in training and development of employees. As an instructor of employees, the use of the instructional systems design model called ADDIE is the starting point for this design. This model leads with a learning needs analysis, follows with design of learning objectives, creation of evaluation tools, development of learning activities and the type of delivery, the implementation phase whether its instructor-led, online, or both. Finally, there is the evaluation phase of this model, which is a critical step (Branch, 2009). Kirkpatrick's four levels of training evaluation include surveying reactions to a course, evaluating learning, observing behaviors and measuring results. My design sought to use evaluation throughout the ADDIE process, however most important to my study was ensuring that the design that the training were relevant and that the trainees were satisfied and motivated to transfer the learning to their behavior on the job, accomplishing the tasks taught in

the blended learning environment. Refer to the sample *Motivation Evaluation Survey* designed for

the live portion of the grants class in **Appendix A**.

In another study, conducted to gather information on corporate employee attitudes regarding

e-learning environments, Anderson (2005) surveyed employees on their satisfaction with e-learning

expressed their satisfaction with e-learning related to course relevance, online features, and

perceived learner readiness. The study's weaknesses lie in that it was a small sample and that the

survey used may not be appropriate for general use, as it was adapted from a higher education

student survey instrument, not a business organization. Their results showed a positive correlation

between the identified factors and satisfaction with e-learning. The study suggests ways to make

decisions about what portion of the course will be e-learning and how to make decisions about the

balance of web-based content and its presentation. The authors recommend early communication

with employees to make them aware of the relevance of online training (Anderson, 2005). I agree

that the more you communicate with the learner, the more likely they will be motivated to self-

direct their use of online learning resources to seek learning content. Web-based technologies are

needed to bring real-life models and simulations to learners. Although this sounds contradictory to

Anderson's conclusions, it is not. The appropriate use of pedagogy and purposeful learner-centered

activities with technology will promote learning within the blended e-learning environment

(Kozma, 2001).

Theoretical Framework

Conceptual Diagram

This conceptual diagram illustrates a synthesis of how the motivational model selected (ARCS Motivation Model) may affect blended learning. It identifies the subject of the study (employees), illustrates the relationship of the technology-enhanced classroom and motivational elements with the blended instructional design, and the post-intervention outcomes in Figure 1.

Conceptual Diagram.

Conceptual Diagram

ARCS Model Motivation Theoretical Framework (Keller, 1983)

motivational elements

attention getting elements | job relevant activities | opportunity to gain confidence | Instructor feedback | opportunity for experimentation

Employee-Adult learner

Blended Instructional Design (Intervention)

Motivation to learning in workplace

Technology – Enhanced Classroom and Online Space
videos, instructor presence, quizzes, email, discussion groups,

Figure 1.

Conceptual Diagram

The ARCS Model of Motivation

Grounded in the expectancy-value theory that proposes that learners are motivated to engage in activities if they realize the value in the activity and if they expect to succeed, I took a design approach and used the ARCS Model as a method for creating learning and instructional materials that are motivating to adult learners in the workplace. Keller (1987) argued that a solution for motivating employees to attend non-mandatory training programs might be the use of the ARCS Model. The emphasis of the instructor-led session, including relevant system exercises, simulations, and other hands-on instructional activities were a primary reason for using the ARCS model. Keller suggested that if the problem of practice "is one of improving the motivational appeal of instruction for a given audience, then it is appropriate to use the model" (p. 6). Using this design approach, I focused on getting and keeping the learners' attention, creating a feeling of relevance between the learner and what they are learning, fostering the development of confidence within the learner, and helping the learner establish intrinsic satisfaction.

Attention

Keller asserted that attention was the first condition for motivating students to learn, but that the challenge lies in maintaining that attention throughout the course.   The attention category refers to learner curiosity and interest in the course topic. Keller (1987) added subcategories to the attention category, namely, perceptual arousal, inquiry arousal, and variability. These are feelings that can occur when the learner is provided with opportunities to experience unexpected activities, problem-solving situations, and when some variations exist in how content is delivered. The aim is to reduce online learner boredom with the introduction of key instructional design elements. Therefore, the decision to create some variability in the PowerPoint materials was purposeful and

characterized by less text, more images of navigation icons, colorful arrows, red boxes around key

fields in forms, embedded explanations with screen captures. These elements were consistent

throughout the live instructor-led portion of the course and were intentionally designed to focus

attention on the important content and tasks the learner needed to complete on their own. Keller

would agree that varying the medium of delivery by incorporating these elements to illustrate the

concepts by also incorporating demonstrations, learner participation, and systems exercises would

increase student attention. In an online context, the same use of design elements in the CBT and in

the video tutorials was used to create the same affect.

Relevance

Keller noted that relevance played a key role in what content learners are willing to continue

to pay attention to when presented in the course. Relevance refers to the learner's ability to relate to

the content introduced in both the classroom and in the online environment. Keller reasons that

learners can be motivated to learn when they feel that the information they are receiving relates to

their experiences. In this design, the employee must see the content and activities as information

that will help them perform their business functions in the system. Motivation is increased if

learners have a goal to achieve, and the course helps them to achieve it. To increase relevance in the

content of the e-learning course, I designed the course with the collaboration of a team that

consisted of a grant and cost accounting trainer, an accountant, and a systems consultant. The

systems consultant advised and enhanced the design by incorporating within the computer module a

challenging Excel spreadsheet. The spreadsheet included relevant grant-funded content that students

could model when calculating new grants in the system. Additionally, building on the familiar,

learners saw screens, terms, and resources they already use in their roles as grant administrators.

Research has found that individuals will accept a moderated amount of unfamiliar content in the

online course, but the design should incorporate analogies with familiar content (Moshinskie, 2001).

Confidence

Keller (1987) noted that confidence involves learner's positive attitudes and expectations to succeed at a task. The first way the design addressed computer use confidence was to navigate the ORACLE application for project icons with the students during the instructor-led session. In the session, the instructor presented screen captures of a business case, system demonstrations, and then guided students in the hands-on computer systems experiential exercises. The activities were designed to build learner confidence in the use of computers and the application. Additionally, the corresponding computer-based module was aimed towards building learner user confidence, with ease of use and voice instruction, and finally, self-knowledge checks within the module. It is important to highlight here that the learner's perceived ease of use affects utilization in the sense that if they perceive that the e-learning technology is easy to use, they are more likely to accept it and use e-learning again. Ease of use is one of the components that leads to the use of any technology (Zaria, Alhassan & Hamza, 2015)

Satisfaction

To increase learner satisfaction with instructional material and to generate positive feelings about the experience, the design provided opportunities for feedback. Keller recommends that course objectives be located in the online module or available for download as a document so that they can be printed and referred to later. Satisfaction with the e-learning course components leads employees to be motivated to learn. If employees are satisfied with online learning, they may be more inclined to complete the course and be more attentive to the content being taught. Conversely,

when employees are dissatisfied with online learning, they are not motivated to finish the training, and will eventually drop out (Anderson, 2005). Exploring learner satisfaction with blended intervention is one approach to illustrating evidence of expected outcomes. For example, if the learner is motivated during the online training, interacts with the content; does well on the quizzes, and develops feelings of achievement; they subsequently will be satisfied. This improved satisfaction and enjoyment is a common outcome in computer-based training (Kearsley, 1983). Some employees are motivated by getting higher pay, by completing challenging work tasks, or by learning new complex technology systems that help them maintain their current jobs or get a promotion.

   Technology Self-Efficacy and Motivation. It was essential to spend some time understanding the ARCS confidence category by connecting it to the student's self-efficacy with the systems used in training. The goal was to create a design that provided learners an opportunity to build a sense of technology systems self-efficacy. Self-efficacy originated from the Social Cognitive Theory (Bandura, 1986), which defined self-efficacy as one's confidence in his or her abilities to perform a task successfully. Social Cognitive Theory suggests that individuals who have more confidence in their skills and abilities will put more effort into performing a task. Based on the general concept of self-efficacy, Compeau and Higgins (1995) defined the concept of Computer Self-Efficacy as one's confidence about their abilities to perform a computer-related task successfully. Their studies are over twenty years old but are relevant because they looked at computer self-efficacy in the workplace with a focus on the use of technology within the context of a job in the organization. Although it is not in the scope of this research to dive into the factors that influence the employees' use of technology, I thought it was relevant to my construction of user-centered design to understand how confidence intersects with technology self-efficacy. Compeau

and Higgins (1995) defined computer self-efficacy as "...a judgment of one's capability to use a computer" (p. 192). Confidence with technology, according to Compeau and Higgins, influences adult learners' adaptation and use of new, more advanced systems in their workplace.

It was essential to explore the significance of self-efficacy and employee motivation to participate in blended (technology-enhanced) courses in the workplace. To support organizational-wide success, employees needed to be efficient and effective in using innovative cloud-based administrative systems. If an employee possessed a sense of self-efficacy, it is expected that they are thinking about further enhancing skills and accomplishments (Bandura, 1997). "Perceived self-efficacy contributes to the acquisition of knowledge and development of skills, as well as drawing upon them in the construction of new behavior patterns" (Bandura, 1997, p. 61). Margolis (2005) exerted that learners with strong self-efficacy levels have higher motivation and make a more vigorous effort at gaining new competencies than those with less confidence in their ability to succeed. Ostlund (2015) explored how computer self-efficacy in e-learning training in the workplace indicated that self-efficacy affects motivation to learn, which is important for the success of government employees completing courses in the workplace. These motivating factors guided the design decision of creating embodiments within a blended learning environment that could foster employee-learner engagement and learning in the workplace.

Employees as "Learners"

This study, as previously mentioned, focused on educating individuals who perform a business role for a large organization with highly educated professionals. They are employed to be the stewards of research funds for an institution of higher learning. The business core of the organization is large and centralized. The administrative control relies heavily on employees' training and indoctrination of its professionals into its culture (Bolman and Deal 2017). The

professionals in this study were adults learning. In light of that understanding, an educator would

assume that they should be referred to as *learners.* However, prior research in business journals

advises that when communicating to employees as *learners*, researchers in work-situated training

have to be careful with the terminology they use in describing them as "learners." In academic

settings, educators use terms like "student" and "learner," and that can be problematic to use when

educating workers. Employees may perceive "learner" as an identity and as representing a lower

status within the social context of their organization. The term may be associated with someone

who needs to acquire more knowledge, a novice or a person that has a lack of job skill, one who is

still not a member of their professional group (Boud, Solomon, Rooney, 2010). Other scholars

expand on these findings and also address their concerns with the use of identifiers that hold

different meanings for employees. They vouch for this research and also explore the sensitivities of

employees and their perceptions. Their studies analyzed the way in which employees perceive

learning in the workplace. Their findings revealed that the way an employee perceived the term

might cause them to pause in engaging in training situated in their workplace (Hager, 2004). Others

make a case for the importance of the workplace as a social setting in which employees learn.

Perhaps the conclusion from this line of research is that the work setting is crucial, especially for

employee learners who want to enjoy being at work gaining skills through their experiences and

interactions with peers that work as a motivator for learning at work (Hager, 2004)

Embodiments and Design Decisions

A Fully Specified Conjecture Map

My high-level conjecture or conceptual map (illustrated in Figure 1) proposed that using a

technology-enriched instructional design intervention to teach employees in their workplace can solve

problems of low levels of computer self-efficacy and motivation for adult learners expected to attain

job-related financial systems knowledge for their business function. This user-centered blended

design (classroom and online instruction) incorporated ARCS motivation factors in workforce

training. Task engagement, values, relevancy, and satisfaction with the motivating learning

experience were expected to lead to increased employee engagement and participation in learning

about relevant grants systems and similar role-specific courses in their workplace.

This blended model of instructor-led and online instructional design involved the formulation

of hypothetical learning paths that comprise planned instructional activities. As a designer, I looked

at learning activities enacted in the online environment (embodiments) that were necessary to

motivate adult learners. The resultant model posited that instruction would be more motivating if it

captured learners' attention; included task engagement and content, and activities that employee-

learner perceived as relevant to their business role; increased learning, and created a sense of self-

efficacy and resulted in satisfaction with what and how it was learned. Figure 2 illustrates the

conjecture map guiding the design of the intervention.
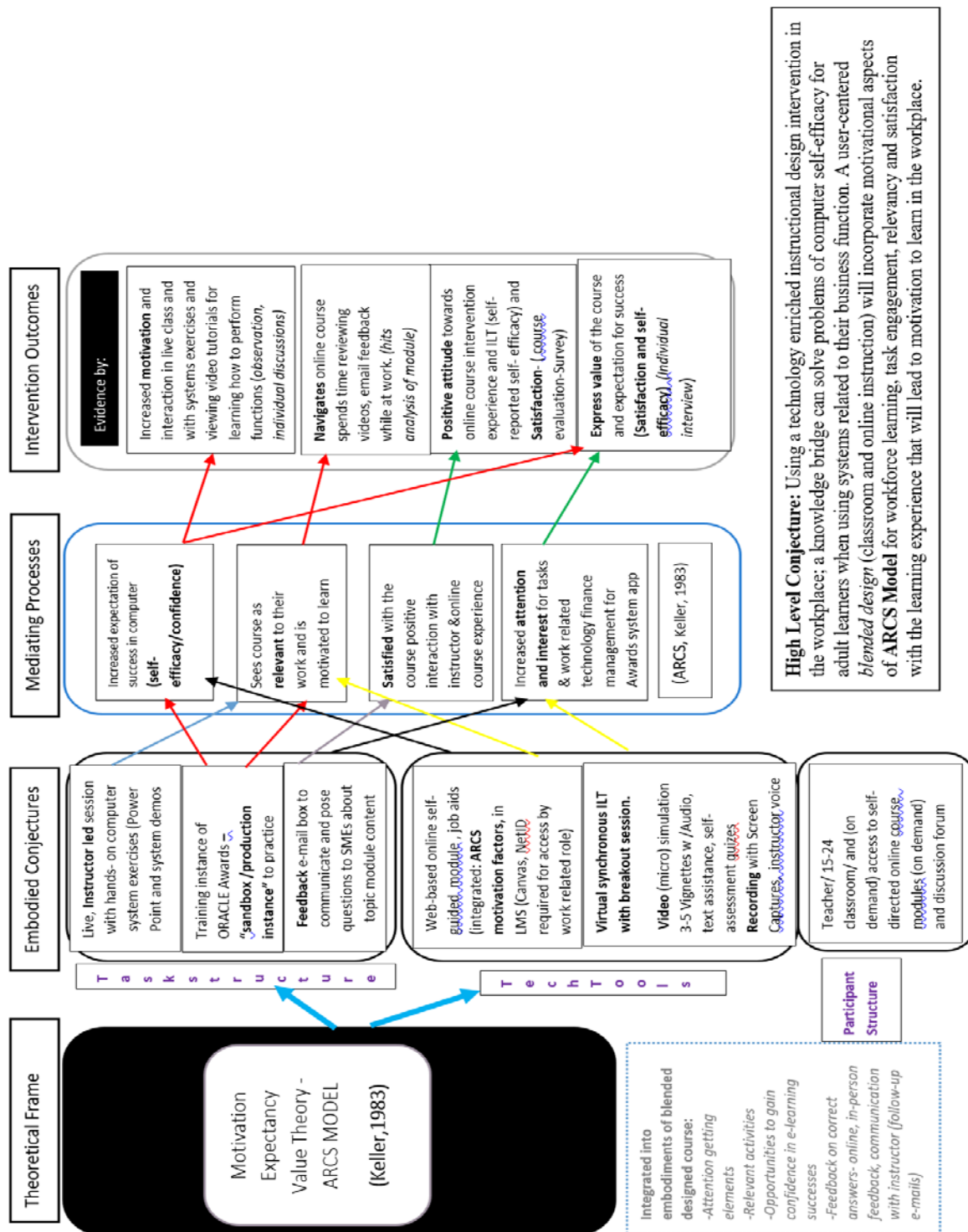
Figure 2:

Conjecture Map based on ARCS Model

This section details the embodied conjectures, as demonstrated in the conjecture map. The

embodiments of the intervention link with mediating processes and intervention outcomes.

Embodied Intervention 1

Grounded in the theoretical framework of expectancy-value theory, specific decisions in terms

of the components necessary in the designed ORACLE systems course consisted of a blended

course model (2-hour instructor-led training and online module) that had these necessary

instructional components of the embodiments:

- Instructor taught live session
    - Elements- computer lab with hands-on- experiential activities with Instructor controlled screen sharing capabilities
    - PowerPoint presentation slides available before life session in Canvas (Learning Management System)
    - Recording of life session with Instructor voice-over and PowerPoint and screen capture of systems demonstrations. Recording downloaded post-session from the Canvas course.
    - Job Aids documents developed easily downloaded and updated regularly

- Virtual Instructor led – Web-based 2 – hour session via WebEx Training Center

    - Elements - virtual breakout rooms for individual work on tasks assigned
    - Chat Room – monitored by instructor to address questions and encourage discussions, and information sharing between learners.
    - Power Point presentation slides available before life session in Canvas (Learning Management System)
    - Synchronous lecture - Instructor guides student exercises on a side by side simulations of the system.
    - Videos presence is not available in breakout rooms
    - Use of a Video Camera on a personal computer is optional

Mediating Process. The teacher adapts the presentation of materials based on the student's

interest during the introduction of the session as she builds rapport with employees. She can

introduce subjects, prompt discussions, and provide immediate feedback to employees seeking

answers to real work scenarios in class. These components link to the following outcome:

Increased motivation and interaction with peers and teacher - per observations by the researcher and

participant feedback. Real-life tips and experiences from peers also help learners see courses as

relevant to their work.

Minor modifications to the instructor-led class were made in order to continue training

employees with the redesign remotely. On-site person-to-person instruction was paused at the

institution effective March 13, 2020. The emergence of the Covid-19 pandemic forced the

institution to close the building where sessions were hosted. Subsequently, courses were delivered

by the same instructor with the use of video conference web-based platforms. The instructor taught

the course entirely online, which limited the researcher's ability to observe learner complete

systems exercises and social interaction between the students.

Embodied Intervention: Development Training instance of the ORACLE system.

- o Element- Training development instance where the instructor and is able to demonstrate and students can practice scenarios not impacting real production. Training instance is available for students with no access to the production instance. Students may use their own credentials to access their reports in production.

Mediating Process. Increased expectations of success and self-efficacy were expected to

occur as learners experiment, explore information, and meet goals associated with systems task

performance. They are motivated to repeat the learning process by using online practice scenarios

presented by the instructor and when returning to their job.

Embodied Intervention 3: Access and Ongoing Contact with Instructor via Canvas and E-mail

- Feedback email
  - o Element - Student, can request information from the Instructor via e-mail

- o Element - CANVAS if they have navigation or technical issues with modules 24-hour CANVAS helpdesk
- o Videos posted as modules allow students to add comments online
- o Videos allow quizzes to be added to check knowledge.

Mediating Process. Positive experiences when receiving feedback from the teacher were expected to result in the participant experiencing a feeling of satisfaction with the course.

Embodied Intervention 4: Online Platforms CANVAS and WebEx Training Center Application

- Virtual /Online Platform CANVAS (LMS) and WebEx Training Center application
  - o Easy to access with Net ID and any web browser
  - o Computer-Based Modules (formatted with recognizable university logos and links, automated PowerPoint, and navigation instructions to University portal)
  - o Trackable student activity, bookmarking sessions)

Mediating Process. Virtual technology platforms created virtual environments for teacher and learner interaction and student-to-student collaboration. They allowed for self-regulated, self-paced learning at work, so learners are motivated to interact within the user-friendly online virtual course environment.

Embodied Intervention 5: Short Videos

- Video 3-6 minutes
  - o Elements - self- paced, video simulations to mirror live system functionality, Voice over, and embedded knowledge checks. Videos demonstrate screen capture recordings with audio.
  - o Audio accompanying the screen capture videos is created in some cases with systems generated text to voice software using Camtasia.
  - o Voice-overs of videos posted to respond to student inquiries are created with the primary teacher's voice.

Mediating Process. These videos were expected to result in an increased expectation of success in class (self-efficacy) and increased interest for tasks and course topics. Video enriched learning, whether in the classroom or available as self-directed tutorials on-line in this design, involves computer simulation of the ORACLE system module for grants and awards financial reporting or an instructor-guided representation of the system in a computer-based module. In this case, the attention is focused on the navigation and exploration of the video simulation. Support from the instructor in the live session was expected to help the student gain feelings of self-efficacy when generating work-related reports. The audio guidance within recorded simulations provided step-by-step feedback that motivated employees to want to continue self-regulated learning. Combined, embodiments address the problem of employee motivation to learn to gain work-related ORACLE systems competencies.

<center>Components of the Instructional Experience</center>

Instructor-Led 2 hour Systems Training Course in Multimedia Equipped Lab

The following elements are necessary for the live two-hour computer lab (1). The teacher is accessible and talks during various parts of the class. (2) The teacher introduces subjects, prompts discussions, and provides immediate feedback to learners. (3) A training instance (development outside of production) is also available for students to conduct exercises similar to the kind of transactions they have to perform in the ORACLE system to process grants. If an employee learner already has been in the system and has full access, the instructor allows them to sign on to their production instance to look at their own department's reports. The instructor allows flexibility based on the student's comfort level with technology. These elements were expected to create positive

interaction and communication with peers and teachers, which could motivate satisfaction with the hybrid course.

The *expectancy-value theory* addresses self-efficacy as a possible factor resulting in the motivational outcomes found in this researcher's conjecture map. The theory suggests that computer self-efficacy would have a positive effect on the perceived usefulness of information presented in the course. The perceived usefulness of that information would also positively affect the learner's intention to use that information (methods for generating financial systems reports) at work. The employee (the learner) would be emboldened and believe that they can transfer the skills they displayed in the classroom to their work. As employees feel more confident about their skills, they were expected to be more likely to take more responsibility for their own continuous learning and successfully apply those new skills. Also important in training programs for employees is the retention of content taught. Therefore, the instructor's goal was to create a learning environment that motivated the employee to test their knowledge in a real work environment; otherwise, the training did not serve its purpose. (Zhao & Namasivayam, 2009)

Online Platform Technologies

Acknowledging that these learners possess different computer comfort levels, and experiences with financial systems cloud-based applications, and different years of experience with awards and grants business processes, the platform selected is easy to use and will produce the small successes along the way for learners to believe that they will perform well in the course, and then on their job (Norman, 2013). The software features used in the development and implementation of online learning include Webex Cisco Webinar Training Center tools, Captivate, Camtasia, PowerPoint, Snag it, Kaltura Screen Capture that loads to Media Space. The CANVAS

(LMS) learning management system platform was used for the integration of the learning design. The platform allowed for e-mail notification creating the ability for feedback between the Office of Research and Economic Development (ORED) grants accounting instructor and the students, and easy to create video productions software for the instructor/ and subject matter expert in ORED /GCA to create relevant and current systems and business process materials for the learner. These elements created virtual environments for teacher and peer interaction to be increased and to add valuable experiences for the student.

To create synchronous instruction opportunities for employees who were not able to participate in onsite live training sessions, WebEx-Cisco, a web-based video platform, was used to host some of the classes observed for this study. Webex Training Center, in particular, was used for at least one of the online training sessions with small group breakout sessions. It allowed the instructor to experiment with delivering this course as a virtual live, interactive session. It will give me, as the researcher, an opportunity to listen and see if the instructor-led instructions via Webex, a fully web-based platform, will keep them engaged. The instructor will use demonstrations, poll questions, and a breakout session for learners to interact with others in the class via a Chat conversation and ask questions during the course.

Employees of the institution had prior experience in the use of technology and were expected to be able to work within technology-enriched environments. It was expected that the online portion of the hybrid course would lead to self-efficacy and motivation for learning more about the subject.

Training Development Environment

A training instance of ORACLE Finance Management for practicing in the system increases the interest for tasks and financial management applications. It was available to employees without access to a real production environment. I expected to see that the learner would find the training instance as relevant to their role in the system. They were expected to access the sandbox to practice using the system during the live class. I anticipated finding evidence of gained self-confidence in the use of ORACLE technologies.

Interactive Video Simulations (Training)

Video is a common method of delivery for online course content. Integrating video content into course materials provides a multimedia teaching and learning experience that enhances learning and engagement and is valued by students (Tiernan, 2013). It provides an engaging way to introduce, elaborate, or summarize topics. For example, specific elements, like the use of shorter vignettes with embedded quizzes that are explicitly associated with an assignment, can make the learner more interested in understanding the content presented. Videos can be essential to include because visual stimulation from moving images can increase engagement (Ljubojevic, Vaskovic, Stankovic, &Vaskovic, 2014).

Using video in the embodiments of the blended design, the learner watched short systems function simulations and business process specific video vignettes, some with the instructor's voice and with automated audio. These videos allowed learners to stop, pause, and rewind or fast forward. The videos had features that required the learner to take action by answering a question after watching the video.

An assessment quiz was added, encouraging the learner to engage. The video allowed the learner to react to what they saw in the videos. As these videos with quizzes prompts are used, they

encouraged students to self-check their understanding. This is a necessary component of this

embodiment. I expected that it would increase expectations of self-efficacy, interests, and attention

for the tasks associated with sponsored projects awards reports. The learners interacted with the

videos and gained a sense of satisfaction and motivation (See **Appendix B:** *Blended Design and*

Mediating Processes Defined.

Based on the theoretical framework for the research questions, motivation for blended

learning design for employee training, data collection instruments were selected. The data

instruments outlined in the next sections gathered evidence for justifying the use of an expectancy-

value theory learning design ARCS model that promoted motivation for the workforce to be self-

directed in acquiring knowledge via hybrid training at work. The selection of qualitative research

methods was based on the assumption that they provide a better understanding of the research

problem and enhance an exclusively quantitative data research approach (Creswell, 2017).

CHAPTER III

Method of Inquiry

Research Design

This study uses qualitative research with a case study approach. The unit of study is

individual employees who participated in an organization-sponsored course offered to train them on

the use of a centralized cloud-based system for the financial administration of projects. The course

identified for a redesign is one in a series of employee training courses that were created to provide

administrators of research grants a basic understanding of the functionalities of the *Oracle FMS*

*(F*inance Management System).

Grants Cost Accounting Reporting for Sponsored Projects (GCAR120) is recommended

(not mandated) for employees who manage the post-award business processes of external sponsored

projects in Oracle FMS. The GCAR course was designed to combine classroom instruction with an

e-learning repository of micro-learning videos, discussion boards, virtual instructor-led webinars,

how to job aids, and compliance guides. Access to course registration and e-learning content for the

purpose of this study was restricted to approximately 400 university employees with research and

grant administration roles.

The *GCAR 120 Sponsored Projects Reporting* class is one of several courses offered as

instructor-led sessions by the Office of Research and Development (ORED) that include *Effort*

Certification & Reporting, Cost Transfers for Sponsored Projects, and Sub-Recipient Monitoring.

The redesign of the course was promoted and offered to grants administrators, beginning the fall of

2019 through 2020. Only those employees, approximately fifty employees who enrolled in the

GCAR 120 instructor-led class and were willing to review the online course modules, were recruited

for the study. Some self-identified after the class following a presentation of the research by the

researcher. Others were recruited from course registration rosters of employees who completed the

instructor-led session offered between November 2019 and May 2020 and taught by the same GCA

instructor.

The key components applied to the redesign intervention, in a real work environment, is a

response to solving the problem identified relating to employee lack of motivation for learning in

the workplace. An online type of training is often motivated by a belief that the content presented in

the class just needs to be digitized and disseminated to the employees with little coordination

between what happens in the training session and what is posted in the university learning

management portal. Posting of content is not what makes for motivating and effective instruction.

The intervention involved redesigning a lectured-style course and incorporating the ARCS model

by including strategies like attention-getting elements, relevant business task activities online,

opportunities for learners to gain confidence in e-learning practices, web-based synchronous virtual

instruction, feedback on success with tasks, instructor live feedback on hands-on activities,

instructor guidance to the e-learning environment resources, and the ability for learners to review

tutorials at their pace, at any time, in any place.

As an investigation method, case studies involve an in-depth study of instances of the

phenomenon in a natural context while allowing for both participants' and researcher's perspectives

(Gall, Gall, & Borg, 2014). This case study used multiple sources of evidence collected at one

institution. The data instruments included in-class course evaluations, classroom observations,

webinar recordings, and in-depth interviews to gather evidence of satisfaction with instruction,

learner's attitudes, feelings, perceptions, and motivation with a blended course. However, I

acknowledge that there are some challenges that exist in using a multitude of data instruments to

gather evidence. My challenge was to make meaning of all the data collected, such that there is a

synthesis across the data sources in a way that the resultant findings are reliable and valid.

This case study approach using qualitative methods of research allows the exploration and

understanding of employees' motivation for learning and aids in the determination of an effective

systems course design. The research used classroom observations and the Kirkpatrick evaluation

survey for employee-learner reaction to the instructor-led learning interventions. Analytical data

from the Learning Management System (Canvas) explored the e-learning user activity experience.

Qualitative research via in-depth individual interviews with the course instructor, training manager

who vetted content for the original and redesigned course, and ten participants, resulted in the

gathering of data that supported my high-level conjecture about using the ARCS model in a blended

instructional design that supports adult learning and lead to their motivation to learn in the

workplace.

An important part of predicting learning and motivation outcomes that could be attributed to

the blended model design intervention was developing a high-level conjecture map that could help

test the theory and evaluate the design (Sandoval, 2014). In collaboration with the ORED office

subject matter experts, administrators, and trainers, we made predictions on how to develop a

training program to support systems learning for grants administrators in this workplace context.

For the *GCAR Reporting* course, the group worked with Oracle consultants to develop real grants

scenarios in the use of reports to experiment within the classroom. This is a key embodiment (or

representation included) of the blended course design. I expected that these embodiments would

generate the mediating processes I could observe in class and analyze from their surveys and

narratives, which may lead to learning (Sandoval, 2014). I expected to see that learners'

engagement would be reflected in the time and effort they invested in performing systems exercises

or time spent on e-learning modules. The types of questions asked in the classroom, whether they came up with examples to share with instructors and peers, and whether they partnered with their peers during class to reflect on what they just learned were also expected to reveal information regarding the participants' reaction to the *blended* course. Developing the right data-gathering tools to find evidence of these behaviors to support outcomes led me to the selection of observations and recordings of the virtual instructor-led sessions as a data source.

Additionally, the narratives gathered may explicate learners' motivation in terms of the ARCS approach that was integrated into the design. Responses could provide evidence to support the mediating processes, expected behaviors outlined in the conjecture map, which will convey if they resulted from the embodiments in the blended learning design intervention.

For years, employee development and training organizations used case study methods to determine the effectiveness of employee development initiatives (Tellis,1997). The benefit of this method is that it enables a researcher to examine the data within a specific context and at a micro-level (Creswell, 2017). The case study method was used in this study to examine both a case of a single academic institution while also studying individual employees 'motivation, work-related education needs, attitudes, acceptance of technology used, and self-reported learning outcomes. The focus was on a limited number of 12 systems grants administrators as the subjects of study. It used several sources of evidence over a period that the training phase is implemented from 2018 to 2020 (Yin, 1984). See **Appendix C** *Qualitative Methods Research Plan.*

Recruitment and Selection of Participants

Originally forty-five participants were targeted for selection for this study; however, after the Covid-19 and the institutions' order to pause all live training sessions as of March 13, 2020, further recruitment efforts were impeded. The data collection plan was adapted to focus on

observing web-based sessions and conducting interviews via web-based video conferences. The

potential participants in the study were targeted from a list of employees participating in a two-hour

instructor-led session in Grants Cost Accounting (GCA) /Office of Research and Economic

Development (ORED) at the University. The employees attending the live session included the

instructor and 10-15 professionals from various university business units, mostly grants account

administrators and sponsored projects business analysts. The GCAR course was selected because

the involvement of these sponsored and non-sponsored project administrators was voluntary, but

strongly recommended by supervisors to improve their performance on the financial management of

grants for the university. The courses were offered on an ongoing basis at least once a month in

person; beginning in April, they were delivered via WebEx through May of 2020. The pool of

potential participants from which subjects were selected for the study had self-enrolled through the

course registration system. The employees had a variety of backgrounds and differences in their

grants systems experiences. They represented a sample from classes who had attended GCAR120—

employees with a grants administration role who had enrolled in the class with the same instructor

where recruited.

Learning Environment

The setting was a work-related setting in a research university, a natural setting for

exploring academic grant administrator's workplace learning experience. The University

Administrative Systems Training Initiative is an effort to train university employees on specific

role-based finance systems at various locations but more regularly at the University Finance

Administration Office training facility. The class incorporated user-centered online tools

(synchronous web-based training, guided systems simulations, and self-directed online content) and

an instructor who facilitated a two- hour training class in a digitally enhance computer room. As the

University Finance and Administration, Project Management Office Training Manager, I am

responsible for the strategic development and execution of learning related to systems project

initiatives, thus my interest in the research and application of effective end-user systems training. I

have an interest in employees' attainment of financial systems and business process knowledge.

Their acceptance of training as a mechanism to help them do their job is of crucial concern to the

University leadership. As of the last report from the Office of Research and Economic

Development, the research institution relies on these employees to be skilled at managing (i.e.,

invoicing, cash cost transfers, cost-sharing, monitoring, and closing) seven million dollars' worth of

sponsored grants allocated to the institution annually from external sources. (Source: Presentation

by Dr. Dianne Ambrose, SPACE Training, August 18, 2020)

  A systematic approach for the design of instruction was used to guide the design and

development of this new blended course introducing the ORACLE Financial Reporting for Grants

systems to grants administrators. The training manager, a grant subject matter expert, a training

coordinator, and an accounting analyst who was familiar with systems functionalities collaborated

to develop course manuals, PowerPoint presentations, and several systems hands-on exercises.

Video recordings of simulations were also created as part of the e-learning elements for the *GCA

Sponsored Reports* course. A pilot session was hosted where opinion leaders from the university

research administrators were invited to preview the content and assess its utility for their business

units. Various technologies were used in the development of the online modules that are linked

from the University (ORED) site to the CANVAS learning management system. Computer software

used for e-learning include WebEx, Captivate, Camtasia, PowerPoint, Snag it, Powtoons, and

Kaltura Screen Capture software uploaded to Media Space. The institution's employee course-

registration database, in which I had administrative rights, supported course enrollment and e-

learning access. An Oracle systems *test* environment and live production environment were used in

class for computer exercises, while the CANVAS learning management system was used for the

integration of e-learning elements of the design. Additionally, WebEx Cisco software is used when

hosting and recording synchronous meetings that support the course. All course materials,

examples, and evaluation documents were created. The course learning objectives were

communicated to grant administrators in meetings and through a training section in the ORED

website. Additionally, they were reinforced during the instructor-led sessions. The learning

objective was for learners to understand the business process and functionalities and work through

the financial reporting tasks process using the Oracle Cloud's Financial Management System

(FMS). The online course pathways related to grant and contract accounting include *Financial*

Research Compliance Webinar workshop recordings, reporting forms, guided tutorials, discussion

boards, quizzes, macros to help with Excel spreadsheets, structured opportunities to work with peers

solving exercises, and a variety of job aids that support the content covered in the classroom. See

Appendix D: *Documents/Artifacts of Blended Design* for the online portion of the design.

Data Collection Sources

To gather evidence for the case study, data collection was facilitated with the use of various

instruments. The data collection instruments are listed below in order of occurrence:

1. **Kirkpatrick Survey L1-3 –** Administered during the live instructor-led class where learners

    were exposed to the e-learning content for the self-directed e-learning modules.

2. **Observation** of three different *Sponsored Projects Reports ORACLE FMS* live instructor-led

    classroom sessions and web-based synchronous instructor-led sessions. The purpose was, when

    possible, to observe interaction as the Instructor guides 10- 25 participants. Observation notes

included physical setting, class activities, social interaction, non-verbal communication,

behavior demonstrating engagement, and motivation to learning.

3. **In-depth Interviews** - Recruited and interviewed 14 individuals, 11 were course participants.

   Interviewees recruited from the 2 Instructor-led live sessions and 1 Instructor-led Webinar

   session. In-depth interviews were conducted with the course instructor, a GCA Central Office

   subject matter expert, and with the Associate Director of Training and Compliance for historical

   background and context for developing the series of Awards Basics systems courses for

   university grants administration.

Data Sources Explained

Survey

A survey instrument was administered at the end of the 2-hour instructor-led training course

to those in attendance. The evaluation surveys were based on Kirkpatrick's (1996) evaluation model

and were administered to gain essential evaluation of the in-classroom instructional experience for

the employee learners. I made minor modifications to the existing course evaluation to include

questions about their level of motivation in the classroom and another three open-ended questions to

gather text responses on the following: (1) what aspects of the training could be improved. (2) Use

this section to provide recommendations for online content that would help you with this

course topic (Example: videos, job aids, virtual collaborative spaces, webinars, etc.) (3) Optional: If

you would like to participate in further discussions to evaluate current online training offerings that

support your unit's systems skills, please provide your contact information here. For the survey, an

online Qualtrics instrument was used to gather the general impression of the group during the live

classroom session (*text* from open-ended questions will be coded). This survey was administered to

a potential of fifty-course participants and used to recruit subjects for the in-depth interviews. For

more details on the in-class *GCAR120 Motivation Evaluation Survey*, refer to **Appendix A**. and

Appendix E: for the *Motivation Evaluation Responses Report.*

Observations

The observations of the instructor-led session were conducted in a live classroom of 4-10

participants and one class of three participants, and one virtual instructor-led class of nineteen

students in attendance between (January and May of 2020). The interactions between the students

and the researcher were minimal during the observation phase. While the participants were

informed about the study and the researcher's presence in the back of the lab or in the virtual

session, the researcher did not interact much during the lecture with the exception of the following

times:

- When the session began, the instructor introduced the researcher and explained the
  general purpose of the study and asked them to complete the online course evaluation
  survey and self-identify to participate in the study.

- After the instructor explained the objective of the class, the researcher assisted in
  introducing the online course material and how to access the content which accompanied
  the course.

- The instructor navigated to the online course pages and confirmed that every participant
  had access to the content in the learning management system (LMS) course.

- The researcher sat in the back of the room, taking notes.

- The researcher reminded participants 10 minutes prior to the end of the class to complete
  the course evaluation survey online and told them that it was anonymous unless they
  added their name to participate in the study.

- At the end of the class, the researcher informed the participants that there would be an interview phase and that they would receive a $10 gift card and reminded them that the details of the study were included in the CANVAS front page and also available in printed form. The researcher provided detailed information when asked.

Basically, these were the few points of interaction between the participants and the researcher during the course. In the online environment, the only direct interaction that occurred was when the researcher created a discussion group forum specifically for one session and notified the students that they were part of a discussion group. The researcher also posted questions that were sent directly to the instructor via e-mail. Answers included text, links, and 2-minute video responses from the instructor and added to the main discussion forum for all students to review.

During the observation phase, field notes describing the student actions, comments, and peer to peer interaction were made for two purposes. First, the field notes were used to infer the participant's interest in content presented (projected on the screen), attention to the professor, participation, attitude (bored or paying attention), teacher-student interaction, and observable satisfaction. A good instructor builds rapport with her adult students by learning about them, their backgrounds, their expectations, and preferred learning activities, and making them feel comfortable and ready to learn (Brookfield, 1990). Basically, observations were an opportunity to gather information about learners' experience in the live technology-enhanced classroom session. For example, in the live sessions, people may move from their seats to introduce themselves to someone who may be more experienced, or they might have more knowledge if they thought that social networking was a valuable part of the live classroom session. When the interviews were recorded in the field notes, the inference from the observation was confirmed to be valid if the participant said that they valued the interaction with peers in part of the session. Prior research on

adult learners informs us that training activities have to be relevant in their life or work and have

meaning for their work (Brookfield, 1990, p. 152).

The observations also enhanced the conversation in the interview; the researcher mentioned

observations and asked questions. The field notes were compared with the inferences from the

interviews as well. However, to minimize the chance of research assumptions impacting the

interview results, the researcher mentioned the observation of the participants' actions by talking

about the inferences. For example, "I saw people getting up and going to talk to you or so people

sitting next to each other, what was that about?" then the interviewee would begin to talk about their

reason for interacting with peers in the class.

The researcher audio-recorded and screen captured the lecture slides and computer systems

simulations in the classroom session and webinar to help connect the field notes. *Kaltura,* the screen

capture software, also captured some of the class discussions between the teacher and students.

Following the PowerPoint presentation also guided the researcher's notes and increased the depth of

the descriptions. However, she was careful to document what employee learners were paying

attention to, and whether they were asking questions, sharing, bored, confused, seemed to

understand segments of the class, interacting one-on-one, or asking the instructor to help with the

computer exercises.

Instructor's strategies in socializing learners to the technology environment, support with

computer exercises, and guidance with the e-learning platform were noted. Annotations were made

of social interactions. The analysis focused on the mediated processes and the research questions. In

the virtual instructor-led session, special attention was paid to the manipulation of the screens,

engagement with participants in the chat rooms, and verbal exchanges. For more details on the

Observation Protocol, refers to **Appendix F.**

In-Depth Interviews

Ten of the fourteen in-depth interviews were aimed at gathering information from

employees who administer sponsored grants and who participated in the instructor-led course and

additionally dedicated (1-2 hours accessing the online portion of the hybrid course). They were

screened to make sure they accessed the e-learning module prior to the interview. The objective was

to gather their perspectives on the effectiveness of the motivational components of the blended

course. The interview phase was approximately 45 to 60 minutes per employee/learner. The Webex

interviews seemed to go longer than the in-person interviews. These remote interviews were

conducted post-COVID-19 period, in the beginning on March 13, 2020, and while the

organization's employees were required to work remotely from home. The interviews conducted via

WebEx allowed the researcher the opportunity to do more prompting and sharing of screens,

showing quick videos in the discussion forum or in the e-Learning modules section with the

interviewee.

Interviews yielded self-reported narratives regarding the employee learner's motivation for

attending systems training classes, experiences with the institution's learning systems, feelings,

satisfaction, learning preferences, prior exposure to technology (CANVAS or Webex web-based

environments), frustrations, motivation for learning, social interaction, and their willingness to

learn with this course design. This qualitative method, along with observations, will produce the

information needed to answer the research questions (Creswell, 2017). The questions included in

the in-depth interview were adapted from a self- assessed training needs scale quantitative

instrument created by Ford and Noe (1987)**.** See *Protocol*: *Qualitative In-depth Interview and*

Consent Form in **Appendix G.** In addition, a couple of optional follow-up questions were used to help make inferences about how the employee perceived and experienced the life and the eLearning modules, quizzes, discussion forums, job aids, and identify the factors affecting their perception and experience with LMS and the e-Learning course. The demographic questions were asked before the recordings began but were not given too much emphasis. The experience in their type of grants work was more relevant to this research and on how they perceived the hybrid design of the course. The audio/video Webex recordings of all the interview sessions were fully transcribed to generate the descriptions of the experience with the intervention, as suggested by Creswell & Creswell (2017).

Interviews were also conducted with the Instructor of the course, the Training Director, and an accountant from the central office of ORED. These individuals approved and validated accounting and report course content in the original course and were also involved in reviewing the redesigned online content. Their feedback provided a historical perspective on the purpose of the training and their expectations for grants administrators attending the Oracle systems training. Additionally, an individual who had been interviewed as a course participant was excluded from the analysis because of her close connection to the ORED central team and awareness of the purpose of the study and potential bias.

Overall, the focus of this data collection method was in finding evidence to support the ARCS Motivation model approach integrated into the blended instructional design. For more details of *ARCS Model Codes and Categories* used to analyzed interviewee's narratives, refer to **Appendix H**.

Metacognitive Reflections

During the interview, the subjects of the study were asked to reflect upon and state how they thought they learned best. Analyzing their reflections provided some metacognitive insight about their learning process as adult learners, and if self – directed learning was their preference for learning at work. Gathering this type of reflective information from a bigger sample of the employee population of learners can guide the development of blended training activities for adult learners in this research university.

 Although work on the redesign with the instructor began in Dec 2018 and was validated by the training Associate Director, the study began with the observation of participants in a class in November of 2019. As to the duration of the study, IRB approval was obtained in January of 2019; therefore, the recruitment of participants and interviewees began in February 2019 through – May 2020. The subject's involvement was for a limited time; after they attended the course, they may have spent 1-3 hours to review the modules online and complete the self- assessment quizzes. At most, they spent a one-hour interview conducted life or via Webex Meeting tools. **Tracking Enrollment**

The participant was not followed after the interview. However, individual subjects' enrollment activity in university-sponsored systems training courses was tracked. This information provided evidence of personal intentions to attend work-related training in person or virtually after the intervention of a blended motivational course. There was some evidence of students' intention to continue enrolling and taking systems training, business process training, and Sponsored Programs Academy for Continuing Education (S.P.A.C.E.) Certification courses offered by the university. Of the nine subjects tracked, Katherine was the one who enrolled and has attended the most web-based courses since attending the GCAR120 Reporting blended course (intervention). Others all enrolled in at least two more grants and research-related training courses sponsored by

the institution through June. Refer to a *Sample Future Training Courses Enrollment* (Katherine)

Appendix I.

CHAPTER IV

Findings

Data Analysis

The analysis was conducted in the following way: self-reported attitudes were gathered from

the In-depth interviews guided by Saldana's (2009*) The Coding Manual for Qualitative*

Researchers and Creswell's (2017) *Research design: Qualitative, quantitative, and mixed methods*

approaches. For the purpose of operationalizing and measuring ARCS motivation characteristics,

prior research (Cook et al., 2009) was reviewed.

Quotes and observed behaviors were coded and grouped into categories. These would

provide evidence that the infusion of motivational ARCs (Keller, 1984) factors in the instructional

design yielded outcomes that included some of the following: motivation, resistance, positive

attitude, self-confidence, technology self-efficacy, job experience, collaborations tendencies,

willingness to collaborate with peers, help to seek (instructor or peers), offering help to peers,

attribution (people), attribution (course type), exposure to technology, prior experience with

technology in computer enhance or hybrid course, ability and desire to learn on the job, willingness

to learn on the job, effort (online reviews), time management, relationship building, and interaction.

Analysis of findings from the participant's narratives is covered in the analysis section of Chapter 4.

Refer to **Appendix J** for *Interview Questions Coded.* The two questions below are a sample of how

questions were coded.

1.   What was the video or tutorial you most remembered, and why? (**Attention**)

2. Did the instructor give you feedback on how you were doing? **(Self-Confidence /Teacher interaction)**

<div align="center">

Coding Interviews

</div>

The interpretation and conjectures made about the field notes from the two live classes, a virtual instructor-led class, and interview transcripts were mostly based on the ARCS theory, themes were extracted, and codes were applied manually. Additionally, more themes surfaced from their narratives and will be addressed in the analysis. The following lists the process for coding interviews:

1. Recorded the interview using the Webex video conference tool for all but 2 of the interviews.

2. Read a transcript of interviews for accuracy in automatic Kaltura transcription

3. Read the transcript again while segmenting the transcript using codes according to identified constructs. The codes emerging from this step are described later in this paper.

4. Repeated Steps 1-3 for every transcript until all the transcripts were coded. Each time a new code emerged from an employee's transcript, I returned and reviewed other employee transcripts that were coded prior to the emergence of any new code to see if the new code could also be applied to the employee.

5. The relationship between the codes followed the ARCS theory of motivation in instructional design.

6. Repeated Step 5 for every transcript.

7. Retrieved the codes that emerged from more than 5 of the participants and considered them as major themes.

8. Inferred how each theme affected the participant's learning experience with the instructional design embodiments.

Limitations of Research Methods

Rubin and Babbie (2011) critiqued potential limitations of qualitative studies; for example, in this study, because the time to interview all grants managers at the institution is limited, I decided that the scope of the study would be limited to only the grant administrators that attended only one grant-related course taught, not the entire series of GCA courses offered by the Research University. Additionally, the way the subjects were selected was convenient. There is a potential that the number of employees who were interviewed from a population of 53 potential subjects was too small to generalize across the institution. The subjects selected were from different areas, although grant administrators represent a wide range of finance business units that deal with sponsored projects. These employees all have different duties and are expected to learn Oracle financial systems reporting. These grants administrators could have duties in journal entries, ledgers, closing out grants, and compliance reporting.

Other limitations of qualitative research may appear when, during the interview, the participant may have problems recalling what materials they reviewed online. They may then only speak in generalities based on past experiences with other online courses at their organization or at a prior organization, just to answer the researcher's questions. The information may be valid but outside the scope of the design research objective (Grimes, 2002). Most of these potential limitations were acknowledged, and every effort was made to be aware and adjust the interview focus when necessary to ensure research questions were answered.

Validity

As the researcher, I recognize that I will be considered as an *insider* with an interest in the success of a training program. I made every effort to ensure that the categories used to code interviews did not reflect a positive bias towards online learning environments if that was not the result of the responses. To increase the validity and reliability of findings, I allowed two participants to check their video interview and transcript and to add anything they remembered via email for accuracy. Two submitted additions were added to their concerns with the online content. The study was explained by the researcher, and coercion was minimized by emphasizing that participation in the research was voluntary and that the instructor would not have access, nor will she see their survey or raw interview responses attributed to them. They were told that choosing to participate or not will have no impact on employment status, as stated in the consent forms.

Sample

The sample size was smaller than expected as it was more difficult to recruit subjects to the study when the institution was closed, and the training classes were paused until they could be hosted remotely and virtually. Conducting focus groups was not feasible, so only virtual interviews were conducted. Several employees who had volunteered were no longer willing to do a web call. Two of the participant's interviews were excluded from the final analysis because they were part of the central office and biased, so they did not seem objective in analyzing a course created by their office and close colleagues.

Technology Limitations

The CANVAS system could not provide a detailed level of analysis on individual user behavior expected. It provided page views but not time spent on specific modules or videos. The information did not add to providing the evidence needed for answering the research question.

Motivation Survey Treatment

The classroom evaluation surveys were based on Kirkpatrick's (1996) evaluation model and

administered to gain baseline evaluation of the in-classroom instructional experience for the

learners attending the classes observed January 14th, February 2, March 4 in the training facility at

the Research University. The results were reviewed. Consideration was given to the first three

levels of the Kirkpatrick evaluation model as they evaluated the instructor's performance and some

motivation topics adapted from instruments that measure motivation and self-regulated learning

(Zimmerman & Marinez-Pons,1990; Pintrich, Smith, Garcia, et al., 1991). Refer to **Appendix A:**

Motivation Evaluation Survey.

Conclusion

The research questions I sought to answer after introducing a blended design intervention

were focused on determining what combination of Keller's (1987) ARCS motivational factors

embodied in the design would result in employees engaging in blended courses for systems training

in the workplace and result in expected motivational outcomes.

Research on user-centered instructional design makes a distinction between professional

users and students. Instructional designers of systems training that are created to build employee

competencies to perform work tasks, make assumptions. For example, a common belief is that the

employee learner has the expertise and a domain of the business activities they will use the

technology to do. Therefore, training for these systems users is designed to be very general and

standard (Quintana et al., 2006). In this study, the employees introduced to the blended course had

different motivations for taking the course. Some said they desired to be informed on any changes,

others because they liked to learn, others to get a full-time position if they were casual workers,

others to train their staff, others because their manager recommended it.

Paying attention to the motivation of each individual who manages the finances of grants is necessary to motivate them to learn at work. Understanding the goals of the employee as it pertains to learning and how they learn the software at work is important does not pay much attention to individual differences, particularly their motivation. Learning is not only a technical process, so the hands-on exercises in the instructor-led session because their manipulation of the reports helped them to create cognitive connections between their knowledge of the business process and general systems use and the new application in the system.

Social Interaction

In terms of social interaction, learning in the workforce is and may require a learner to understand the terminology, the culture of the workforce within an academic setting, the tools, and how to work with other professionals in that space—their community of practice, per se. Employees learn complex process need support. Learning for employees happens in a community, a social context of where the organization's professional culture is essential, that where they learn from each other about the standard practices to use as a novice in the grants field. All that not just the mechanic is important for proficiency in their job when that is their motivation to learn.

Observation and Evaluation

This section summarizes the findings from observations in the live computer-enhanced training session. The sessions held with an instructor are listed in the *Summary of GCAR120 Course Offerings* found in **Appendix L**. Acknowledging that although 20 responded to the course evaluation, there was no way of identifying the specific participants of this study with evaluations unless they self-identified. The Kirkpatrick Four-Level model of training evaluation, which also informed the questions, was an attempt by the researcher to measure the effectiveness of the training and provide some information on whether the instructor-led sessions using Kirkpatrick

(1996) levels to measure reaction, students were satisfied with her training session. The participants

evaluated the class in term of instructor ability, but also on questions from the (Pintrich, Smith,

Garcia, et al., (1991), interest, attitude about the class, boredom, attention refer to *Motivation*

Evaluation Responses Report in Appendix **E,** for full results of the evaluation survey. The figure

below highlights the responses to the open-ended questions regarding the design. Of the 20

respondents to this evaluation administered at the end of the two-hour session, there was an

expressed interest in well-developed and quality job aids and videos to support the content in the

class covered by the instructor. Although they shared positive comments about the trainer, they

found some gaps in the materials presented in the classroom and available online.

Table 1

Evaluation: Text Responses on Content Preferences

Question	*What type of online content would add values to the course (Example: Practice Exercises, online quizzes, videos, printable job aids, collaborative forums with peers, Q&A, Webinars with instructor, etc.)?*
Text Responses:	
	I believe there is already on-line content (I haven't looked at it yet, so I can't comment). The practice exercises are very useful. She is a good instructor and explains the acronyms and different terminologies well.
	Her instructions were easy to follow.
	Printable job aids
	Online job aids refresher courses mini based
	I think that based on what's available at the moment, the content of the lab training is very comprehensive

This is perfect

The video quality needs improvement. It was a bit unclear. I was not able to see when she wrote on the whiteboard.

Add revenue reports, maybe explain to others how the sub-ledger and ledger interface at the beginning of the class None well-developed based on programs available via university

I felt like there was a big gap in information that was very basic and information that was advanced. I was kind of confused about who was the right audience for this class.

Table 2 highlights on a Likert 7- point scale, a satisfaction measure, ranging from one extreme

attitude on their satisfaction with the training course and instructor's teaching. Thirteen out of

twenty strongly agreed that the instructor encouraged class interaction. There was a high

satisfaction rate of the class, learning objectives, organization, and the employee's confidence in

applying knowledge acquired in the course. Other elements of the instructor-led computer lab

session that were seen as valuable were the hands-on computer exercises.

Table 2

Evaluation of Course Instructor

Question #		Strong Agree	Agree	Neutral	Disagree	Strongly Disagree	Responses	Average Value
1	The training /systems course met my expectations	10	9	1			20	1.55
2	I will be able to apply the knowledge learned on the job.	11	6	6			20	1.60
3	The training objective for each topic were identified and followed.	10	9	1			20	1.55
4	The content was organized and easy to follow.	9	9	2			20	1.65
5	The instructor encouraged class participation	13	6	1			20	1.40

Instructor-Led Component

The summary of the observations conducted in the instructor-led live and virtual class

portion of the blended course design was coded in groupings of categories and subcategories. The

behavior expected from the learner is stated in this section. The intention was to create meaning of

the behaviors observed in the classroom, and to the extent that I could listen to students and observe

instructor interaction with the learnings. The categories and subcategories come from Keller's

ARCS motivation model, but the grouping was informed by measuring motivation surveys (Cook,

Beckman, Thomas & Thompson, 2009).

<div align="center">

Categories:

Attention, Relevancy, Confidence, Satisfaction

</div>

Category: Attention *Subcategory - Perpetual Arousal*

   Mediating Process. Appears as captured interest, and interest maintained in the class

Observed Evidence of Perpetual Arousal

  Live- Instructor-Led Training. (ILT) This was a live session. Although it is an

introductory course, however, there was a mix of employees with experience but whose

responsibilities had changed. They were there for the refresher of the project reports in ORACLE.

The instructor established the pace and informed the students of the engagement rules. For those

who had not been in the room, she oriented them on the *NetOps* software that was on every

computer. She told them that if they needed help, she could connect to their live view. She used

humor to she would see if they were shopping or on email. The idea was that she could help them,

and at the same time, she could share her screen with them at the same time so that they could see

the systems demonstrations all at the same time. They mostly looked at the instructor and a large

screen. At times when she shared her screen on all the computers, she warned them, "I'm taking

over your computers." Maintaining their attention on the task at hand was observed with all the

students in the session. They were hands-on using the computer after the introductions, and the

teacher gave them a chance to express expectations and what they wanted to learn. I watched as

they followed the instructor's lead and set up favorites in the University portal and also opened up

navigation tabs to move from URL to CANVAS to oracle system so that when she switched from

report to websites, they could follow. She even went around to every student and asked them to log

in and make sure they had access to all the icons she planned to cover.

She also allowed students to open Canvas and find the PowerPoint and follow along. She

let them know she would be switching back and forth to a PowerPoint Presentation. She provided

background about ORED/ GCA. The class that was observed took place in a computer/ digital and

video-enhanced classroom. The instructor started with the learning objectives projected on a large

wall screen. Equipment use, the learning objective, expectations, and individual introductions took

about 15 minutes at the beginning of the session. The digital screens all showed the live ORACLE

system landing page. The instructor initially had them log on to computers (hands-on) and open up

three tabs on their computer; they followed and replicated steps. In addition to their captured

interest, they seemed comfortable with the pace of how the reports generating steps were introduced

in the class; if they got lost, they would raise a hand, and she would pause and bring them back on

track.

Evidence of perpetual arousal appeared when the adult learners were affixed to the words,

and the activities conducted by the instructor captured the interest of all the learners in the class.

Furthermore, a skillful teacher who builds trust between herself and her adult learners, and develops

the right rhythm that adapts to the learner's needs, will motivate the student to be attentive to what

she is teaching (Brookfield, 2015, p. 156-159). The learners' behavior was evidence that interest was captured in the classroom session.

Virtual Instructor-led (VIL). (Web-based 2 hours April 2020) Little time was spent on building a comfort level or rapport with the students at the beginning of the session. At the beginning of class, the instructor had some technical difficulties navigating the WebEx TC platform. She expressed and apologized by saying that she used to teach from PC with two large screens. I noticed that students were all muted and not saying anything when she asked if anyone had questions. They may have been using this webinar platform for learning for the first time. As adult learners, they could have been embarrassed to say that in front of 18 other learners. The dynamic was different, the instructor began the class 5 minutes late, and the students were already on the call. She chose not to turn on her video; students only saw the PowerPoint. What students also saw, which seemed at times chaotic, was her switching to demonstrations, word document (to write notes she was going to send them later), and website. Although she did show the students how to create tabs, she was not explicitly talking out load when changing to different tabs. The pace seemed faster as the lecture and the demonstrations continued. Toward the very end of the two-hour synchronous session, one student began to write questions in the chatroom while the instructor addressed her questions verbally. The instructor also committed to one student to follow up via e-mail.

In the second Virtual Instructor-led (WebEx) session held in May, the instructor had a better manipulation of the platform, and her pace was slower. She talked through the steps, stopped, and asked for feedback via chat or voice. There was more interaction with participants throughout the session. A screenshot of the Webinar with the chat room activity is presented in *Documents/ Artifacts of Blended Design* in **Appendix D** of this paper. Later the researcher was told by the

instructor that many of the students in that class had been in other grants accounting sessions with

her in the morning.

Subcategory - Inquiry Arousal

Mediating Process.   Appears as students asking many questions

Observed Evidence of Inquiry Arousal

ILT. April ILT session: The setup of the room includes twenty-five computers, but at points

in the session, the students would pull chairs away from the computer and started to ask questions

after the teacher prompted them, "Anyone have any questions?" one student would ask one

questions, others would follow. Throughout the session, most students asked questions and engaged

with the instructor, specifically trying to get her to show them other types of financial reports that

may not be covered in the introductory session. They also wanted her to confirm if it was correct for

them to use other reports or combine them. Then the instructor managed the group and brought their

focus back to what she was explaining on the screen with " You just reminded me, let me show you

this..." Evidence of inquiry arousal appeared when the students were demonstrating a desire to learn

more about the reports presented, and others they could use in their work.

Subcategory – Variability

Mediating Process -. Appears as Attentive to content /instructor

Observed Evidence of Variability

ILT. In the Instructor-led live session, the teacher used direct interaction, manipulated

technology in the room, and walked about in the middle of the room to see what the students were

doing on their computer during specific exercises. All learners were paying attention to the

instructor. No one appeared to be texting or checking emails in the class. The PowerPoint slides were an anchor to the training content. There were no breaks until an hour into the class. The students were becoming distracted while the teacher answered questions; two students were observed checking work email. After the break, they came back and were focused on reports while they had to work on specific hands-on system exercises. Evidence of variability appeared at their lack of distraction with cell phones, attentiveness to content, and the instructor and the technology subject being taught.

VILT. While this was true of the live session observed, it was not possible to determine if this behavior was present during the virtual instructor-led session. Not being able to observe the video of the participants, or people unmuting to speak or write in the chat room, it is not fair to conclude that all the nineteen participants in the synchronous virtual session were as attentive.

Category: Relevance

Subcategory Goal Orientation

Mediating Process. States what they want to know

Observed Evidence of Goal Orientation Goal Orientation

ILT. Rocky, who was sitting in the front row, expressed his interest in knowing about the Ledger Entry. Then another student, Bernie, second the importance of the Ledger reports, then proceeded to complain about the challenges and the reports she used to use in a more comprehensive legacy system. She wanted the instructor to cover topics of ledgers and cost analysis covered in other GCA course by another instructor but also available to them. A back and forth discussion between the two students consumed the entire group, who wanted to learn more from those with demonstratively more knowledge of the finances of grants. The teacher showed students

other grants related courses. She also agreed to follow up on a question posed by Brian about funds

allocation for sponsored grants.

Subcategory – Success Opportunities

Mediating Process. Express that course experience enhance their confidence and feelings of

self-efficacy in creating and generating reports

Observed Evidence of Success Opportunities

ILT. The last ten minutes of the session was an opportunity for learners to have

conversations, and at least three of the participants stayed in the classroom sharing information

about the way they would use the reports and those with more experience advised others on what

reports would assist the project investigators, how they schedule multiple report summaries, and

how to get the output they need for the end of each month. The peer to peer conversations provided

opportunities for them to reflect on what they knew before the class and what they already knew.

Opportunities for success were provided as they completed small steps in the process of learning

reports. They reflected and expressed to the teacher that they learned something they did not know.

Evidence of Success Opportunities was evidenced when students were sharing "how-to" new

reports and systems shortcuts they were going to try when they got back to their offices.

Subcategory – Personal control

Mediating Process. Express knowledge that they like to learn so they go to training,

network with peers

Observed Evidence of Personal control

ILT. - Interaction between learners was observed during the ten-minute break and the conversations during the hands-on activities in class. They asked the instructor about a community of research administrators they could be part of; Benji shared that the way to get connected was by joining a researcher network group meeting and taking the S.P.A.C.E, a researcher training program covering the life cycle of grants and sponsored projects. This was **e**vidence of personal control that appeared a motivation and desire to belong to a community of other grants administrators at the university.

Category: Satisfaction

Subcategory – Natural Consequences

Mediating Process – Appears as learner taking advantage of the opportunity to complete exercises. Appears as they take advantage of the opportunity to demonstrate their own real-life reports during the class.

Observed Evidence of Natural Consequences

ILT. The students were very attentive to the places the instructor navigated to on the large screen in the *Financial Management, Awards,* and *Reporting* icons. They appeared pleased to see the teacher write on the board and also share information. Several wrote down the URLS of the university sites that were presented as resources for financial administrators of grants, for example, the University Controller's Office Website pages. The learners also appeared interested in hearing about other self-directed learning tools available to them as university employees (WallStreet online, and LinkedIn Learning). The instructor showed them the website to access those educational tools. During midway through the session, she asked for a volunteer to first run a report from the ORACLE system. Rocky volunteered as she guided him in running a report, while others watch the

shared screen. At the same time, Benji was on her own doing the exercise on her computer with her

own department's project number in the production/ live system. Others just watched and asked the

instructor where they could find more information. The instructor also referred some who expressed

confusion (Patti) to the Canvas von Macros and Report Summaries that she created for the online

portion of the course.

Evidence appears as several students took the opportunity to ask the teacher if they could

show a report they were trying to do Macros with large reports, and with the use of the *NetOps*

classroom technology tool. They could project a real-life example on the big screen from their

computer. Others saw and commented on the ease of using Macros after watching a real-live

example, which seemed to be useful knowledge to acquire for most of them.

Subcategory – Positive Consequences

Mediating Process. The instructor provides positive reinforcements to employee learner

(interactive discussions)

Observed Evidence of Positive Consequences

ILT- The instructor regularly checked with students for understanding, or if they were

following and keeping up with the rest of the class. If not, she would offer assistance or wait for

them to catch up. I observed that other students would also help each other during the exercises

assigned. The instructor also verbally quizzed students on the meaning of acronyms. She reviewed

terms and reinforced F&A concepts, and the institution's financial chart of accounts strings,

information relevant to their work with financial reporting in the ORACLE system. Evidence of

positive consequences appeared as students, and the instructor interacted. The instructor was heard

using phrases like "Let's do a project together" " Do you want to try? " When they respond to her

questions, she says, "right" with a high level of energy-providing positive reinforcement to the student.

Subcategory – Equity

Mediating Process. Appears as in-class interactions or future interaction with instructor and students, positive feeling about what they learned, and intend to do with information acquired.

Observed Evidence of Equity

ILT. There seemed to be a legitimate interest from the learners who were new to the organization to make connections with others with more knowledge of the system and of the business reality of their function as grant administrators. The instructor created a comfortable learning environment for these adult learners to ask any question and assured them that she would try to "I'll follow up" and get them an answer if she did not know the answer. An environment of inclusion was observed where students, despite their level of institutional experience and knowledge of the technology, we're willing to express their frustrations with the reports and how they felt that in the past, some of the systems implemented to help them were too complex and unreliable. There was a demonstrated understanding on behalf of the instructor that learners were all part of one organization, a community of grants administrators. This was demonstrated when the Instructor shared information about other opportunities for them to work together, committees of practice like Research Administrators Information Network **(R.A.I.N)**. They were also invited to enroll in a certification program called Sponsored Programs Academy for Continuing Education **S.P.A.C.E.** that was sponsored by the Office of Research and Economic Development yearly.

Choice of Online Embodiments (Components)

This section summarized the data primarily from CANVAS views analytics by specific

pages in the course and by the course participant. It tracks e-learning course page views and dates

they were last accessed by the subjects in the study. On the day of the live classroom session, a

group of employees who participated in the class was given access and guided through the course

modules at the beginning of the live instructor-led session. Those results will be reported here, but

the focus of the analysis will be on getting a snapshot of the subject's engagement with the

components in the e-learning part of the course. Via CANVAS analytics, I will address what they

viewed and if they engaged in writing, asking questions, completing the self-assessment quizzes, or

looking at the videos on their own. For more information on average pages viewed on the weeks

the three classes observed were held (on February 4, March 4, and April 4) refer to the student

activity graphs in **Appendix K***: Canvas Student User Analytics* for details. The figure below is a

snapshot of pages viewed by the subjects of this study.

Figure 3.

Canvas Student User Views

Employees' online behavior indicated a spike in accessing online content on the day of the

session or immediately before their interview. The participants all access the GCAR modules but

did not interact with the discussion forums nor use the email feature to reach the instructor. They

spent time in the modules. Yvonne and Katherine were the only students who spent time viewing all

the pages. For example, they viewed Job Aids (PDF), Scheduling Reports (073) video, Sponsored

Reports Reviews video, Excel Macro video, Simulation Reports step by step video. Benji and

Katherine were the only ones who persisted in completing the quizzes. As suspected, the most

popular video was the Macros Excel tutorial introduces in the classroom session. Rocky spent very

little time; he only looked at the PowerPoint.

Interviews

In this section, the motivation categories and how they are connected will be described. The discussion section will include my interpretations and results in light of prior studies and ARCS theory in the design embodiments. This chapter consists of the following sections: A description of each participant in the study, and statements that reveal reoccurring themes among the participants. Also, the participants' names are used in this chapter, and the following chapters are pseudonyms.

Structure of Participant Descriptions

Each participant's description consists of the following sections: participant information, summarized statements and opinions about workplace training, and quotes that speak to their reaction to the design embodiments they chose—finally, themes derived from their narratives.

Participant Information

Table 3 describes the characteristics of the study participants, such as gender, age group, years of experience in the profession of managing the financial side of grants. I hope that this information will give the readers a clear understanding of each adult learner interviewed. The narratives collected may be different, but any information which added to understand their perception of their institutional learning culture (from an employee's perspective), motivation to learn or develop work competencies, their experiences (good and bad), and preferences for training delivery that they were willing to talk about is summarized in this section.

Interview Statements

This section will include quotes from individual participants regarding some general employee training experiences at the institution where the case study was conducted. The

statements may be summarized to reveal some reoccurring topics that were not necessarily directly related to the instructional design. But add some context to their institution's culture of learning in the workplace. During thirty to sixty minute structured interviews with course participants, conducted in person or via video conference, many topics emerged. Inferences will be made about motivation to learn in the workplace from their collected those narratives.

Self-Reported Choices and Reaction to Embodiments

Through the interviewee's own statements, is section provides information about the employee's choices, preferences, and opinions after the intervention of the technology-enriched design that incorporates attention-getting elements, role relevant activities, online and in-person feedback, and self-directed learning opportunities motivational elements. Statements will be captured to provide the data that will answer the research question. The categories assigned to the coded qualitative data will help to organize the data, which will allow for a clearer understanding of the meaning of the statements collected. The interview statements, which will be displayed as quotes, there will be an overt explanation of the meaning of the statements and how they provide evidence of expected intervention outcomes.

Meaning (Coded and Categorized)

The interview questions were structured to produce data that address the codes identified, grouped in categories and subcategories to answer the research questions. The analysis of their statements will reveal consistent themes that allow for operationalizing John Keller's ARCS Model of Motivational Design theory and the four steps necessary for promoting and sustaining motivation in the instruction of learners. The following **codes** were adapted from prior research (Cook et al., 2009).

- Motivation
- Persistence
- Positive Attitude
- Self-Confidence (Self-Efficacy)
- Job Experience
- Collaborations Tendencies
- Willingness to Collaborate with peers
- Help-seeking
- Offering help to peers
- Attribution to People
- Attribution to the course design
- Exposure to Technology
- Prior Experience with Technology /Compute- enhanced live class
- Ability and desire to learn on the job
- Willingness to learn on the job
- Effort
- Time Management
- Relationship Building

For a more detailed definition of the codes, refer to **Appendix H:** *ARCS Model Categories and*

Mediating Process.

Participants Interviews

Participant demographics information is summarized in Table 3. Interviews are analyzed in this section.

Table 3

Participant Demographic Information

Interviewed Participant Demographics	Rocky	Jay	Patty	Kaitlin	Myra	Benji	Yvonne	Katherine	Leti
Age Group /Gender	Male in mid 40s	Female in mid 40s	Female in early 60s	Female in early 40s	Female in mid 40s	Female in mid 50s	Female in early 40s	Female in early 50s	Female in early 50s
Current Job	Unit Admin/Specialist Casual	Business Specialist	Unit Admin/Specialist Casual	Business Analyst	Business Specialist	Business Manager II Supervisor	Accounting Specialist	Lecturer and International Language Program Administor	Senior Financial Analyst
Department	Grad Sch of Edu- Dean's Office	SEBS-Plant Biology	Ctr Critical Intelligence Stds	National Transport Inst	School of Communications	Institute of Quantitative Biomedicine	Finance & Administration	University Self- Sponsored Program	Cancer Center financial department
Background in Systems, Finance, Grants, University employement	Hired in 2011 and has worked as a casual employee at Graduate School	Knowledgeable of the pre-award grant process, payroll administration University Employment: 1 year of experience in current position, started at Research University in 2019 and as a seasonal worker in August of 2018	Knowledgeable of pre-award grant process, payroll administration University Employment: 1 year of experience in current position, started at Research University in 2019 as a temporary with limited hours working towards a full-time position.	Was hired as an Accounting Assistant than in 2018 was promoted to Business Specialist	Knowledgeable financial systems, grants, and accounting University Employment: 8 years of experience in the position, started at the Research University in 2012. She has been with the School of Communications for ten months.	Knowledgeable financial systems, sponsored and non- sponsored grants, management University Employment: 7 years of experience in similar positions since 2013	University Employment: Employed by University Finance in August of 2019.	Masters in Education (Teaching), adjunct English Language Lecturer, Language Testing System administrator, and manages self-funded budgets. Familiar with the Blackboard learning platform	At the University since January 2019 as Senior Analyst. Ten years of experience as Director of finance and administration at other universities, international experience government
Years of Experience In Position at Rutgers	since 2011 (9yrs)	since 2019 (1yr)	since 2019 (1yr)	since 2017 (3yrs)	since 2012 (8 yrs) new job 10mths at SOC	2013 (7 years)	2019 (1 year)	2018 (2years)	2019 (1 year)

Participant #1 Myra

Participant Information

Myra started as an administrative assistant who says she learned her skills on the job, as she

was assigned the work of others in the department. She soon discovered her love for accounting and

now works as a business specialist managing the financial side of grants. Throughout her eight

years at the research university, she was learning every time she transferred from one department to

another. This is where she says she "picked up" more knowledge managing grants. She calls

herself a lifelong learner who cares about knowledge and trusts the institution in which she works.

Although technology savvy, she voiced dissatisfaction and was resistant to taking classes in the

research university's learning management platform, CANVAS. However, she acknowledged that

in recent months she had attended communications courses online. The courses were hosted on the

CANVAS platform. She took them because her manager recommended it for professional

development and because it was fully sponsored by her department. Her only complaint about the

online course was the time it took and the amount of focus is required to watch the recorded lectures

and post on the discussion boards. Managing her time to complete the assignments was challenging,

working during the day, and having to do assignments after work.

Interview Statements

Asked about her motivation for taking so many financial management training classes at

work, she said,

> *"Because I take pride in knowing to navigate Oracle, and I believe in training, I'm always going for training at work, register when I'm not busy... I'm one of the few who go to training. I like to know... It's been encouraging, mostly learn, and share the new things I pick up".*

When asked specifically about learning Oracle systems, she said that she had participated in several

financial management training that helped her learn tasks critical to her job. Some of those classes

were taught by other instructors in the Office of the Controller, which she did not seem too pleased

with. To her the pace of the teaching technology matters and that she did not like when the teacher

went too fast. Mainly she said,

> *"They should care about the student's needs…If I'm learning at his (instructor's) pace, then he is wasting my time…it should be back and forth, they have to consider the needs of the student."*

When asked to reflect on her work and how she preferred to learn, Myra commented,

> *"I learn by trying to do it on my own at work. You get burned, one report gives you different information than the other so after that happened several times… I learned to run several reports to check accuracy on actual individual costs and payroll cost per grant so that I did not have to go back a month later to try to figure out and consolidate it."*

However, she added that she would be willing to learn online as long as the training was more user

friendly.

Self-Reported Choices and Reactions to Embodiments

The following statements address the participant's engagement with the blended design, the

intervention.

Instructor-led Component

Myra appreciated the immediacy of the instructor's feedback and referred to the instructor

as knowledgeable in the content and business they conduct for the university.

> *"a good instructor, she encourages participation…she does not mind if you interrupt because that subject matter can help others and she connects it with the rest of the course material. She is knowledgeable."*

> *"The GCA Instructor is very knowledgeable. I talk to her all the time on the phone to help me."*

> *"I liked the back and forth in the class, and that she did not mind the interruptions."*

These statements provide information about her attitudes and motivation for learning with this embodiment.

-   Evidence of *Satisfaction* with the learning experience as a result of positive interaction with the instructor during the live session.

-   Evidence of *Confidence* in her own ability to be successful with the systems reports, technology self-efficacy.

-   Evidence of increased *Attention* and interest in the course as a result of immediate interaction and feedback from the instructor in answering her questions.

Myra referred to her satisfaction with the content of the live session as providing her relevant work-related tips to improve her understanding of Oracle reports she would be using in a real work scenario as analyzing costs of grants.

> *" I remember the training with Angeles (GCA Instructor), and we all (students) wanted to know what reports she recommended for us to run."*
>
> *"She gives you the reports and compares their usefulness and explains why one is more efficient to use than the other… like real-life tips."*

-   Evidence that she sees the course as relevant to her work and is motivated to learn more about the teacher's report usage recommendations that she can use in her real work environment. *(Relevancy)*

She has an eight-year history with the university. Myra said that she only took the class as a refresher to see the latest reports. She already felt confident in her abilities to work with Oracle reports. This is why she admitted being bored with the repetition of basic information during parts of the class. She said she trusted the instructor to teach her students what they needed to know. Myra was mostly attentive. She said when the instructor conducted reports simulations and thought

out loud. Myra was confident she would be able to duplicate the systems demonstrations on her

own.

> *" It was good. It was comprehensive for new employees... I know she can back it up, she is giving us the right information. I trust her judgement... In the class she is running the reports she knows how to navigate and she really knows what she is talking about so I trust her. "*

Regarding the time she devoted to the live course, Myra said, "time in class was good." Overall, she

expressed a positive attitude towards the blended learning experience but clearly expressed that it

was because of the instructor.

- Evidence that the systems demonstrations in the Oracle system made her see the course as

    important for herself and others in the organization and increased her attention and interests

    even when things seemed redundant. *(Attention)*

- Evidence of increased motivation expressed the value of the live instruction portion of the

    course and the instructor's ability to teach in helping her achieve work performance goals

    that will make her job easier. *(Motivation)*

- Evidence of her increased confidence in success as she successfully modeled the instructor's

    demonstration on her own, at the training room computer. *(Confidence)*

Although she was confident she could navigate the reports presented in the class, she expressed a

lack of confidence and frustration in some of the content but made it clear that she did not think it

was the instructor's fault when she said,

> *"Sometimes I don't know, and it is aggravating that going to the classes you have big hopes that maybe there is a new report or they are changing a report that will make life easier... but sometimes the instructor is trying to help you, but the tools are not there, or the reports are unreliable..., and that makes my job harder."*

She said she was still hopeful and motivated to learn more about new reports that will make her job easier.

- Evidence that her confidence in her abilities for success (self-efficacy) was present, but her motivation decreased when they did not improve her ability to do her job.

Social Interaction

When Myra was asked what she considered the best part of the course, she had a positive attitude about the interaction with the other grants administrators in the class and the "tips" shared by the instructor. She expressed satisfaction with talking to other students about managing reports. *"I liked listening to the questions by the others in the class."* Myra was also one of the students observed encouraging others in the class to join the RAIN meetings and the S.P.A.C.E training sessions to "network" with others who work with different processes of a grant's lifecycle at the research university.

- Evidence of increased motivation to learn when she had an opportunity to hear and learn from the shared experiences with the research university's community of grants administrators. *(Engagement)*
- Evidence of relevancy and usefulness of the course as a result of positive interaction experiences. *(Relevancy)*

Online Learning

Myra admitted that she did not spend too much time in the online course.

"I'm not 100 % convinced with Canvas, maybe that is why I may not use it to its full potential"... It turns out that if the instructor does not give you rights to enter the course, you can't see it, or the Instructor makes us go into the Canvas tile to check our access in class... I don't like Canvas; it's not a one-stop-shop in training."

> *"I've had problems with CANVAS access... I did not spend too much time, just enough to see the modules."*

However, despite her resistance and dissatisfaction with the learning management system, she

remembered and spoke about Angeles (the instructor) showing the class that there were short "how-

to" videos on creating Excel Macros to condense columns while navigating reports data. She said

that she referred to those videos in CANVAS by saying,

> *"The macros for Excel were useful... I went back to my office, and I needed it- to do it right-- so I went in to see it as a guide..."* She also downloaded job aids,
>
> *"I go before class, print the PowerPoint so that I can take to the class, and use it to take notes."*

She basically saw the online content as support for the live class, *"I reviewed after the class was*

like a repeat of the class, it was good. It is like a reminder."

- Evidence of acceptance of online instruction as a tool, but generally expressed a negative

   attitude and dissatisfaction with an online course based on past experiences. Reportedly, she

   had a willingness to engage in the online content available in the course but did not invest

   too much time. (O*nline Engagement*)

Finally, she had her own recommendations on how the blended or fully online training would

motivate others to use them,

> *"The University has to invest in infrastructure to create training for employees so that online training will be a more enjoyable experience."*

- Evidence that she was willing to invest time in reviewing job aids and videos hosted in the

   online platform only if the content would help her in the classroom or make her job easier.

   (Willingness to Engage)

- Expressed that there was value the online modules for assisting in performing an immediate

   task in helping support classroom learning.

- Expressed value and usefulness of specific videos and in printing the presentation slides available online. *(Motivation, Value)*

Portions of the transcript of this interview and how it was coded is found in **Appendix M**: *Myra Coded Transcribed Interview.*

Participant #2 Benji

Participant Information

Benji is a female participant in her mid-50s. She supervises grants specialists and analysts. She talked about working seven years in grants administration operations and finance, so this was not new nor difficult material to her. She has taken many online classes and considers herself efficient with technology. She ensured that she was a self-motivated learner and preferred learning on her own and at her pace. She expressed confidence in her technology skills, often in particular with other grants systems like the *Research Administration and Proposal Submission System* (RAPPS), which she has used for the submission and processing of grants and contracts at the university.

Interview Statements

Asked about her motivation for taking so many financial management training classes at work, she said that in February, she received an email from her department director about the classes being offered by ORED. Because she thought it was going to be a *"refresher"* course and she *"did not want to miss out if there was any new report out there or any updates,"* she took the class for a second time. She had attended the first class offered in 2018 when the university, consultants, and developers were still working out the configurations of the sponsored project

reports in Oracle. She claims it was messy, and reports were unreliable and difficult to use. When

asked about how she thinks she learns, she said,

> *"I use my own experiences with reading reports, I kind of learned in reverse order…I was trying them (reports) out before everybody even knew what reports would really work."*

She also attended the class because she says she wanted to participate in the study to help other new

employees learn how to manage grants correctly.

Self-Reported Choices and Reactions to Embodiments

The following statements address the participant's engagement with the blended design, the

intervention.

Instructor-led class

When asked if the live class was useful, she believed it was necessary for any grants

administrator to perform their job.

> *" anyone doing any reporting is their job function, they should be attending it whether they are familiar with the reports or not. "*

Additionally, speaking on the importance she placed on the course, she said,

> *"It's important to me. I like to go into detail on the reports. I need to understand what the flow of the transaction is, not just rely on a report."*

When asked if she wasn't bored in the class, she admitted that she was bored in the following

statement,

> *"I knew most of the course, so yes, at certain points, I was a little bored. But I was looking to see what I was interested in the interaction with colleagues… to find out what they were using, and I knew I could possibly use the course to learn about revenue reports."*

Asked if she enjoyed attending the live instructor-led session, she said,

> *" it was a good break from being in the office."*

- Evidence of relevance of the topic of the course for others and for herself, which motivated

    her to take the time to attend the redesigned GCAR120 class. *(Relevancy)*

- Evidence of interest in discovering work-related knowledge as she expected that she would

    learn the latest information about the reports. *(Attention)*

- Evidence of a desire to learn from others on the job, to find solutions to problems, and

    discover new knowledge. *(Social Interaction)*

When asked about the hands-on exercises students did in class, *she said,*

"The group sessions allow you time to try scheduling reports if it does not work, the instructor is there to find the problems of different folks, like I could not get the output, she told me to try it again then I was able to get it…those group sessions help to clear up any errors or ideas that you may have."

- Evidence of satisfaction with the instructor's ability to provide immediate feedback and

    increased feelings of self-efficacy in her ability to perform the tasks. *(Satisfaction, Self-*

    Efficacy)

    Benji's recommendation for improvement of the instructor-led course would involve adding

more content that would help new grants administrators understand the business process in

addition to the mechanics of the software. She suggested that,

"The basic class should put it all together and answer the when, how, why and where revenues and expenses are going, how they are billing sponsors, then how do we report this to the project research investigator timely. Tie it (the sequence of a business process) to the steps of the systems. That part was missing from this class. Another instructor, who is an accountant, dive into the business process more, which is good."

However, later in the interview, she acknowledged that her expectations for the class were high and

that perhaps her experience with grants finance and other business processes that took place during

what she referred to as the *"life cycle of the transactions"* (i.e., from the proposal, to acceptance of

Award, to compliance and reporting to sponsors) may have had something to do with the class not

meeting her expectations of new material.

Online Learning

Benji admitted that she had permission from her supervisor to use online learning tools but

that online learning in the current platform took time to master and could be enhanced with a place

where she could ask a question and receive an immediate answer.

> *"Personally, I would probably just follow the online material of interest if it is available there (on CANVAS) … but things need time, you have to know, well, the platform…if it had a window for questions and answers."*

- Evidence of self- confidence with the online course and willingness to spend some time

   navigating it. *(Self-Efficacy)*

- Evidence of positive attitude towards the online course and reported self-efficacy in using

   the platform. *(Motivation, Interest)*

She also spoke about her ability to "*find a day to focus on online courses"* and also suggested that

she was motivated to complete online courses as they were tied to her performance review.

> *" I manage my own time, I can find a Friday once a month to dedicate it to doing online learning, and as I said, it is linked to my performance review."*

- Evidence of self-directedness and expressed value of the online course and expectation that

   it will help her have a positive job performance review and expressed extrinsic motivation to

   participate in self-directed online learning. (*Value, Self-directedness)*

She admitted that she did not spend too much time on the *GCAR120 Discussion Boards,* although

she was one of the students in the live session who suggested creating an online group where they

could continue talking. When told that the environment was available, she said she had not had time

to review it. However, she found the content in the modules useful, but the CANVAS platform

complex for other novice employees.

> " *This online material is helpful for new people to refer back to or for me to teach a colleague who did not go to training.*"

- Evidence of willingness to share the example with others because it was valuable in

  informing them to perform their jobs *(E-learning Engagement)*

Regarding the CANVAS platform, like others interviewed for this study, she thought that it was

not user-focused. However, she spent time talking about a different financial systems class she

recently completed that was created by the University's Budget & Planning analysts and hosted on

Canvas. She emphasized her satisfaction with their short video tutorials. She thought that the videos

were good at explaining how to do things in the system step by step. She expressed a preference

towards video tutorials that could be stopped or be slowed down and comprehensive enough to

substitute the live session completely.

However, the GCAR online portion of the class did not really do that for her. However, she

admitted that she had not seen the guided videos created by the instructor, which were posted in the

Discussion Board and in the modules section. Encouraged by Benji's detailed comparison between

the GCAR120 online course and the Budgeting systems online course, the researcher pressed her to

expound more on her experience, asking, *"So since you had experience with two financial systems*

courses with online tutorials, which one was more interesting, or did you get more out of?

> *"For me it would be the grants reporting because that's more a daily type of process whereas the budgeting its before we were only budgeting once a year...I kind of like the grants more because that more if a monthly responsibility and using those reports for the reconciliation was. That's more regular."*

- Evidence of increased engagement in the online environment because it was relevant to the critical day to day work she performs. *(Relevancy)*

A component of the online course that she critiqued was the knowledge checks include at the end of every module. She said, *"Quizzes were too easy for me."* However, she suggested that they were *tricky* because she kept getting the same one answer wrong, but she was certain she was right. She said, *"it was frustrating"* The quiz should have been formatted as a multiple-choice question instead of a fill-in-the-blank question. She also found the Excel Macros video useful. She also said that she planned to print the job aids to show others in her department who could not participate in the live training.

- Evidence of finding the online content as valuable and increased motivation to use the content to support her business unit, which is important to her as a supervisor. *(E-learning Engagement, Social Interaction)*

Social Interaction

Although she was engaged in the online material, she said she would pick the live session as a more valuable part of the blended course for the following reasons: instructor's tips and real-life examples, networking opportunities, and immediacy of the instructor's feedback in correcting errors she made in class. She suggested more time be dedicated to more hands-on exercises using her own projects during the class. She felt that compared to others, she was too experienced to be in the class.

As a researcher, observing the session she attended, I noted that she was eager to share with her classroom peers what she already knew about the reports. The teacher let her elaborate on her real-life scenarios. At some point, she started sharing her institutional knowledge, comparing the pre-

merger legacy reports to current system reports as if she was providing more real –live context to what was being taught in the class.

Participant #3 Jay

Participant Information

Jay started working in her department as a seasonal worker helping the program investigators (PI) in the preparation and submission of grants for funding. She provided administrative support in the pre-award phase of the grant. She has competencies in using the RAPPS system and PeopleSoft for payroll information so that she can do her job assigning employee charges to the grant. She attended many of the financial management training offered by the University Finance and Administration Office since she was promoted to Business Specialist in January. She says she attended a training session as a casual worker and even before she got the full-time position working with Awards. She praises her supervisors for always encouraging her to go to training and, as she says, giving her the "green light" to learn for a future job. She talks about being anxious because she had never dealt with pre-awards, but she saw it as a challenge. She was glad that her boss told her to take the RAPPS, grants, and SPACE classes whenever they became available if she thought it would help her to do her job. She considers herself a lifelong learner who likes to learn for the sake of her own growth. She loves education and feels lucky to be learning and changing constantly.

Interview Statements

When asked what motivated her to take the grants reporting course, she that she wanted to do her job right and that the class interested her because,

> *"So that's part of my job, I deal with the grants from beginning to end to keep track of expenses."*
>
> *" The fill- in the blanks were annoying, Very Annoying… you should have more options for* **correct answer** *that means the same thing, "The tools I needed were at my fingertips it was a matter of just registering for the course, and I did."*

She also explained that by the time all the classes she needed were available, she had already been there for a couple of months. She sought to get more information because she already knew how to perform most of the tasks of her job.

> *"When I was first at the job, I learn with my colleague who works next to me, she showed me, but she skimmed through it…for to have a deeper understanding, I need the teacher who is expert who explains the why and the what and all the details to run a report and say this is what it looks like."*

- Evidence of value for the course and expertise of a teacher who would guide her to gain more valuable knowledge that will help her meet her job performance goal of doing her job right. *(Interest)*

Self-Reported Choices and Reactions to Embodiments

The following statements address the participant's engagement with the blended design, the intervention.

Instructor-led class

Asking Jay about the benefits of attending the reports class, she said,

> *"The course actually helped me feel comfortable, confident enough to actually go into my job, and not feel like I was definitely feeling empowered."*

- Evidence of confidence in her ability to do the job expressed. *(Self-efficacy)*

- Evidence of positive feelings associated with the learning experience resulting from

  attending the course. *(Satisfied)*

During the instructor-led class, she says that she asked a lot of questions.

" I try to pay attention and be proactive. I raise my questions."

-    Evidence that her interest has been captured and is motivated to ask questions. *(Attention)*

Online Learning

When asked about her preferred way of learning from an instructor (in-class or virtually) she

said that in terms of getting her attention, there was not much of a difference if it was a class or a

webinar. She went on to explain,

> *" It's hard for me to stay focused if you don't grab my attention immediately. I come into the class, I'm coming, and I'm looking, and I'm giving you my attention. I am waiting for it... you have a certain amount of time once you lose me, it's hard to grab me back."*

-    Evidence of attentiveness is related to the instructor's ability to grab her interest as a presenter and when sharing content that she came prepared to learn and in different ways. *(Attention, Variability)*

When discussing other self-directed online components of the design, she basically saw them as a

refresher tool for helping her in the event she forgot what was covered in the class. She said,

"Excellent as a refresher tool after I go to class. The 2-minute tutorials were amazing".

She also liked the two-minute videos she watched.

> *" I loved them, the rewind buttons where you are supposed to click to rewind is not as obvious to see. It should be explained (some instructions) what to slow or speed up the recording is needed...stop and to go back.*

However, she felt that the videos needed better attention-getting graphics.

> *"It (video) can be improved with some more highlights or red arrows...it looks bland, in the background...to catch my attention the steps need to stand out more."*

She did not like the format of the quizzes and was long-winded in expressing her dissatisfaction.

> *" The fill- in the blanks were annoying, Very Annoying... you should have more options for* **correct answer** *that means the same thing, it's important not to force one to remember a specific word that then makes it incorrect when it is actually correct."*

She was fine with unlimited opportunities to answer. She found that helpful. However, she would have preferred it be created as a multiple choice quiz.

- Evidence of increased motivation to navigate the online environment, view video tutorials, and recommended future improvements. She also expressed dissatisfaction with the format of related quizzes. *(Motivation)*

- Evidence of e-learning engagement appeared as she spoke about spending time trying to complete the quiz questions, which caused her some frustration.

- Evidence of satisfaction with the ability to control the pace of the online videos, although saw possibilities of improving visuals and mechanics of videos posted in order to gain her attention. *(Satisfaction, Attention).*

Social Interaction

Joking, she expressed that she had a strategy when she attended GCA live sessions. She said that she made sure to have access to the instructors and their contact information. She also talked about instructors that she found helpful in answering her inquires.

"I keep all in my favorites. I keep a list of instructors, so if I need help, I know who to contact."

She also found value in the social interaction with her peers.

"Students say how that works. Then I take advantage of that."

Her belief about learning at work demonstrated a positive attitude.

"Training reinforces and strengthens employees."

Also, she created her own opportunities to socialize with others by arriving at the class thirty minutes early so that she can introduce herself to the instructor and anyone else in the class, saying,

"You want to get connections if you do need some help... it's excellent networking."

In addition to opportunities to network before the start of the session, she also was adamant about

partnering with other departments in the university.

> *" I see how they can help me... or who I can turn around and help; it may be something simple you know how to do, and help them in terms of their workload."*

- Evidence of satisfaction appears as she expresses positive feelings about her in-class

     interaction with the instructor and her classmates. These positive feelings experienced in the

     class may influence her attitude about what she learned and what she intends to do with the

     information she acquired and shared. (*Interaction via relationship building and offering help*

     to others, Satisfaction)

Recommendations

Finally, Jay had some critiques and recommendations for improving the course. She said

there is redundancy in the content of all five GCA courses (Awards Basics, Sponsored Project

Reports, Reports in Tableau, Closeouts in Oracle, and Cost Transfers on Sponsored Projects). From

class to class, the instructors may focus on one of the reports like (i.e., 073, 071) more often than

others, some instructors then speed through the rest of the information that should be the main focus

of the course. She thought that all reports classes should be one comprehensive course with deeper

dives on each session with one topic, like reporting. Even when asked if she would be willing to sit

in a class for six to eight hours straight, she said, *" I don't mind sitting in longer class with*

information that is teaching me how to do the job and where I can ask questions about specific

things... time in class saves time in the long run, saves money in the long run." Again, her clear

goal is to do her job right, and she is motivated to learn about her job and invest the time it requires

but believes that the training needs to be more efficiently delivered.

Participant # 4 Patty

Participant Information

Patty started working in her department as a seasonal worker helping the program in 2019. She handles the execution of funds for grants for her department. She is not classified as a grants Administrator, yet; however, she has responsibilities similar to those of a grants administrator given the size of her unit. Part of her responsibilities includes auditing the accuracy of cost allocations and correcting them the prior distribution of funds. She works with the GCA accountants to meet compliance on grants (government-funded) funds allocation. She seemed to downplay her role by saying, " I really just get involved with the execution." The job, she said, was much more about making sure the grants are in compliance with the contract. She was interviewed in person. She was very reserved until we began discussing the online portion of the course and her dissatisfaction with CANVAS.

Interview Statements

When asked what motivated her to take the grants reporting course, she that she wanted to do her job right and that the class interested her because " *I want to get more involved in the entire grants process. I only get involved in the execution, and disbursement of government funds.*" Her newness to the department and to the institution made her think that she did not know as much as the other participants in the class she attended but felt so strongly about helping to make the online environment better for new people like her that she decided to volunteer for the study when she went to the class and the instructor announced that students were being recruited for a study about a course and that she qualified to participate. She appeared genuinely excited that she was able to take

classes and how she felt that the research university encouraged employees to learn and enroll in

classes offered on campus during work hours.

> *"It was interesting in the class. I don't know what role other people play, that's the interesting part about it. I've been here about a year and only working 20 hours, so I don't have this broad knowledge as I would like to have it, so these classes are great for me because I can just grab a class."*

Since she began working at the university, she has taken systems class to learn to use the Oracle

finance management for journal entries, and Jagger for approving expenses and procuring services

for the grants. When asked about what class was most relevant to her job at the university, she said,

> *"I would say accounting just because you can always use it, and it's specific to the university, and you know every organization is a little bit different, and like that, so you have to learn all the systems."*

Although her confidence in her knowledge of the grants process was low, she was very confident

about her ability to find and correct other people's financial errors on grants.

> *"I do work with the grants accountants because if there is an issue with the project, for example, you know just recently we had a purchase order that was inaccurately posted to the old grant rather than the other, and so you know, I had to get involved in working with the accountant."*

She was proud to recount a time when she prevented a "cycle of errors" and others from getting

involved in correcting them.

Self-Reported Choices and Reactions to Embodiments

The following statements address the participant's engagement with the blended design, the

intervention.

Instructor-led

Patty had positive things to say about the instructor-led session and the reports that were

explained in detail.

"During the course, she goes over report 073, and that was extremely helpful to me; it's a report I will need to know. That was extremely helpful to me, you know, to get a good understanding of that because it's a report I use to make sure that we are not over in our categories, that is huge... and so that we don't overspend."

- Evidence of a positive attitude towards the instructor and content as helpful in teaching her how to perform work tasks. *(Relevancy)*

She was satisfied with the variability of the class and the way the instructor presented the content.

"She didn't follow the script there either, which is a good thing; it's a good way to learn because you know she can adlib. She can add more of her perspective to it."

- Evidence of satisfaction with the way content and the instructor and how the way the instructor taught interested her and maintained her attention. *(Attention, Satisfaction)*

When asked if she found any value in attending the course, she said,

"Yeah, absolutely, I did." One class builds on the other, which helps me understand from Awards to Reports."

- Evidence of satisfaction in the class as she found that is served her need to have information that she could build on to perform her job. *(Relevant, Satisfaction)*

Social Interaction

She enjoyed the class interaction and expressed her willingness to learn from the instructor,

"I'm learning everything even if it is not directly related to day to day work. "

Engaging in social interaction was not a priority; she did not speak about building relationships in the classroom or having conversations. There is no evidence that interaction with anyone in the class, other than the teacher, would motivate her to take more classes at work.

Online

Patty found that the university did a good job of providing information on how to register for the course. Remembering other procurement systems classes she's taken at the university, she compared the accessibility to information between the department's functional website and CANVAS.

> *"I have to say that there is something... yeah, it's really robust too... I came from a procurement and internet company and on you know, not in the educational sector, and I have to say this has just everything that you want it is really at your fingertips on there for you, so you to finish your (expense) management courses... searching information in the functional area Website is better than CANVAS.*

She mentioned her dissatisfaction with gaining access to course content in Canvas for all the systems classes in which she enrolled.

> *"It kept happening to me is that I kept getting blocked you know, I don't really understand this campus learning system because again I'm comparing you know a little to where I came from, and I went into the training module and I just put in a keyboard and everything would come out here if you're not authorized...What am I doing wrong?... then I thought, OK, I'm not really qualified to take this class."*

Studying Patty's complaints and dissatisfaction with CANVAS, one can see why she may have been resistant to using it to access the online portion of the GCAR120 class. Because she experienced technical issues with CANVAS, she perceived it as a barrier in accessing, continuing, and spending time to complete the online course content (quizzes, discussion, video tutorials, web recordings) that would have helped her learn more about grants reporting. Additionally, it may have negatively affected her confidence in her ability to succeed in using the system tasks taught in the class. (Mungania, 1974; Norman, 1986) However, she found that in the GCA class, the Excel Macro videos demonstrated by the instructor were useful, even if she could not keep up, she could find them

online now that the teacher gave her access to CANVAS. She also saw value for herself as a novice

to use the discussion groups and said,

> " I think the discussion is going to be very useful because you know someone who is a novice
> who doesn't really get involved. I could just go in periodically and see the group."

- Evidence of interest in listening, not necessarily engaging with others who have knowledge
   about the topic and help her learn- (*Attention*)

- Evidence of increased motivation with systems simulations guided by the instructor in class
   for learning to perform a function. *(Relevancy, Self-Confidence)*

Participant # 5 Yvonne

Participant Information

Yvonne is an accountant specialist for Project Management Office, not a grants

administrator; she handles budgets for grants as is responsible for running financial statements and

preparing final financial spreadsheets on all sponsored and non-sponsored projects.

Interview Statements

She reports and closes out projects' financial records for the central financial office. She

pulls data financials from Oracle and prepares spreadsheets. Her motivation for the course was

because her job required it. The class was not mandatory, but she knew she had to be familiar with

the reports (#073 and #013) that were covered in the course. She said that it was her first class with

that instructor, and she had only taken on class for Chart of Accounts. She said the class was in the

computer training room. The class started as a lecture, and then they would log on and follow along

with the instructor after she demonstrated the reports. She thought Many of the people in the class

were not "numbers people" but project investigators, but there were others who were new, "fresh"

and asked a lot of questions." Asked about she prefers to learn, she said, " *I prefer face to face if I had a choice and CANVAS just as a refresher."*

Self-Reported Choices and Reactions to Embodiments

The following statements address the participant's engagement with the blended design, the intervention.

Instructor-led

When asked if the class was worth her time, she answered in the affirmative.

> *"It's was worth my time because I got a lot of tips from the Angela (Instructor), even some things that were not part of the course, but she still went into it and showed us how to do it, especially with people who asked questions…she would say, OK it's not part of this course but I will show you".*

> *" She gave tips on parameters, a good class…pace ok, she was talking fast but stopped to answer questions and did not ignore us."*

When asked about the teacher interaction and response to questions with the participants in the class, she said,

> *"One thing Angeles says in the class is*, 'even if I don't know I'll find out for you."

> *"I had a question, and she said I don't know the answer, but I'll get back to you and she got back to us."*

- Evidence of satisfaction with the way content and the instructor and how the way the instructor taught interested her and maintained her attention. *(Attention, Satisfaction)*

- Evidence that she was motivated to register for the class because it covered the content she needed to know to perform tasks related to her job. *(Relevant)*

- Evidence that satisfied with the way the instructor stopped to answer questions and provide

  an immediate response so they could correct what they were doing in class. (Satisfaction,

  Self – Confidence)

Online

Yvonne was clearly not satisfied with the automated text to voice on some of the tutorials,

did not like the video of slides without audio, nor the fact that the complete recording of the two-

hour session did not capture the instructor writing on the board during the lecture. But she liked the

ability to slow down and stop the recordings. The following statements reveal her feelings about

online videos.

> *"Let me think, I mean it was Ok for me, but I was expecting I guess because I know who was doing the training, so I was expecting to have it with her (Instructor) voice on it and then when I first heard it I was it's not, it's ok to let me just go do it because it's a lesson that I needed to take."*

While reviewing other automated video tutorials, she looked for the instructor's *"familiar voice"*

and *"her soft tone."*

> *"But my expectation was I was expecting a person's voice Ok... I guess because I knew she was the one who was training so I was surprised not to half her voice."*
>
> *"Tone is the phrase I want to say, and you know that I guess when it's a machine, and it's like that it's like reading a book, like an operator, so there was no personal touch... I prefer listening to someone."*

- Evidence- of interest, which is revealed when she was determined to continue with the

  lesson because it was content she needed to learn, so she paid attention but was not

  completely satisfied. because the video did not meet her expectations- *(Interest)*

She spent time in the online course and watched the two-hour recording of the class with the screen

capture and the instructor's voice. However, she critiqued the fact that the camera did not follow her

to the whiteboard or show what she wrote on the board. Yvonne considered that information to be

important information to know to refresh her memory. Her final reflection about the videos was the

following,

> *"There are pros and cons you can stop the video, do it on your own, then go back to it if I did not get it, go back and rewind it. You can stop and slow video and try it again; the con is that I can't ask questions if I still don't get it."*

> *"When I go back to my office, I can go back and re-use the tips from videos."*

She said that although the materials were online, she liked to get printouts or handouts in the live

session because she liked to take notes so that she would have them at her available in her office.

However, she spoke confidently about gaining useful information.

> *"I learned macros, but the reports I use are different, I can use the macros as she shows on the part of the report, but I did go back to look at the macros video as a refresh."*

- Evidence of increased motivation to navigate the online environment and engage with the

  videos. Motivation to learn by carefully reviewing multiple videos that she considered,

  lessons or refreshers. Motivation in using the videos and full recording of the session as a

  guide to practicing tasks on her own when returning to work. *(Confidence, Attention, Self-*

  directedness)

She did not complete the quizzes nor participate in the discussion forum space.

Interaction:

The interaction throughout the class time was perceived positively by Virginia.

> *"This was the first class I took with this professor...it was a lecture and interaction...It was not just her teaching but we also interacted with her. That was good."*

Asking if she had learned anything from anyone else in the class, she responded,

"No, I don't recall getting to know anybody, just if the person next to me if she had a question, and I would know the answer, I showed her how to get it (the report), but I didn't continue to talk to them after the class...it was just for that moment. "

- Evidence of motivation to interact with peers performing similar exercise in the class, not for socializing, but for move forward in the activity, to learn what she missed, increased attention on getting the exercise right. *(Interest, Attention, Confidence)*

When finalizing our interview, she reflected on why she preferred to hear the instructor's familiar soft voice over the robotic audio, and she said, *"The human touch, we are getting too used to technology, and no human touch, we have to take a step back"*. She also explicitly expressed a desire to enroll in another grants course with the same instructor,

"She was very informative, that's why I'll keep going for more classes like I learned just now. There's a closeout class, yeah, I mean I asked her to let me know when she's going to do another one. So I can go because I need to learn how to close out projects... She likes to give a lot of information, I like that".

Recommendation

Finally, when asked what she would do to improve the class, and she recommended more online exercises to practice online,

"Now nothing, if anything, more exercise but otherwise it was good it's very informative...it is what I needed at that point... I learned how to run the reports and learn to work with information that a particular report gives you."

- Evidence that she was satisfied with the content that she needed to learn to complete the job-related task she needed to know at a given time. She expressed confidence in her ability to perform the tasks. *(Self-Efficacy, Relevancy)*

- Evidence that she had increased interest in the practice exercises to gain the confidence of her ability to run reports when she is back in her office. *(Interest, Confidence)*

Participant # 6 Rocky

Participant Information

Rocky is a male in his mid-40s. He is a unit administrator and responsible for accounts payable and accounts receivables and budgets. He completes journal entry transactions and manages the facility for the graduate school building. He has years of past experience at the university.

Interview Statements

He was motivated to take this GCAR course to acquired more knowledge that would help him do his job better, specifically with project adjustments. He has taken several courses offered by the University Controllers Office in financial management Oracle systems on non-sponsored projects. In those courses, he uses CANVAS only to download and print PowerPoint presentations and the course job aids. He found those documents helpful and refers to them as refreshers as needed. He also uses job aids to share with his colleagues in the office.

Because of the regular employee turnover in his department, he sees Canvas as a repository of documents he can refer people to for guidance. "It helps with my workload." He says he accesses CANVAS weekly, but not to interact with others or watch videos, mostly to refer people to links and then schedules time to assists with a specific problem. When asked if people he supports are his direct reports, he says,

> *"I would classify them as colleagues, but there are around 5 to 10 people, it's not a weekly occurrence that I'm training people. I would say it's a regular occurrence, and so I've been at the university for a while. I've had a lot of experience with natural situations that come up."*

Rocky appears to have an educator's perspective on employee training. As a former high school teacher, he had limited experience with technology-related training; he was trained to use *Google*

Earth and a new online grading system for K-12 levels ten years ago. However, he takes advantage

of all the training offered by the university when he has time.

He also has institutional knowledge given his tenure at the University. He is pleased that there is a

commitment by the institution to prepare employees to use financial systems. He believes that the

University has improved in the professional development area since he started in 2011.

> *"You know you were kind of on your own, or you had to know who to call or who to find in the building to ask different concepts so where we are now is much, much better."*

Researcher: What do you think has made a better?

> *"There's actually effort going into it now. Whereas previously it wasn't a whole lot of effort you know resources so now like yourself, your position exists and the new trainers like Sarah in procurement, I don't know if there was a person before…So you know at some point somebody higher up decided that this was important and so then it just has a ripple effect so all of these resources are assigned, and they can do their job."*

- Evidence of a positive attitude about a structured approach to systems training sponsored by

   the institution. He is satisfied with the opportunity to learn for himself and for his colleagues

   in a classroom and with online resources relevant to their performing their work functions.

   This gives him an increased expectation for success for himself and others. He is motivated

   to engage in this type of training. (Self-Efficacy, *Motivation, Relevance, Interaction*)

Self-Reported Choices and Reactions to Embodiments

The following statements address the participant's engagement with the blended design, the

intervention.

Instructor-led

Rocky often steered the conversation away from the components of the design and instead

wanted to discuss the competence of the instructor as the key component in a classroom, whether it

is live or virtual instruction. He believed that it was the responsibility of the instructor to be ready to

answer questions or at least make an attempt. That will, he thought, would add to their credibility,

and employees would be more confident of the training they are receiving and pay attention.

> *"They should resolve what they don't know about the new process, behind the scenes, because what happens in front of the students, if not clear creates a disconnect and then people become less confident in the training that they're receiving."*

He believes that the instructor of the GCA class always follows up, and that is important to him.

> "*A good trainer knows how to handle questions, and even if they don't know the immediate answer, they follow up, they are reassuring. There was a trainer in procurement who was very good. She would get back to you. Follow up is key."*

> "*Angeles (Instructor of GCA course), I've taken two classes with her in grants administration, and she follows up with our questions I asked in class about Scheduling a report that did not run in class…. She tries. It's a learning curve."*

- Evidence of satisfaction expressed in his belief that the instructor will provide feedback and

   answer his immediate questions or follow up. This motivates him to be confident that he will

   be successful. *(Confidence, Self-Efficacy)*

Asking him about his confidence in being able to work with the reports, after the instructor-led part

of the blended course, he said,

> *"Yeah, I thought it was helpful because we talked about scheduling reports, and we talked about some of the problems with the reports too, so hopefully that gets to the higher-ups at some point…*

- Evidence of satisfaction with the discussion that took place in the session regarding real-life

   challenges with reports sees topics as relevant to his work with reports *(Relevant,*

   Confidence)

He discussed how the class was a chance to meet other colleagues in the university who are using

the same platform and exchanging tips were very helpful.

> *"I think what was helpful to the class too is just meeting with other colleagues…I think that's very helpful. You know, to just have a spot where you can share different knowledge that you've gained and the ability to talk through it."*

- Evidence of a positive attitude about his interactions with others in the classroom and motivation to acquiring more knowledge from others in that setting – (*Relevancy, Interaction*)

Online

He accessed CANVAS but did not explore all the components of online content or the discussion forums created for the GCAR 120 class after the instructor-led classroom session. He said he would go back into it and view the videos as a resource for the people in his department.

> *"Sorry to say, I didn't, I didn't. And I guess I didn't really explore that part of it I was mainly concerned with a PowerPoint presentation reading through that finding out the information I can to use."*

As for his motivation for navigating the online course, he says that he does not need to see everything at once, but as is necessary to perform a given task as the time he experiences a problem since he is not motivated by obtaining an award or a course grade.

> *"Yeah, because it's kind of a different mode of thinking. I'm taking a class because taking a class I have to make, I have to pass you know I have a grade that I need to get. This work class I have a task that I need to complete…I'm going to go into the information and I'm going to find what I need in order to complete the task and I have at hand and once that task is complete and I'm going to with that aside. The next task. And you know so doing that over and over and over again I'm not I guess it would be more comprehensive if I want to hadn't viewed everything all at once."*

Another reason he sees the value in the CANVAS documents is that he believes that the University has its own language, and people he works with may not have a sense of the terminology yet.

> *" The CANVAS materials help them become familiar with the terms."*

- Evidence of interest in the content in the online environment as relevant to the employees of

  the organization who work with grants. *(Attention, Interest, Relevant)*

- Evidence of willingness to teach others and share the knowledge he found in Canvas.

  appears as he takes time to navigate the job aids, PowerPoint to gather the information that

  will help his novice work colleagues to learn the jargon of the role within the University.

  (Attention, Relevant, Interaction)

He expressed dissatisfaction with the online learning platform. Although he has the experience and

demonstrated skills with the learning management system, he says he did not think it was learner-

friendly and would deter other employees.

> *"It's not easy to navigate…people have to have a certain aptitude to navigated the website*
> *and find the materials on CANVAS."*

He elaborated on specific steps that have to take place to find the course, then the content an

employee needs to access learning quickly.

> *"Because you have to find the class on the left-hand side and you have to click on that then*
> *also you have to find that little button in the middle that says modules, and then you have to*
> *click on that, and then you have to kind of scroll through things to find what you're looking*
> *for… I found if somebody doesn't have that sort of aptitude to just move around and find*
> *things that sometimes it can be difficult for them. "*

He discussed that to trains others with the system, he sends them a targeted link or download the job

aid files and attach it as an email and send it to them. Even with the complexity of the online

learning environment that houses this course, he says,

> *"Lots has improved in the pre-Canvas days, using other university systems – you only*
> *learned by word of mouth.*

Social Interaction

Having observed the interaction in the class, I probed for more answers about social interaction with classmates.

Researcher: What was happening at the end of the class when the class seems to "come alive," and everyone was talking?

Rocky: "*Yes, they were talking about this RAINS group that meets. I want to join; there are other grant administrators that deal with the same problems.* "

Researcher: Do you think that interaction could be moved to an online space? Would it be as helpful as in the live class?

Rocky paused, reflected, and responded:

> "*Not sure if it could exist online, it might take some coaching*" I was silent and let him tell me about an experience he had a couple of months prior, where he went to a university-sponsored procurement systems training via a webinar…I think it would need to be coached by someone with an education background… *I think it would have to be very focused because you know if it gets too long, people start to check out or you know they're like listening to it, but they're doing other stuff on their computer or what have you.*"

Researcher: The final thing was this class relevant, reporting training?

Rocky:

> "*It was helpful. I think the two classes I attended most recently are financial reporting and Tableau reporting with the same trainer, with Angeles… it was helpful because you know the systems thankfully are constantly being improved so that's very helpful because they recognize that they need improvements and somebody is actively working on making those improvements.*"

- Evidence of interest and attention with the subject systems reports and training. He is thinking of ways to continue learning about systems that he is expected to use. He has a positive attitude. His expectation is that as things change, the institution will make that information available and train the users of the Oracle system. *(Attention, Confidence)*

Participant #7 Katherine

Participant Information

Interview Statements

Katherine began her career at the Research University in 2018; she manages the International English language testing programs for a self-sponsored program. She really enjoys being part of the University community. She feels like she is giving back to the community and feels good about teaching English as part of a place like the Research University. She considers herself a self- directed learner. Her motivation to learn more about her job is because she believes that there is always an easier way to do things. Additionally, she wants to maintain her position at the University because she wants to pursue a doctorate. She has used various learning management systems and says that they are the same but may have different features that one needs to learn to use. Although she would like to go to all the systems training during work hours, sometimes it is difficult to leave her north campus to drive to a session. Appreciates when the instructors come to her campus, it helps her manage her time away from work better. She feels strongly about having personal control over her own learning process and values interaction with others in finance, given that her academic formation is in teaching, and her current role requires her to be stronger in financial management.

Self-Reported Choices and Reactions to Embodiments

The following statements address the participant's engagement with the blended design, the intervention.

Virtual Instructor-led class

Discussing her experience with the virtual instructor-led 2 hour GCA class hosted post-

COVID-19, where the live class was all shifted to an online format, she spoke about issues of

focusing, lack of interaction, falling behind, and her difficulty getting the teacher's attention.

> *"Because unlike classes when you're doing it, it's like a hands-on workshop, that's what happens (people are talking), and if you're not(in classroom setting) , you think like, Oh, I missed that, excuse me, but you're muted online and that makes it also harder to focus, I think because now you're just watching and you know it's a hands on class (you follow along with teacher on your laptop) and so there's like a focus issue."*

At one point in the session, she could not see the screens or manage the favorites because she was

working off a small laptop, and she says she just stopped trying to catch up and paid attention to

what the instructor was navigating from tab to tab.

> *"You know until I told her, I'm sorry you lost me in the chat, she had no idea that that was my experience."*

Researcher: So you took the class online, how where you? Were you paying attention the whole

time?

Katherine:

*" I definitely drifted. You know it's not on her, it's more just got hard after a while to stare at a screen. Like yeah. I've noticed that a lot even some of the other **online training** I've done to get to that point where you're getting a break and then they the instructor Thinking I don't want to have to talk for like 2 hours straight like that… especially now that so much is on them, she's a rock star, I would have died."*

Researcher: How did the teacher appear in the virtual class? Did she not have a video camera on?

Did that have any impact?

Katherine:

> *"Probably, that sort of we were talking of that connection that you kind of get not there, I know it's like really hard to like stare at your computer and you think it was like watching a game on T.V. there is something about the camera… I totally understand."*

There are several things discussed that are evidence of dissatisfaction with the web-based

instructor-led session. For this learner, the setting was not favorable for the way she preferred to

learn. It did not encourage teacher and student interactive discussions, which would have provided

an opportunity for learners to develop positive feelings. There was no immediate positive

reinforcement of what they were doing correctly; the instructor could not see if they were on track

or lost while working on their own with the exercises. She expressed a feeling of isolation and

feelings that she was disconnected because of a perceived inability to speak (she was muted, did

not know she could unmute herself) in the platform. She also had what she called "focus issues."

She said,

> *"Because although unlike live classes when you're doing it's like a hands-on workshop
> that's what happens and if you're like a craft I missed that, excuse me, but you're muted and
> that makes it also harder to focus, I think because now you're just watching and you know
> it's a hands-on class and so there's like a focus issue."*

Katherine's values building connections while learning creates an opportunity for success; she

found that in her experience, knowledge sharing reduced future errors for her and for others doing

the same kind of work. She stated it in this manner,

> *"Things that you really learn to value when you go to compare when you are online to
> when you're in person, and you start making a real connection like with the trainer or the
> person who has the answers for you, you ask about how to do something you know there will
> be that one little thing that doesn't get covered in class but now you know who to contact."*

> *"We all sort of ask each other questions right here and show that I do that, and I do that,
> they are - How do I do this? Just knowing the right people so that you make fewer mistakes
> and then or you learn how to correct your errors by talking to people, and you lose that
> online because we are all muted".*

- Evidence of dissatisfaction with the lack of peer to peer interaction, which she values

    missing from this format. Interaction with instructors and peers was limited because they

were muted in this class. The natural consequences of being in a class with others motivate

her desire to learn.

She made an in-depth comparison between live and virtual class and the value of the

connections that are made in a classroom doing hands-on exercise together, and immediate

feedback from the trainer is missing in the online class.

> *" Sometimes you look around, and as a teacher, I know you look around, you know your students are lost. Or you know when they're getting it, or you know it looks like that one person the corner has no idea what they're doing, and you can ask their neighbor to help."*
>
> *"Yes, so you sort of lose that real connection, and as a result and shifting the hands-on class, I don't know how."*

- Evidence of some dissatisfaction with the virtual course experience for not giving her

  opportunity to interact with the teacher and with class peers with the knowledge that would

  also help her and enhance her confidence to succeed at the tasks. (Confidence)

Finally, she was not motivated to learn unless there were more opportunities for interaction;

she was dissatisfied with the way the class was conducted in the online environment. She had a

preference for a live classroom where she can take advantage of the hands-on computer activities

with a group on a large computer display (not her laptop) and share a large classroom screen with

peers. The fact that the in-class interaction and possibility of future business with a University

community of learners were bothersome for the interviewee and did not result in motivation to learn

in that setting.

Online

Self-directed online modules

She saw the online modules are supporting the guided instruction.

" Going back into Canvas's modules content added with the context of the class, I still saw the value to it."

- Evidence that she found value and was motivated to review online content to support the learning she gained from the instructor-led class. *(Relevant, Online Engagement-Attention)*

Videos

The first video she recalled seeing a couple of times was the excel macros video that was reviewed in the class, and then she looked at it online later, then used it as she was doing her work and trying to reduce columns on her department's report.

"I was playing around with the student reports for two and a half years trying to rearrange information in data tables, but then I went to the class, and Angeles showed the Macros. (making a gesture of her head exploding)…when she was doing it in the class, I was following along, then after the class, I watched the video again, and then was following and doing it with another report because it's just like so simple and it was just like so now I have a whole new skill set that will translate (to other positions).

- Evidence of increased motivation to review online videos because it was relevant to the work she was performing and feeling optimistic about what she learned and could use in her work. *(Relevance. Confidence, Self-Efficacy)*

Quiz format

She had difficulty and was frustrated with the format of the quizzes and complained that she had the correct answers, just a different word, and she kept getting the answer wrong. She also found the true and false questions confusing to interpret.

" like almost fixed costs cannot be charged to the project, right? After that. And I think like you there, I don't remember…why the answer would be false, or the answer was true, and I misunderstood the question, and I just don't understand it's cost."

Finally, she recommended that the quizzes could be improved with a longer answer key. A key can

be attached to the question that has different variations and permutations that are all considered

correct.

> *"Those fill in the blanks because they're so restricted … Pedagogy between fill in the blank*
> *you know the sort of like you have to sort of objectively and subjectively create your own*
> *answer, I get it...In one of the assessments, I conduct you have to supply an answer, and we*
> *have actually multiple forms of the answers that are all considered correct."*

- Evidence that she found value in the videos and was willing to engage in learning from the

    modules. She spent time navigating online content, videos, and quizzes. Although she was

    not satisfied with the format of quizzes, she still attempted to complete the assessments,

    which gave her a feeling of success in accomplishing the task and confirming her knowledge

    acquired. *(Relevance, Confidence, Attention)*

Participant #8 Kattlin

Interview Statements

Kaitlin is responsible for her department's accounting on the finance side of grants. She

finds the training useful and has participated in most of the Oracle financial management systems

instructor-led courses. In anticipation of more responsibilities in the financial administration of

grants, she was motivated to join the SPACE certification program offered at the Research

University and enrolled in all the GCA classes, including closeouts, which is also taught by

Angeles.

After being asked if she found those classes useful in helping her do her job, She said,

> *" In the past I was not really sure where it fits into my job description, but as I've gotten*
> *more responsibilities on the pieces kind of start fitting together.*

Generally, she looks at the course catalog to select those classes that will help her do her job. She

took the GCAR class a few months ago and had not gone back much to review the online portion

other than the PowerPoint content. However, she thought it was useful information and would go

back to check the videos. She said that she had noticed some improvements in online content,

> *" I can admit that they have gotten better, over the past few months, that's definitely a plus."*

Her motivation for registering for GCA systems reporting, the grants closeout, and the Tableau

reports classes was for the following reason, *"It's been I guess in anticipation that I'm going to be*

taking on more responsibilities so I'm trying to get ahead of it before I get swamped and not know

what I'm doing." She did not see that she was going to have to perform those tasks immediately but

in the future.

Self-Reported Choices and Reactions to Embodiments

The following statements address the participant's engagement with the blended design, the

intervention.

Instructor-led class

Kattlin explained that she started taking all the research grants systems and reports systems

classes in anticipation of additional responsibilities in her department. This is important to address

because she was motivated to enroll in a course that had no immediate relevance to the current tasks

she performed. As a researcher, we make assumptions that adult learners in the workplace are

mostly interested in learning when the subject has immediate relevance to their job. Kattlin was not

as concerned with preparing for today's tasks as she was with planning for upcoming financial

management responsibilities. Those future responsibilities required more knowledge on grants

reporting, the content presented in the course. Therefore, she had a defined goal, and her intentions

to learn more was valid and characteristic of an adult learner (Knowles, 1984). The following

represents the discussion that took place with Kattlin. She was very reserved and did not elaborate

on many of the questions.

Researcher: Tell me about the GCAR class. Have you had many opportunities to practice what you

learned in the GCAR course?

> *" I think she's a great teacher as far as you know, giving us examples and walking us through it really slow enough where you can grasp it. The class was relatively small so I felt like if I did have issues that I was able to get the attention that I needed to get those questions answered."*

- Evidence of satisfaction with classroom experience and the interaction with the instructor

  who was available to answer her questions – *(Attention, Satisfaction)*

Researcher: What is something that you took away during the 2-hour class that was useful?

> *"Even from the most basic, just remembering how do you know how to save reports as a favorite, and how to write a scheduled report. I know she covers that in multiple examples."*
>
> *" Just getting a general knowledge you also know what she does on there and gain a little bit better understanding what our grants accountant does when reconciling our projects and I know that for a while we've been using, my accountant will use the reports that I learned about in that course…and we were told to use you know different reports. (the course)kind of keeps of everyone on the same page as far as knowledge of how they do their closeout worksheets, so I was able to take that away and will apply it."*

- Evidence that she was satisfied with the content that she needed to learn to understand the

  work that is done in her department at the given time. She expressed confidence in her

  ability to understand the reports and apply the knowledge *(Self-Efficacy, Relevancy)*

Online

She was not actively engaged in the use of self-directed online modules. However, she used

the documentation as needed.

"I usually revert back to that or point of the summary (PowerPoint) is definitely helpful to refresh and the answer lecture question."

Researcher: What would need to be included in the online environment to make it interesting for you?

Kattlin: *" I don't know that this is something that would be interesting, financial reports I find its kind of difficult, you know, to fluff it up and make it better. Even if you know there were say examples in there where it's like, this was this situation where this could have been applied."*

Although she was not motivated to spend time engaging with videos, discussion boards, quizzes online, she was reflected on what would be relevant for financial reporting online learning. She indicated that real-life scenarios that are not abstract, like a snapshot of the real environment, would be engaging. She also stated that there was some value to online courses.

"I just like the fact that it's becoming more online also because it gives people more routes instead of you know say someone has a supervisor where they can get out of the office, or you know it's a little bit more self-paced moving towards that. It gives more window of opportunity for people to take courses."

- Evidence of a positive attitude about the availability of online training self-paced for employees to have more opportunities to take courses remotely. Demonstrates recognition that the online training answers a relevant training need. (Relevancy)

Social Interaction

Kattlin is very quiet during the interview, so questions were often repeated or summarize to collect more information about her experiences with the GCA course.

Researcher: Tell me about your experience in the classroom in terms of the other people that were in the class. Did you say the classes are usually small?

" I believe for this one, and there were only 3 of us, maybe it was pretty small. But it was good hearing about, you know, questions that they may have if there are issues going on with the system it kind of lets me know that I'm not the only one."

- Evidence of interest and attention with the subject systems reports and training. She had a positive attitude about the small size of the class and the opportunity to hear from others in the class about the similarities in experiences that they all shared as a community of grants reports users. *(Attention, Relevant)*

Researcher: Did you contact those people that were in the class with you, or have you had any communication sharing information with them? Kattlin answered,

"I personally haven't, but I know that I could reach out if anything did come up."

Researcher: Did you reach out to the instructor to clarify anything in class? Kattlin answered,

"I feel like I understood it pretty well, but I know Angeles did say if I needed anything that she is always available."

- Evidence that she felt the confidence of her ability to run reports when she is back in her office. *(Confidence)*

- Evidence that the instructor and her classroom peers are available to provide feedback and support if needed. *(Interest, Satisfaction)*

Recommendations

If she could improve the course, she would add more detailed information on the Summary Reports and more class discussion on how they can be used and when. She would introduce the information in the classroom because it is easier and depending on who teaches the topic. That format would allow for a variety of situations where the reports are useful and can be applied. The online content would need to be updated often and be accurate and more straightforward. Overall, if

given a choice, she would be more likely to attend a class in person because she waits to the last

minute to look at online information but likes having the possibility of having some material online.

Participant #9 Leti

Participant Information

Leti is a female in her mid-50s, she is a certified public accountant with a Master's degree in

Finance. She was hired by the Research University in January 2019 as a Senior Financial Analyst in

the Cancer Center. She has ten years of experience as Director of finance and administration at

several universities, international experience managing government finances in South America. She

has experience with Oracle financial systems. Her prior employer required all new employees to

participate in training, it was mandatory, and it was scheduled as part of her onboarding process.

She is surprised that the Research University does not make systems training mandatory.

Interview Statement

She understands that every institution uses the system their own way, so she has had to

relearn how to use Oracle for in her current position. When asked about her motivation for learning,

she responds,

"I always like to learn new things and learn outside the box... My idea in doing the training
is because I want to reduce the time it takes to do the job. Improve the way I'm doing things."

She has worked remotely in prior universities and would prefer to continue to work remotely

as long as the organization provides technical support. Very comfortable with video conferencing

technologies but not with online training or blended training on systems.

Self-Reported Choices and Reactions to Embodiments

The following statements address the participant's engagement with the blended design, the intervention.

Virtual Instructor-Led class

Leticia attended the second of two GCAR entirely web-based course observed for this study. She found the class very helpful and was impressed with the instructor's organizational skills and how she managed the WebEx platform.

> *"As an example with training that we did with the GCA instructor, she gave us some short cuts and tips, and demonstrated the University portal, then showed us how to set some reports as favorites…that saves a couple of steps, and every second counts. It was useful to learn tips."*

- Evidence interest in learning the content in the way that it was presented by the instructor because the information was an important part of performing tasks of her job. *(Attention, Satisfaction)*

> *"The tips we learned in class are very important because we have to do things on time... we have to do what the sponsors want… You need to close out grants you have to run a couple of reports, to make sure the expensed are charged correctly... you have to be able to run - them and Angeles gave us tips and we practiced how to do it"*

- Evidence that she was motivated during the virtual class because it covered the content she needed to know to perform tasks related to her job. *(Relevant)*

She was able to follow along as the instructor shared her screen via WebEx.

> *"She was showing the thing through her screen, with WebEx, I had two screens so I was able to replicate what she was doing into my own computers and test...so now I'm very happy with my shortcuts!"*

- Evidence of expressed satisfaction with the format of the web-based session and her own ability to follow the instructor, which increased her expectation for success. *(Confidence)*

She was able to pay attention and follow the pace of the instructor.

> *"She was very organized, showing reports, typing a document to share terms later with us...the important thing when you do Webinars is to be very organized...in the 2 hours we did not get lost."*

- Evidence of increased motivation and interaction with the instructor in the web-based synchronous class with systems exercises. *(Attention)*

Asking Questions

Although the setting was new, it was the second time the class was taught entirely online, and not in a computer lab; the instructor incorporated additional time for students to practice and explicitly explained the guidelines for engaging via chat or audio.

> *"She put everyone on mute but later if we needed to ask a question we were able to unmute and mute again for answers; we didn't face any problems."*

Leti expressed an intention to take more similar webinar format classes with the instructor because it was a positive learning experience.

> *"That was my first one and only class...I am planning to attend two more. But it's been a crazy week...I been a little busy...there are two other classes I want to take maybe next week...it's is good to know all the parts of accounts in the university, I want someone to explain it to me, like the purpose of each account...I would like to attend the training online. Via Webex I love it."*

- Evidence of increased motivation to continue to learn about the work she does for the institution. Interested in an instructor lead session with computer systems exercises she can follow on her own. Found value in the presence of an instructor to guide her learning.

   (Attention, Satisfaction, Relevancy, Confidence)

Online Learning

The instructor shared new information that the student did not have prior knowledge of during the virtual synchronous session, which increased her motivation to navigate the online courses. However, she is still not confident with her ability to navigate the CANVAS learning platform.

> *"Before I took the GCAR class I did not know I could go to CANVAS, I didn't have access, now I have access, and I was able to go to the search for additional information…She also went through a website through the Controller's Office page, I learned where to find the new report I can run…that was very good… Now I know where to go. Sometimes we don't know how to look for information it's good to know the resources that we have."*

- Evidence of interest in the content taught in class, and the guidance offered to help her gain access to relevant information (Controller's Website and CANVAS) needed to perform her job efficiently. (*Attention Relevant, Satisfaction*)

Videos

She has not accessed the videos on CANVAS as of this interview but has used the Macro Excel video that was sent to her via a link form the instructor. And some videos she found on the controller's website, which help her not make mistakes; she likes step by step simulations that will help her not make mistakes. She reasoned,

> *"Maybe it really is a reason we don't do so much training because we don't know how to do it online. But when I have to do something I don't remember. I don't want to make a mistake… videos are so useful… when you make a mistake in the Oracle system, you don't get a system error message; you find out when the controller's office sends you an email… I don't want to get an email."*

Social Interaction

Asked if there was a scenario where all classes were changed online, what would she prefer for the training courses she attends to learn to perform her work in the system, she said,

> *"I love online classes. Maybe there are class like SPACE when you need to know the face and the name of the person then having the class in person is good to see person, now …in those training is better in person, but because I need to do a journal entry on a grant, I don't need to interact with another colleague I don't need to see anyone, I'm fast in what to do.*

- Evidence of motivation to learn from others in specific types of learning situations but not in learning the Oracle system, she feels very confident in her ability to learn from the online course with an instructor to teach her. *(Confidence)*

Finally, she was satisfied with the blended learning format and comfortable in her ability to learn the content via a fully online course as long as there is an instructor to guide the session and she can refer to the online step by step videos on her own. That includes an instructor-led. She does not like to waste time driving to another campus to go to a live training session for a systems course; from her perspective, it is not an efficient use of work time spend a half a day driving to a training that can be done virtually.

> *"I'm going to give CANVAS another look and LinkedIn Learning; it's always useful to refresh, not too familiar with Canvas yet."*

- Evidence of interest and attention with the subject systems and other online self-directed training for professional development. She is thinking of ways to continue learning about systems that she is expected to use. *(Attention, Relevant)*

Upon final review of transcripts, it was decided that two of the interviewed participants, Elena and Cherelyn, would be excluded from the final analysis. I perceived biases in their responses, which would distort research results, given the small size of the sample. One of them had ties to the central office; the other repeated her attendance in several of the instructor's sessions, as many as three times, however, admitted not having accessed the online environment of the blended course.

Summary of Interview Findings

In the process of conducting interviews, the analysis focused on evidence reported by the individual students that supported the high-level conjecture that a user-centered blended design with motivational aspects of ARCS Model will lead these professionals in the same institution to be motivated to learn about financial systems in the workplace.

Knowles (1980) reminds us that adult learners see training as a process of developing their competence (a life-long learner) to achieve their professional potential in life. However, although interviewees spoke about learning because they liked to learn, further prompting revealed that their motivation (nine out of the nine) to learn was directly related to short term task performance goals. Three out of the nine interviewed spoke about training needing to make their *life easier* (at work). All of them had a strong explicitly stated need to work on real scenarios that were related to the exercises in class, this built self-efficacy as they could apply the information they learned when they needed it to solve and immediate problem administering a grant. They conveyed that they went to the training session to improve how they performed their job and to get *tips* from a knowledgeable instructor in the central grants contracts and accounting department. They were proud of working in an academic institution that allowed them time to learn during work hours. Some of the subjects said that they were in the class only to gather information for others, or to make sure they don't miss anything new, or to ensure that their teams get information. In the classroom, the make sure that others in the room know that they have institutional knowledge or even suggest they are only there for a refresh of what they already have figured out on their own this is supported by (Hager, 2004).

Table 4 highlights some of the quoted statements collected from the interviewed learners who participated in the study and mapped their responses to key components of the blended course design. Some of the key components included the learning management system, online course

content, feedback, and support available from the instructor, and the overall structure of the course. Statements were selected and compared from various participants on the things that were positively received and those that caused barriers to learning online.

It was also predicted that the effects of the motivation-infused embodiments would appear as participant's self-reported attitudes or feelings about the instructional design. Table 5 *Self-Reported Attitudes to Intervention Embodiments* illustrates how each participant's reactions or feelings were identified as positive (P), negative (N) or, not applicable (N/A). The definitions of these labels were guided by the high-level conjecture. These labels are further explained in the rows corresponding to each of the embodiments (live class, web-based self-directed e-learning, recordings, video vignettes, synchronous virtual class, etc.). In creating Table 5, the researcher interpreted their narratives. What resonated was the positive reaction to the instructor-led sessions and the short video tutorials while there were some negative feelings about the learning management platform housing the online content. The quizzes were not well received because of the way they were formatted. No one engaged with each other via online discussion forums. The reaction to the virtual webinar was mixed; however, only two of the participants participated in the virtual classes offered in April.

Table 4.

Blended Design Quotes on Components

Interview Coded Responses	Blend Design Feedback on Components (ARCS)	Reactions & Statements from Learners
Instructional Component	**Keyword Examples**	**Actual Response (Mapped ARCS Model Open –Ended Question)**
Interface Design (LMS) and (Course Title)	text, graphs, navigation, interactivity,search functions, access, login, videos,audio	**Live Class-** "This was the first class I took with this professor…it was a lecture and interaction…It was not just her teaching but we also interacted with her, that was good"(Interaction, feedback between teacher and learner) (Y) : **Online Self-directed –** "I learned macros but the reports I use are different, I can use the macros like she shows on part of the report, but I did go back to look at the macros video as a refresh." : On CANVAS-"It kept happening to me is that I kept getting blocked you know, I don't really understand this campus learning system(P) On CAnvas Complexity- "It's not easy to navigate…people have to have a certain aptitude to navigated the website and find the materials on CANVAS" (R) MACROS Video-
Content (Modules, Discussion, Videos, Quizes)	Relevance, easiness and difficulty of information	**QUIZES:** "Those fill in the blanks because they're so restricted … Pedagogy between fill in the blank you know sort of like you have to sort of objectively and subjectively create your own answer(Difficulty with online format, Not Satisfied)K. **CANVAS online course-** " I can admit that they have gotten better, over the past few months, that's definitely a plus". (K) **Videos-**"Excellent as a refresher tool after I go to class. The 2-minute tutorials were amazing". (J) ILT- Demonstrations -"She gives you the reports and compares their usefulness and explains why one is more efficient to use than the other… like the real life tips."(Relevancy) (M)
Learning Support	Power Point Guide, job aids, help time, feedback, exercises, quizes, e-mail communication	**(Instructor of GCA course)-**" I've taken two classes with her in grants administration and she follows up with our questions (Feedback increases Confidence) (R) . "One thing Angeles says in the class is, ' even if I don't know I'll find out for you…" I had a question and she said I don't know the answer but I'll get back to you and she got back to us" (Satisfaction, Attention) (Y)
Implementation	Course "Blended -Hybrid structure, technical infrastructure in LMS	**Hybrid :** " Going back into Canvas's modules content added with the context of the class I still saw value to it." (Relevant, Online Engagement-Attention) (K) Virtual Session (Webex Platform)-"She was showing the thing through her screen, with WebEx I had two screens so I was able to replicate what she was doing into my own computers and test…so now I'm very happy with my shortcuts!"(Satisfaction, Confidence) MICRO VIDEO IN CLASS AND IN CANVAS- There are pros and cons you can stop video, do it on your own, then go back to it if I did not get it, go back and rewind it. (Useful content, Relevant)

Table 5.

 Self-Reported Attitudes to Intervention Embodiments

ARCS MOTIVATION INFUSED INTERVENTION Embodiments Independent Variables	Positive Reaction = P	Negative Reaction = N or N/A- Not applicable	Rocky	Jay	Patty	Kattlin	Myra	Benji	Yvonne	Katherine	Leti
LIVE INSTRUCTOR LED WITH HANDS ON EXERCISES FEEDBACK EMAIL, INSTANCE	Engaged in social interaction, ask questions, gets feedback and gains confidence on task, express value	Did not feel the class met their learning goals	P	P	P	P	P	P	P	N/A	N/A
WEB-BASED SELF DIRECTED LEARNING IN CANVAS	Spent time reviews videos, satisfied with ease of access (LMS)	Did not spend much time because of complexity of LMS or did not make time to see content.	P	P	N	P	N	P	P	P	N
A. VIDEO RECORDINGS OF PRESENTATON SCREEN CAPTURE WITH AUDIO	Went back to see 2 hr video as reminder	Did not see any or saw it and complained about some element of the recording	N	P	N	N	N	N	P	N	N
B. QUIZZES	completed, saw it as challenging and related to the content covered in class	Did not complete or completed it and had a complaint on format	N	N	N	N	N	N	N	N	N
C. DISCUSSION FORUMS	engage in sending questions and discussions with peers	Did not participate at all	N	N	N	N	N	N	N	N	N
D. SHORT VIDEO TUTORIALS 3-5 MINUTES	review to refresh content form class or to aid with solving a problem	Did not view any of videos	P	P	P	P	P	P	P	P	P
E. POWER POINT DOWNLOADS FOR PRINTING	seen as useful, print it for themselves or other's at work	Did not see module or download job aids	P	P	P	P	P	P	P	P	P
F. VIRTUAL ILT 2 HR SYNCHRONOUS WITH BREAKOUTS AND CHAT ROOM INTERACTION, MUTE AND UNMUTE OPTIONS	asks questions, teacher interaction, technology not a barrier	Did not attend or attended and was not satisfied with virtual class activities	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N	P

Summary of Enrollment Activity

This section attempts to make a connection between the data collected on individual course enrollment and the intention to learn post instructional intervention. The course enrollment and attendance records for each of the nine subjects interviewed demonstrate their intention to attend more Web-based courses related to grants administration and financial management of projects. Acknowledging other factors may predict adult learners intent to participate in future Web-based training courses, ranging from computer self-efficacy, years of computer use, internet experience in this type of systems class (Lim, 2001, p 41) the data reflected in course enrollment in courses sponsored by ORED and or University Finance, (there is duplicity between sponsored and non sponsored projects and expenditure controls and reporting), their behavior shows a positive relationship between the learners self –reported satisfaction, feeling that it was relevant, confidence in their ability to learn and apply what they learned about ORACLE systems in the blended course. It helps to demonstrate a propensity of these subjects to continue to seek more training (system and grants business process virtual courses) in web-based and use the LMS for supporting course job aids. To be transparent, the majority of these courses were offered after the institution instituted restrictions on classroom teaching. However, the point made here is more about the motivation to continue to learn about these systems, whether tech-enhanced or, in some cases, completely web-based.

Participants of the study continued to enroll in more financial systems courses related to sponsored projects, research, and awards training sessions offered by the Office of Research and Economic Development. This behavior is an interesting phenomenon and could partly be attributed to the motivation components in the instructional design. The findings summarized in Table 6 indicate the following expected outcomes.

Table 6.

Summary of Enrollment Activity per Individual

Participant	Self- Course Enrollment Activity (Post Intervention)
Patty	She took one more live-class two days after GCAR 120 taught by the same instructor
Rocky	He enrolled in 10 more classes after the intervention. The classes were all financial systems classes; he averaged 2 per month 4 live sessions, 6 virtual more focused on accounting in and project adjustments, ledger rules taught by the University Controller same system. (He was very interested in Ledgers and expressed it during the GCA live session).
Joy	She focused her attention on completing a SPACE Certification program but also enrolled in 9 sessions through May 2020-October 2020, all web-based sessions in the SPACE Certification classes. Expense Reporting, those classes related to the administrative work she did in another procurement, but they were canceled.
Katherine	She signed up for all kinds of classes on April 6th; she attended a blended course, and since then had she also in other expenses and procurement reporting live sessions that were canceled due to Covid-19. She enrolled in and completed a total of 14 classes. Eight were financial systems (ORACLE) for non-sponsored projects – a similar process. She works on both sponsored and non-sponsored projects in a small unit.
Myra	She took more financial management courses on Tableau report and registered for the SPACE Certificate program and continued her advanced level classes in the SPACE Certification program. More advanced project adjustments and General Ledger Reporting for non-sponsored projects.
Leti	She continued taking SPACE classes, and she took 4 more GCA advanced reporting classes through July 2020

Yvonne	As an accountant focused on budgets, she likes to view CANVAS videos rather than attend the videos. She watches what she needs with a focus on FM systems tutorials.
Benji	She attended SPACE for grants and research, non-system web-based training sessions from may
Katlin	She did not attend any more training via the institution registration system. She took many courses before attending GCA 120

CHAPTER V

Discussion

Conclusion

The literature reviews and the data collection consisting of observations, surveys, LMS usage, and in-depth interviews helped to address the research questions posed in this study and were an opportunity to move forward in designing effective research-based systems training. The goal was to produce well-designed learning environments with guidance from the ARCS model that were user-centered and motivated professionals to learn in the workplace. The data collected in this small-scale study suggests that employees' learning goals are mostly motivated by short-term goals to perform their job efficiently. The analysis of the ARCS motivation factors in the design and what the subjects reported as motivational factors contribute to the evidence that blended learning design can be created as a tool for the employee to self-regulate their learning at work. Additionally, the live sessions and the role of the instructor in guiding their learning and in accomplishing individual learning goals is key to their success in their work performance.

Other interesting findings surfaced that had more to do with the social element of learning at work. The interviewees gave high importance to social interaction that took place in the training room. They valued the feeling of being part of a community of financial administrators that support the Research University mission of advancing the researcher. As members of an academic institution, they expressed pride and were motivated to perform their job efficiently and take advantage of all employer-sponsored training opportunities when their manager allowed them the time to learn.

The literature reviewed regarding adult learning theory informed the study, user-centered design, intrinsic and extrinsic motivation, and self-directed learning preferences of adult learners. These themes dominated their narratives. Interestingly, those with more years of experience and in the institution were quick to assert that they arrived to class knowing how to do reports. They claimed that they had experiences in finance and that this experience facilitated their individual ability to learn new systems and adapt to the way the Research University administered their grants. They were willing to invest the time to participate in non-mandatory training (computer classroom, webinar, self-directed e-learning) if it provided them with the latest news, new tools, and shortcuts that would make their job easier.

Their motivation to review and engage in online learning was more about its usefulness in helping them develop the technical competencies they needed in their role as administrators of grants for their institution. They expected the training to be well planned, interesting, efficiently delivered, and relevant to their day to day work reality (Knowles, p. 45-52).

Finally, understanding their motivation is complex; more research needs to be conducted with a larger sample of grants administrators. Nonetheless, the findings of this study have implications for the practice of employee training. It makes us have, at minimum anecdotal evidence that when it comes to learning environments, they must be infused with motivation elements that create attention, relevance, confidence, and satisfaction in the learner using them (Keller, 1980). Furthermore, training developed for employees, blended or not, must be informed by theories of motivation, andragogy, self-regulated learning. It must be designed to speak to the learning preferences of professionals and their intrinsic motivation process.

The professionals interviewed were exposed to a redesigned training, and they used what they needed to learn when they needed to know it. They also held strong feelings about barriers to learning created by the learning management system's complexities. They chose the learning resources that were easy to find to accomplish their tasks. All of the interviewees found social interaction with their community of research and grants administrators was an avenue to more knowledge about their tasks and their field.

More broadly, when implementing systems training for employees in a given role, their general learning needs should also inform the develop the curriculum; however, infusing the design of the training with motivational elements will positively motivate employees, adult learners, to engage in the workplace learning.

Summary of Motivation Outcomes

What the interviewee's narratives revealed is summarized in the list below:

- They go to training not to get grades, but because they want to learn to do their job

- They go to training because they are encouraged by their managers to develop skills in the use of the system to help them and the department.

- They go to training because they want to learn to use the tools of their field- grants finance, whether it is their job or part of the process of researchers they work with daily.

- They go to training to be *in the know,* to be up to date, and to share information with their work colleagues, to train people that report to them when that's the case

- They go to training because it's expected because the university offers them the opportunity to learn and the time to invest in training

- They go to training because it is a structured way to learn or confirm the things they have already "figured out" on their own before classes were offered in the current instructor-led format.

- They go to training because they want to learn as much so that they can advance professionally in their field and be a better rounded job.

- They go to training in case their role and responsibilities change or get a promotion within their department.

- They are motivated to return to training mostly based on the instructor's ability to teach and is perceived to care about their needs as employees and administrators of the institution.

- They are motivated by the instructor's ability to shift course, ad-lib and create a comfortable classroom setting that permits discussions, and ensures their questions are answered either in the moment or via email

- They are motivated by an instructor that is knowledgeable of the system, is organized in sharing the information.

- They are motivated by an instructor who has a strong understating of what questions they need to be answered and is prepared to teach- whether it is live or virtually.

- They seek out training with instructors that they find to be competent at teaching and know-how to apply the training in the University context, not just the mechanics of the software.

This is a list of expectations that should be met by the training designed to motivate these professionals to enroll in more work sponsored training.

Strengths and Limitations

Limitations are expressed and identified here in regard to the interpretation of the results. The instructor for the sessions was made aware of the high-level conjecture in the design and purpose of the research and what the researcher expected to see as the outcome of the redesign of the course. Although this could be considering as a threat to internal validity, the instructor worked from an established curriculum; she was familiar with all the online content. The instructor collaborated with the researcher to ensure that the participants in the study were exposed to the same training content by using her teaching skills, modifying some of the way exercises were conducted, and time dedicated to orienting participants on CANVAS courses.

Researcher's Role and Position

The researcher was both an insider and an outsider. The researcher worked at the university where the study was conducted and held the role of Training Director on various employee financial systems training projects. Still, in many senses, the researcher also was an outsider, as she was not currently responsible for the training administered by the Office of Research and Economic Development where the data were being collected, nor was the researcher responsible for creating or teaching any of those classes. The researcher also was more involved with the project management side of systems training. The researcher was a full-time member of the Finance and Administration management staff within the University Finance and Administration office and reported to the Associate Vice President, Project Executive Management, who reports to the University Treasurer. As a member of the University Finance and Administration Office, several participants had seen her in the Grants and Contracts Accounting activities in the past. However, the

researcher was clear about positionality and role, both related to the research and responsibility for improving university financial systems training programs.

Given the researcher's dual role, the researcher felt it was essential to clarify that this study focused on contributing to a design-based research study. The researcher's personal experience with teaching, technology, and administration demonstrated that the meaning and use of technology are constructed based on each individual's perspective and motivation. Specifically, it is possible that the researcher's relationship with administrators in both university-wide finance and research administration gave them pause in participating in the e-learning discussion forums created for the course.

After March 13[th,] the ideal classroom environment to conduct hands-on activities changed. The facility was closed, and the instructor was required to adapt the course to a fully online web-based environment that created limitations in terms of how students conducted the computer exercises and her ability to monitor their progress remotely. I acknowledge that the remote environment was not initially planned to occur in that way, so it may not have been ideal and required more planning to simulate the live classroom environment. The Covid-19 event impacted the number of subjects recruited and also made it impossible to create an interactive focus group as originally proposed, so conduct data collection. Additionally, the final sample of nine subjects is too small to discern reliable conclusions that can be generalized throughout different groups that perform grants administration tasks at the research institution.

Recommendations

In particular, the short term focus of this study where the subjects were not followed more than the length between the course and the interview can be extended. The participants can be

followed for a period of one year to track if their self-reported intention to continue attending the course at work occurs. Also, there may be differences between the work experiences of those grants administers, accountants, new grants specialists that may have an additional impact on their motivation to learn with blended design. That may be an opportunity for further research on adult learning and self-directed learning in the workplace.

Past research cited in this paper indicates that motivation to learn is a good predictor of learning outcomes (Ford & Noe, 1987). This study examined motivation and affective outcomes like course satisfaction, reflected in the learner's reaction to the embodiment in the blended course. Affective reactions are considered important course outcomes (Kirkpatrick, 1996). Motivation to learn appeared in the participant's effort in the online course and during the classroom exercises and in their enrollment in future online courses at work. Motivation is critical for learning, this link between motivation to learn and learning is also well documented by Keller (2009).

Limitations regarding the measurement of concrete learning outcomes are acknowledged. The self- assessment quizzes created to gather course performance (resulting in learning) were not completed by all participants. Although all the participants interviewed reported that they felt confident in their ability to perform the tasks covered in the course, the learner's mastery of the course content was not assessed. For future research, a recommendation is to administer a content pre-test instrument at the beginning of the course and another post-test at its conclusion (during the live classroom portion) to measure learning. Additionally, another self- assessment can be administered a month after the course to gauge if they transferred course knowledge to their job.

Implications for Workplace Training

An institution like Research University has an opportunity to create an institutional culture that encourages continuous employee learning and improves their ability to adapt to newly

implemented administrative systems. They can achieve this through the use of effective blended

training. Particularly while more employees are alone, working from home, *figuring things out on*

their own because they cannot turn to their neighbor in the next cubicle for help, effective systems

training that motivates them to build understanding and technology self-efficacy is crucial in

sustaining a knowledgeable and skilled workforce.

In the current post-COVID environment where university professors in universities are

adapting their lectures and using more hybrid instructional models to educate college students, there

is no valid reason why those tools cannot be used to train the employees that support them.

The technology that exists can support research-based hybrid employee training. What this

small study revealed was that employees are self-directed learners and eager to learn more when

they are given a chance. They want to learn, and if ARCS motivational elements are purposefully

integrated with designing employee training courses, they will. The investment in making training

interesting, relevant, satisfying is minimal. Given these findings, the institution has an opportunity

to support the creation of a user-centered online content that is hosted in a less complex learning

management system that meets the needs of employees to search of courses on their own; they can

see this feedback as an opportunity to test similar models for other users of financial systems. They

can create e-learning courses that are easily accessible, relevant, visually attractive, self-paced, and

complement hands-on computer training sessions with the presence of a qualified instructor that

understands how adults learn and how they can be motivated. A blended training course should also

take into account a social component. This social component encourages peer to peer knowledge

transfer that can take place in a live classroom or a synchronous virtual classroom with the guidance

of an instructor they trust. The online course must also contain real scenarios exercises for the

learners to solve. The information must be current, reliable, and comprehensive. This motivational

training design will prepare employees to be successful at performing their job and motivated to continue to learn in the workplace.

Summary of Dissertation

The aim of this dissertation was to find evidence with the use of an instructional design intervention that confirms the use of Keller's ARCS (attention, relevance, confidence, and satisfaction) model of motivational in the redesign and development of a *blended learning (classroom and e-learning)* course on grants and contracts accounting systems, and produces positive learning outcomes and encourage employees to engage in learning in the workplace. A case study approach and using qualitative research methods allowed the in-depth exploration and understanding of employee's attitudes and motivation for learning. The intervention was prototyped, then tested before the selection of the nine subjects who were part of this study. Relevant studies on e-learning, motivation, adult learners in the workforce were reviewed. With a case study approach, the data collected in the form of observations, report analytics, and in-depth interviews provide the narratives that answered the research questions. Tables and figures present the interface of motivational and instructional design, motivational categories of the ARCS Model, the conjecture map guiding the embodiments of the course design for a blended course, and suggestions for future e-learning course development.

The main objective of design-based research has been reached. It helps in the understanding of motivational elements integration with the expectation that employees will have an increased desire to engage in workplace systems training. The information gathered to support the conjecture was comprehensive; however, the findings of this small case study may require a bigger sample for its findings and conclusion to be generalizable throughout other similar research institutions.

References

Alonso, F., López, G., Manrique, D., & Viñes, J. M. (2005). An instructional model for web-

    based e-learning education with a blended learning process approach. *British Journal of*

    educational technology, *36*(2), 217-235.

Anderson, T. (2008). *The Theory and Practice of Online Learning*. S.L: Athabasca

    University Press.

Association for Talent Development. (2017). State of the Industry. Alexandria, VA: ATD Press.

Astleitner, H., & Wiesner, C. (2004). An integrated model of multimedia learning and

    motivation. *Journal of Educational multimedia and Hypermedia*, *13*(1), 3-21.

Branch, R. M. (2009). *Instructional design: The ADDIE approach* (Vol. 722). Springer Science

    & Business Media.

Berge, Z., & Muilenburg, L. (2000). Barriers to distance education as perceived by managers and

    administrators: Results of a survey. *Distance learning administration annual*, *2000*.

Beynon, M. (2007). Computing technology for learning-in need of a radical new conception.

    Journal of Educational Technology & Society, *10*(1).

Branch, R. M. (2009). *Instructional design: The ADDIE approach* (Vol. 722). Springer Science &

    Business Media.

Brookfield, S. D. (1990). The skillful teacher. *San Francisco:]'ossey~ Bass*.

Chan, S. (2010). Designing an Online Class Using a Constructivist Approach. *Journal of Adult*

    Education, *39*(1), 26–39

Compeau, D. R., & Higgins, C. A. (1995). Computer self-efficacy: Development of a measure

    and initial test. *MIS quarterly*, 189-211.

Cook, D. A., Beckman, T. J., Thomas, K. G., & Thompson, W. G. (2009). Measuring

    motivational characteristics of courses: applying Keller's instructional materials

    motivation survey to a web-based course. *Academic Medicine*, *84*(11), 1505-1509.

Creswell, J. W., & Creswell, J. D. (2017). *Research design: Qualitative, quantitative, and mixed*

    methods approaches. Sage publications.

Ellinger, A.D. (2005). Contextual factors influencing informal learning in a workplace setting:

    the case of "Reinventing Itself Company". Human Resource Development Quarterly,

    16(3), 389-415.)

Ellis, R. A., Ginns, P., & Piggott, L. (2009). E-learning in higher education: Some key aspects

    and their relationship to approaches to study. *Higher Education Research &*

    Development, *28*(3), 303-318.

Ford, J. K., & Noe, R. A. (1987). Self-assessed training needs: The effects of attitudes toward

    training, managerial level, and function. *Personnel Psychology*, *40*(1), 39-53.

Gall, M. D., Gall, J. P., & Borg, W. R. (2014). *Applying educational research: How to read, do,*

    and use research to solve problems of practice. Pearson Higher Ed.

Giannoukos, G., Hioctour, V., Galiropoulos, C., & Besas, G. (2017). New Technology in

    Education. *Journal of Educational and Social Research*, *7*(1), 9-12.

Hager, P. (2004). Lifelong learning in the workplace? Challenges and issues. *Journal of*

    Workplace Learning.

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

    environments: Complex, multifaceted and situation-dependent. *The International Review*

    of Research in Open and Distributed Learning, *12*(6), 20-38.

Keller, J. M. (2009). *Motivational design for learning and performance: The ARCS model*

    approach. Springer Science & Business Media.

Kirkpatrick, D. (1996). Revisiting Kirkpatrick's four-level model. *Training and*

    development, *50*(1), 54-59.

Kirkpatrick, J. D., & Kirkpatrick, W. K. (2016). *Kirkpatrick's four levels of training evaluation*.

    Association for Talent Development.

Knowles, M.S., Holton, III, E.F., & Swanson, R.A. (2005). The Adult Learner, 6th ed.

    Burlington, MA: Elsevier.

Kozma, R. (2001). Robert Kozma counterpoint theory of learning with media. *Learning from*

    media: Arguments, analysis and evidence, 137-178.

Lepak, D. & Gowan, M. (2016). Human resource management: managing employees for

    competitive advantage. 3rd ed. United States of America: Chicago Business Press.

Lim, C. K. (2001). Computer self-efficacy, academic self-concept, and other predictors of

satisfaction and future participation of adult distance learners. *American Journal of Distance Education*, *15*(2), 41-51.

Lim, H., Lee, S. G., & Nam, K. (2007). Validating E-learning factors affecting training

effectiveness. *International Journal of Information Management*, *27*(1), 22-35.

Ljubojevic, M., Vaskovic, V., Stankovic, S., & Vaskovic, J. (2014). Using supplementary video

in multimedia instruction as a teaching tool to increase efficiency of learning and quality

of experience. *The International Review of Research in Open and Distributed Learning*, *15*(3).

Margaryan, A., Littlejohn, A. & Milligan, C. (2013). Self-regulated learning in the workplace:

strategies and factors in the attainment of learning goals. *International Journal of Training and Development,* 17:4, 245-259. https://doi.org/10.1111/ijtd.12013

Means, B., Toyama, Y., Murphy, R., & Baki, M. (2013). The effectiveness of online and blended

learning: A meta-analysis of the empirical literature. *Teachers College Record*, *115*(3), 1-

47.

Merriam, S. B., Caffarella, R. S., & Baumgartner, L. M. (2007). *Learning in adulthood: A comprehensive guide*. John Wiley & Sons.Moshinskie, J. (2001). How to keep e-learners from e-scaping. *Performance Improvement*, *40*(6), 30-37.

Nederveld, A., & Berge, Z. L. (2015). Flipped learning in the workplace. *Journal of Workplace Learning*, *27*(2), 162-172.

Njoo, M., & De Jong, T. (1993). Exploratory learning with a computer simulation for control

theory: Learning processes and instructional support. *Journal of Research in Science*

Teaching, *30*(8), 821-844. https://doi.org/10.1002/tea.3660300803

Noe, R. A., & Wilk, S. L. (1993). Investigation of the factors that influence employees' participation

in development activities. *Journal of Applied Psychology*, *78*(2), 291.

https://doi.org/10.1037/0021-9010.78.2.291

Noe, R. A. (2018*). Employee Training and Development*, 7e. McGraw-Hill Education.

Norman, D. (2013). *The design of everyday things: Revised and expanded edition*. Constellation.

Olesen, H. S., Scheeres, H., Solomon, N., Boud, D., & Rooney, D. (2010). When is it Ok to learn

at work? The learning work of organizational practices. *Journal of Workplace Learning*.

2010;22(1/2):13-26. https://doi.org/10.1108/13665621011012825

Osguthorpe, Russell, T, Graham, Charles R. Quarterly Review of Distance Learning 2003 Vol

 4(3) p. 227-333

Ozturan, M., & Kutlu, B. (2010). Employee satisfaction of corporate e-training programs.

Procedia-Social and Behavioral Sciences, *2*(2), 5561-5565.

Workplace. *Industrial and Commercial Training*, *46*(3), 155-164.

Saldana, J. (2009). *The Coding Manual for Qualitative Researchers*. Sage

Sambamurthy, N., & Cox, M. (2013, October). A Review of the Literature: Understanding Best

Practices of Blended Learning in Industry and Academia. In *E-Learn: World Conference*

on E-Learning in Corporate, Government, Healthcare, and Higher Education (pp. 2084-

2084). Association for the Advancement of Computing in Education (AACE).

Schrum, L. (1999). Technology professional development for teachers. *Educational*

technology research and development, *47*(4), 83-90.

Sharpe, R., Benfield, G., Roberts, G., & Francis, R. (2006). The undergraduate experience of

blended e-learning: a review of UK literature and practice. *The higher education*

academy, 1-103.

Stahl, G., Koschmann, T. D., & Suthers, D. D. (2006). *Computer-supported collaborative*

learning.

Song, S. H., & Keller, J. M. (1999). The ARCS Model for Developing Motivationally-Adaptive

Computer-Assisted Instruction.

Tellis, W. M. (1997). Application of a case study methodology. *The Qualitative Report*, *3*(3),

1-19.

Tiernan, P. (2014). Examining the use of interactive video to enhance just in time training in the

Yanghee Kim & Jeffrey Thayne (2015) Effects of learner–instructor relationship-building

strategies in online video instruction, Distance Education, 36:1, 100-114.

Zhao, X., & Namasivayam, K. (2009). Post-training self-efficacy, job involvement, and training

effectiveness in the hospitality industry. *Journal of Human Resources in Hospitality &*

Tourism, *8*(2), 137-152.

Zimmerman, B. J., & Martinez-Pons, M. A. N. G. E. L. (1992). Perceptions of efficacy and

strategy use in the self-regulation of learning. *Student perceptions in the classroom*, 185-

207.

Appendix A:

GCAR120 Motivation Evaluation Survey

Q1 **Training Evaluation - GCA 120 ORACLE Reporting Introduction**
   We appreciate your feedback regarding this session. Your input is valuable in helping us to improve the design of this course and its online content. Please take   5 minutes to answer the questions regarding your experiences in this session. Your responses are confidential and will only be seen by the researcher. Only summaries of total responses will be reported to the instructor, with no identifiers. Thank you for your participation.

Start of Block: Question 1

Q3 Please enter date of session in space provided.

  ○ Date (mm/dd/yyyy) (1) _____

- -

Q4 Please select the name of the instructor(s) who taught the session.

█████

████ (9)

- -

Page Break —————————————————————————————————

Q5 Overall, how do you rate the training session?

○ Excellent (1)

○ Good (2)

○ Average (3)

○ Poor (4)

○ Very Poor (5)

Q6 Please indicate your level of agreement with the statements below regarding the session.

	Strongly Agree (1)	Agree (2)	Neutral (3)	Disagree (4)	Strongly Disagree (5)
The training/systems course met my expectations. (1)	○	○	○	○	○
I will be able to apply the knowledge learned on the job. (2)	○	○	○	○	○
The training objectives for each topic were identified and followed. (3)	○	○	○	○	○
The content was organized and easy to follow. (4)	○	○	○	○	○
The instructor encouraged class participation and interaction. (5)	○	○	○	○	○
Adequate time was provided for questions and discussion. (6)	○	○	○	○	○
The computer exercises added value to the course (7)	○	○	○	○	○
The visual demonstrations were relevant to the work I do. (8)	○	○	○	○	○

End of Block: Question 1

Q7 In the questions below we are asking you about the ways in which you helped yourself learn material in this Introductory Blended course (live session with computer exercises).

Q8 In this training, to what extent did you use the following procedures to help yourself learn?

	Not at all (23)	Very rarely (24)	Quite often (25)	Very often (26)	Extremely often (27)
SR1. When I was bored, I forced myself to pay attention (1)	○	○	○	○	○
SR2. When my mind began to wander during the training, I made a special effort to keep concentrating (2)	○	○	○	○	○
SR3. I increased my effort when the material did not really interest me (3)	○	○	○	○	○
SR4. I pushed myself even harder when I began to lose interest (4)	○	○	○	○	○
SR5. Whenever I lost interest in my work, I made a special effort to pay attention (5)	○	○	○	○	○

Q9 The following questions ask about your motivation for and attitudes about this class. Use the Likert scale below to answer the questions.	Extremely True of Me (23)	Moderately True of Me (24)	Slightly True of Me (25)	Neither True or Not True of Me (26)	Slightly Less True of Me (27)	Moderately Less True of Me (28)	Extremely Not True of Me (29)
In a class like this, I prefer course material that arouses my curiosity, even if it is difficult (60)	○	○	○	○	○	○	○
When I have the opportunity in this class, I choose course assignments that teach me the system (61)	○	○	○	○	○	○	○
It is important for me to learn the course material in this class. (62)	○	○	○	○	○	○	○
I am very interested in the content area of this course. (63)	○	○	○	○	○	○	○
The most satisfying thing for me in this course is trying to understand the content as thoroughly as possible. (64)	○	○	○	○	○	○	○

I think the course material in this class is useful for me to learn. (65)	○	○	○	○	○	○	○
Understanding the subject matter of this course is very important to me. (66)	○	○	○	○	○	○	○
I want to do well in this class because it is important to show my ability to my family, friends, employer, or others. (67)	○	○	○	○	○	○	○
In a class like this, I prefer course material that really challenges me so I can learn new things. (68)	○	○	○	○	○	○	○

End of Block: Block 7

Start of Block: Block 4

Q10 What aspects of the live computer lab training session could be improved? Please provide specific recommendations.

_____

_____

_____

_____

_____

Q11 What type of online content would add values to the course (Example: practice exercises, online quizzes, videos, printable job aids, collaborative forums with peers, Q&A sections, Webinars with the instructor, etc.)

_____

_____

_____

_____

_____

Q12
Thank you for your responses. If you would like to be part of a research study about GCA training that will be conducted in collaboration with the ORED/GCA team starting in January, please provided your contact information below or call Wanda Colon , MBA, MA, Doctoral student and UFA PMO Director, Training & Employee Development (848) 932- 9932/ email wanda.colon@rutgers.edu . If you choose to participate in this research you will be sent a link for consent. You will also receive $10 gift card for your participation as a token of my appreciation.

_____

_____

_____

_____

Q13 Optional: Please provide your contact information here if you want to be contacted.

_____

_____

_____

_____

_____

Appendix B

Blended Design and links to Mediating processes

| Blended Systems Course for Workforce employees - technology-enriched learning environment Intervention / Experiment 2hr Course with ILT/ hands-on exercises in training instance with online content (interactive videos, feedback, power points modules with voice-over)	**Details: High-Level Conjecture and Link to Medicating Processes** Using a technology-enriched instructional design intervention in the workplace, a knowledge bridge can solve problems of technology self-efficacy for adult learners when using systems related to their business function. A user-centered *blended design* (classroom and online instruction) will incorporate motivational aspects of workforce learning, task engagement, values, relevancy, and satisfaction with the learning experience that will lead to learner willingness to learn in the workplace.
Live Class with hands-on computer activities	Teacher is accessible to talk during various parts of the class. The teacher can introduce subjects, prompt discussions, and provide immediate feedback on real work questions to employees in the class. - Links to the following outcome: Increased **motivation** and interacting with peers and teacher -per focus group feedback - Sees course as relevant to their work
Virtual	CANVAS (Learning Management Systems Platform with email notification, feedback, video productions, quizzes, document libraries) Links to the following mediating process: - Virtual technology platforms create virtual environments for teacher and learner interaction. - Allows for self-paced learning at work
Blended Synchronous (Virtual Instructor-Led (during Covid-19 work from home)	Links to the following mediating process: - Increased expectation of success in class (self-efficacy) because there is less isolation and immediate opportunities for feedback. - Increase interest for tasks and work-related technology as they can access information online if they forget what they learned in the classroom
Video (short tutorials with voiceover and guided prompts)	The introduction of interactive videos with embedded quizzes and prompts, a short topic allows for the use of specific vignettes with knowledge self-checks for learners to check on their understanding. Links to mediating process: - Increased expectation of success in class (self-efficacy) - Increased interest for tasks and course topic

Appendix C

Qualitative Methods Research Plan

Method: Qualitative Exploratory Research Design	
Sample	❖ Site: University ❖ A purposeful sample of subject matter instructors, business managers, staff, project investigators, financial system administrators
Data Collection	❖ 50 (potential responses) of ILT course participant's questionnaires (3 open-ended questions) ❖ Canceled- Covid-19 Restriction on the face- to –face research as of March 13, 2020: 0 Semi-structured, focus groups (5-7 participants) protocol ❖ Observation of 3 live sessions (to observe interaction as Instructor guides participants to an online environment) ❖ 13 in-depth Interviews protocol (administrators/ instructors, employee participant) protocol ❖ Documents: instructional artifacts (CANVAS and WebEx TC platform shared screens)
Data Analysis	❖ Table of Course Evaluation Survey -Text responses only ❖ Identify volunteers from questionnaires and recruitment effort ❖ Coding for emergent themes ❖ Categories, Theme identified ❖ Qualitative analysis of Observations and In-depth Interviews ❖ LMS User Reports
Researcher Role	❖ Consider the "insider" status ❖ Authority with systems subject matter instructors

Validity, Reliability, Ethics	❖ 2 Participants checked the transcript and preliminary analysis
	❖ Triangulation: interviews, documentation analysis
	❖ Use of observation protocol
	❖ Written permission; informed consent (confidentiality, assurances); availability of transcriptions & findings; IRB

Appendix D

Documents/ Artifacts of Blended Design
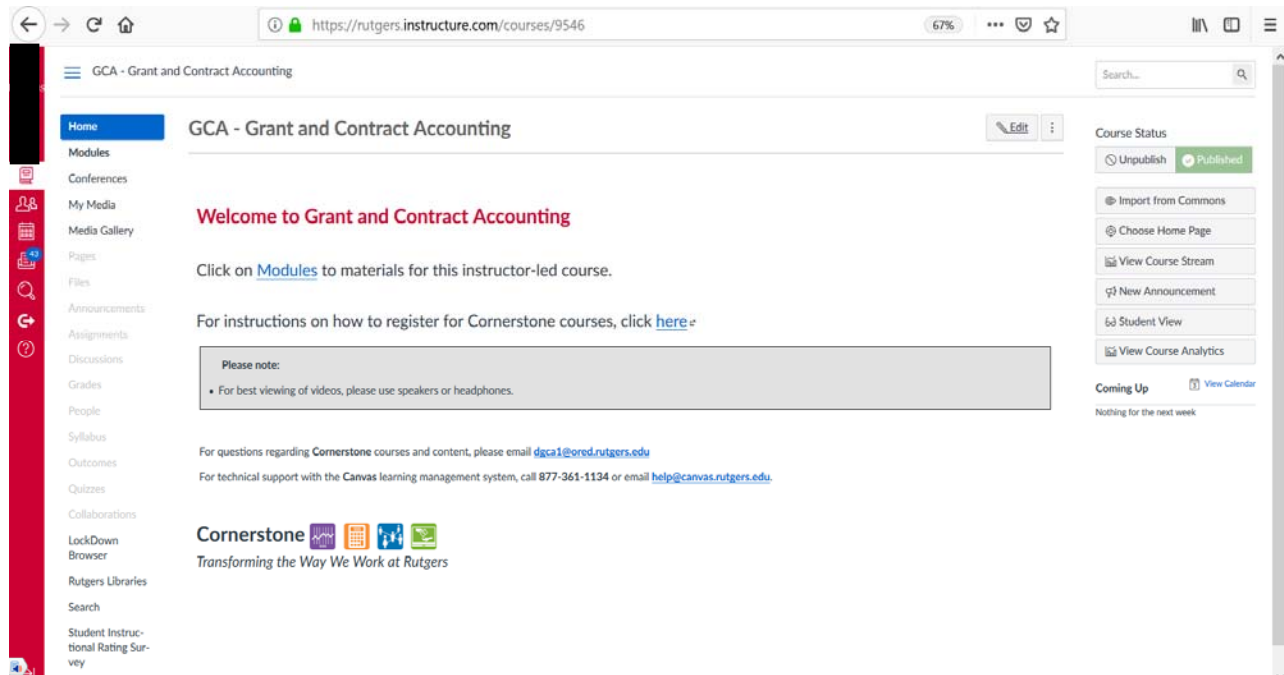
Video in Canvas – Step by Step Guidance to Portal - ORACLE Applications- Awards, FMS,

Projects

Page 1 of 6

Video of Macros in Excel Step by Step Tutorial

GCA-R- 120 Reporting Course Rationale

Page 3 of 6

Virtual Instructor-Led 2-hr Training -WebEx Platform
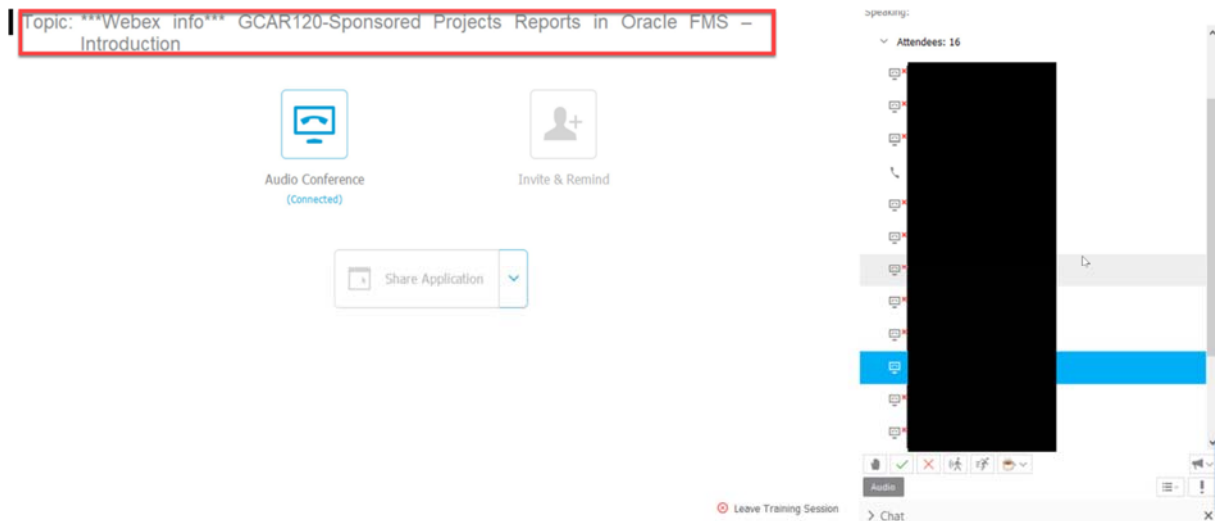
Virtual Instructor-Led Session – Screen Images Navigation to Resources in other Websites

During the Webinar, the instructor walks students through the Controller's Office website and

allows them time to search for webpages relevant to their work.

Virtual White Board—Notes for Students

Within the Web-based training sessions, the instructor wrote some terms as if she was in a classroom with a whiteboard.

Page 5 of 6
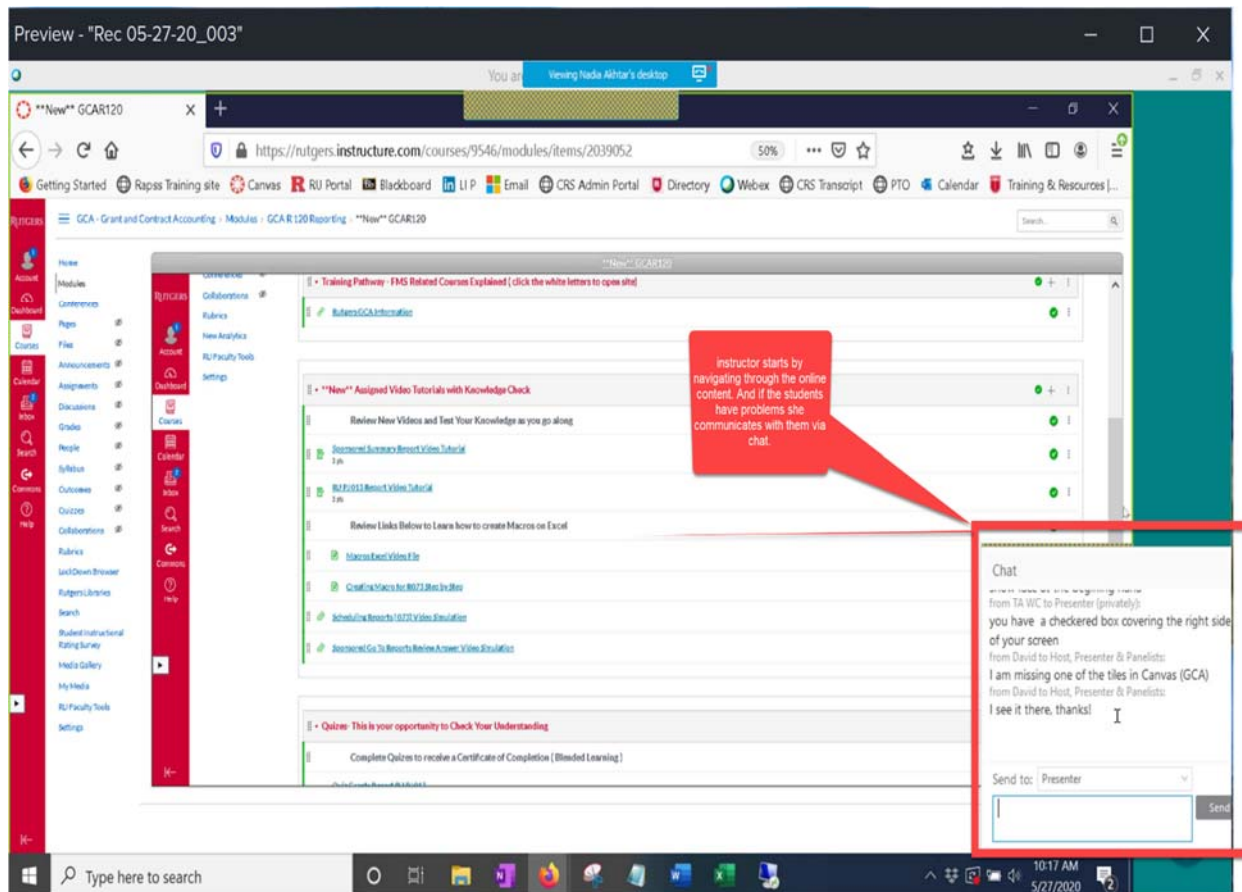
Chat Room Discussions: The Instructor navigates through the online content and answers questions in the chat room.

Page 6 of 6

TECHNOLOGY-ENRICHED TRAINING AND MOTIVATION   162

Appendix E

Motivation Survey Responses Results

The following is a summary of the results from 20 participants who took part in the GCAR

120 sessions between February 4, 2020, and April 15, 2020, in the Training Room located at a

University facility with instructor. Surveys not conducted during the webinar sessions that followed.

Date (mm/dd/yyyy)
02/04/2020
02/04/2020
01/14/2020
03/04/2020
02/04/2020
02/05/2020
04/15/2020
03/05/2020
03/04/2020

Please select the name of the instructor(s) who taught the session.

TECHNOLOGY-ENRICHED TRAINING AND MOTIVATION   163

#	Answer	Bar	Response	%
1	Nadia Akhtar		19	100.00%
9	Nazam Mohammed		0	0.00%
	Total		19	100.00%

03/04/2020

Page Break —————————————————————————————

Overall, how do you rate the training session?

#	Answer	Bar	Response	%
1	Excellent		8	44.44%
2	Good		9	50.00%
3	Average		1	5.56%
4	Poor		0	0.00%
5	Very Poor		0	0.00%
	Total		18	100.00%

Page Break

Please indicate your level of agreement with the statements below regarding the session.

#	Question	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Response	Average Value
1	The training/systems course met my expectations.	10	9	1	-	-	20	1.55
2	I will be able to apply the knowledge learned on the job.	11	6	3	-	-	20	1.60
3	The training objectives for each topic were identified and followed.	10	9	1	-	-	20	1.55
4	The content was organized and easy to follow.	9	9	2	-	-	20	1.65
5	The instructor encouraged class participation and interaction.	13	6	1	-	-	20	1.40
6	Adequate time was provided for questions and discussion.	12	7	1	-	-	20	1.45
7	The computer exercises added value to the course	14	5	1	-	-	20	1.35
8	The visual demonstrations were relevant to the work I do.	12	5	3	-	-	20	1.55

Page Break

#	Question	Not at all	Very rarely	Quite often	Very often	Extremely often	Response	Average Value
1	SR1. When I was bored, I forced myself to pay attention	6	7	3	2	1	19	24.21
2	SR2. When my mind began to wander during the training, I made a special effort to keep concentrating	6	6	2	3	2	19	24.42
3	SR3. I increased my effort when the material did not really interest me	9	5	3	2	-	19	23.89
4	SR4. I pushed myself even harder when I began to lose interest	12	4	1	1	1	19	23.68
5	SR5. Whenever I lost interest in my work, I made a special effort to pay attention	11	4	2	1	1	19	23.79

Page Break

The following questions ask about your motivation for and attitudes about this class.

Use the Likert scale below to answer the questions.

#	Question	Extremely True of Me	Moderately True of Me	Slightly True of Me	Neither True or Not True of Me	Slightly Less True of Me	Moderately Less True of Me	Extremely Not True of Me	Response	Average Value
60	In a class like this, I prefer course material that arouses my curiosity, even if it is difficult	10	7	1	-	-	-	-	18	23.50
61	When I have the opportunity in this class, I choose course assignments that teach me the system	12	5	1	-	-	-	-	18	23.39
62	It is important for me to learn the course material in this class.	13	3	1	1	-	-	-	18	23.44
63	I am very interested in the content area of this course.	12	6	-	1	-	-	-	19	23.47
64	The most satisfying thing for me in this course is trying to understand the content as thoroughly as possible.	13	5	1	-	-	-	-	19	23.37
65	I think the course material in this class is useful for me to learn.	12	5	2	-	-	-	-	19	23.47
66	Understanding the subject matter of this course is very important to me.	14	2	1	1	-	-	-	18	23.39

67	I want to do well in this class because it is important to show my ability to my family, friends, employer, or others.	7	4	3	3	-	-	-	17	24.12
68	In a class like this, I prefer course material that really challenges me so I can learn new things.	9	8	1	-	-	-	-	18	23.56

Page Break

What aspects of the live computer lab training session could be improved? Please provide specific recommendations.

Text Entry
none, found it to be very sufficient
None
n/a
I think that based on what's available at the moment, the content of the lab training in very comprehensive
This is perfect
The video quality needs improvement. It was a bit unclear. I was not able to see when Nadia wrote on the white board.
Add revenue reports, maybe explain to others how the subledger and ledger interface in the beginning of the class
none well-developed base on programs available via university
N/A
I felt like there was a big gap in information that was very basic and information that was advanced. I was kind of confused who was the right audience for this class.

Page Break

What type of online content would add values to the course (Example: practice exercises, online quizes, videos, printable job aids, collaborative forums with peers, Q&A sections, Webinars with instructor, etc.)

Text Entry
I believe there is already on-line content (I haven't looked at it yet so I can't comment)
The practice exercises are very useful. Nadia is a good instructor and explains the acronyms and different terminologies well. Her instructions were easy to follow.
Printable job aids
online job aids refresher courses mini based
videos, step by step
I think the content was great and I look forward to looking through the extra material added to canvas
Real life examples of the things being taught
none
webinars; screenrecordings of the hand-on portion
This class was great as is

Page Break ————————————————

Thank you for your responses. If you would like to be part of a research study about GCA training that will be conducted in collaboration with the ORED/GCA team starting in January, please provided your contact information below or call Wanda Colon , MBA, MA, Doctoral student and UFA PMO Director, Training & Employee Development (848) 932- 9932/ email wanda.colon@rutgers.edu . If you choose to participate in this research you will be sent a link for consent. You will also receive $10 gift card for your participation as a token of my appreciation.

Text Entry
Brian.Boxer@gse.rutgers.edu
s.thomas x 57679
mfh71@ored.rutgers.edu - Muhammad Hussain

Appendix F

Observation Protocol

Observation Protocol for Adult Learners

Checklist of the content of field notes:

Space: Computer Training Room and Webex Virtual Instructor Led Session

Actors: The adult learners

The researcher will sit in near course participants to observe while the instructor provided direction on how to navigate in an e-learning LMS environment

Activities:

Tester sits in front of the laptop

Only Audio is used as not to disrupt the training process

Objects:

Guidance to Online Module

Computer

Chat Room activity *(Virtual Session)*

Acts:

Observe take field notes

Time:

2-hour time slot is scheduled for the entire event

Goals:

- o   How tester interacts with peers and instructor as use computer exercises and navigates to e-learning course modules
- o   What people feel and how they express this verbally and physically.

Reflections field notes:

- -   Discuss with team-
  - o   Transcripts – typed first 5-20 minutes

Appendix G

Protocol: Qualitative In-depth Interview (with Consent Form)

Study: Exploring the experiences and perceptions of adult learner post hybrid face-to-face and fe-learning (hybrid course) intervention to support their learning of a new systems in the work place.

Wanda Colon

Rutgers University Graduate School of Education

Review Oral Consent letter and prepare recording device.

Population – Professionals in an educational institution.

Good Morning/ afternoon. My name is Wanda Colon. Thank you very much for agreeing to participate in this interview for my Ed D Research project. The project aims to study your experiences and explore your general attitudes towards the instructional design / training programs you participated in as a learner of a system implementation at your organization.

I would like to interview you about your experiences and challenges with this type of training and learning. The interview would last about 30 minutes; with your permission I would like to audio record the interview using a tape recorder or laptop camera.

Your participation in this study is completely anonymous, your identity and place of work will not be recorded. If there are questions that you would rather not answer, please feel free to say you wish to skip the question and move on to the next question.

Data from the interview will be used solely for educational purposes to complete assignment for the Ed D program.

Participation is voluntary. If you have any further question you may contact my instructor listed on the consent form.

Do you consent to this interview?

(if yes)

Great, thank you for agreeing to support my class project.

Researcher: Begin recording.

Protocol: Qualitative Interview Continued

Proposed questions for Qualitative interview questions:

Demographics: Respondent are asked to share Demographic

- first name,
- current work
- organization type
- years of experience in that position

List of potential questions and prompts for discussion:

Quick one-word answers: Yes or No: (Researcher will start with these closed-ended questions:

(Optional- as prompts for the open-ended questions.)

1. The systems training programs I have attended have been useful for my development.
2. Most of the material in training programs I have attended have been relevant.
3. The time spent away from my job to attend training programs has been useful.
4. I have been able to apply to the job that I have learned in training.
5. I have opportunities to practice the skills cover in training on my job

(Items 1-5 were adapted from Ford & Noe, 1987 instrument.)

About the Course:

6. How would you describe your experience learning a new system?

7. What if there was no face-to-face classroom training available for you as an employee, and you needed to know the software to perform your job, was the online content introduce sufficient for you to learn to perform the tasks you need to know?

8. Were the online resources useful resource in addition to face- to- face class? If not, what would help?

9. Was the face-to-face instructor-led class effective in helping you learn the new system? Are there any benefits of learning with an instructor?

10. What type of training materials are most useful and in what format to you? Why?

11. What do you think is the best way to learn system on the job? What would motivate you to learn it?

12. Did you find any value in this course (the live session or the online modules)? Did you get anything out of it?

13. Overall, how do you feel about the training and its ability to prepare you to learn to use the software in your job?

14. Did you receive helpful feedback from your instructor?
    a. To guide you in navigating online content
    b. To help you perform the task
    c. Did the online activities help you understand the live activities in the instructor-led session? How did that translate to you work?

Questions on Individual Experience: ARCS Motivation

The following are guided open-ended question and probing questions informed by **ARCS Model** motivation categories and will provide information validating mediating processes (what I expect the learner's behaviors to be):

1. **Motivation:** Why did you take this course?

At any point, did you feel immersed in the activities you were performing in the class? Did you feel like you were wasting your time?

2. **Interest:** What was your interest in taking this course? Did you enjoy the class? How so?
3. **Experience:** Based on this experience, would you take another blended? Why or why not?
4. **ILT Presentation vs. e-Learning perceptions**: Was this the first time to took a class with e-learning assignments and exercises? Did it matter how the grants administration system tasks were presented to you?
5. **Self-Efficacy:** How confident you feel about your knowledge of the system after completing both the blended session? What did you learn?
6. **Social Interaction:** Did you find yourself talking to others in the class about your real-life tasks, your experiences with the grants finance system? Did you ask the instructor for help? Did you get feedback that helped you solve your question? Where you willing to share examples from your work during the hands-on portion of the class?
7. **Elearning Engagement:** How was your experience with the e-learning system. Did you complete the modules? How many times did you go back to the resources there?
8. **Relevance:** Did you learn anything you didn't already know that is relevant to your job as a grants administrator?
9. **Knowledge transfer:** What was the first thing you used on your job, that you learned in the course? Will this course help you perform your job? Why or why not?

Other Optional Questions:

- **Time Spent:** What was the (average) amount of time you spent on the e-learning portion of the course? Did you feel the amount of time it took to complete the Blended course was appropriate for this content? Overall, what are the strengths and weaknesses of this blended course?

- **Overall Quality:** Rate the technical quality of the course materials from 1-10 (10 being best)

- **Self-Efficacy:** How confident do you feel about your knowledge on the system after completing both the online and in-classroom session? What concepts did you learn?

- **Recommendations**: Make two suggestions to improve understanding of the course content

- **Preferences:** Would you prefer to take this course fully online or in the fully in the classroom?

- Based on this experience, would you take another blended (classroom and e-learning course)? Why or why not?

RUTGERS
University Finance
and Administration

CONSENT TO TAKE PART IN A RESEARCH STUDY:

Title of Study: Designing Technology- Enriched Training and Motivating Workforce Learning

Principal Investigator: Wanda Colon, MBA, MA, Director of Training and Employee Development Rutgers University Finance and Administration

STUDY SUMMARY: This consent form is part of an informed consent process for a research study and it will provide information that will help you decide whether you want to take part in this study. It is your choice to take part or not.

The **purpose of the research** is to explore how blended learning can be used to create motivational, user-focused, computer-assisted, and self-directed training that builds on workforce's computer systems competencies and desire to want to learn on the job. The study is to explore your experiences of higher education professionals as learners using a blended training environment. I propose to learn about their motivation, and challenges they encounter as learners. I will draw on your experiences to identify key factors that are important for computer- enhanced blended instruction to be accepted and to be effective in the workplace.

If you take part in the research, you will be asked to participate in a redesigned *GCAR 120 Sponsored Project Reports in Oracle FMS* course, complete an online survey, and participate in a focus group discussion or individual interview conducted by Wanda Colon, doctoral student at Rutgers University Graduate School of Education. This research aims to study your experiences and explore your general attitudes towards a blended course (e-learning and instructor-led) used by the university to prepare employees with role in ORACLE system to learn the finance systems application for sponsored grants reporting.

Your time in the study will take 2 hours to attend live training session, 5 minutes to complete online survey administered in the computer training session, 30 minutes to a maximum of 1 hour to attend a focus group with other participants of the course or to be interviewed individually by the researcher (your preference). You will also be asked to devote some time (approximately 1 hour) to review the online course content related to the subject taught during the instructor-led training session.

Possible harms or burdens of taking part in the study. No risks are associated with this study. The course Trainer/Instructor of the course will not be privy to video or will have access to any identifiable comments made during the focus group or interview. There are no direct benefits to you for your participation other than a $ 10 gift card for participating in the study.

An alternative to taking part in the research study is for you to take part in the research study or not to take part in it.

The information in this consent form will provide more details about the research study and what will be asked of you if you choose to take part in it. If you have any questions now or during the study, if you choose to take part, you should feel free to ask them and should expect to be given answers you completely understand. After your questions have been answered and you wish to take part in the

research study, you will be asked to sign this consent form. You are not giving up any of your legal rights by agreeing to take part in this research or by signing this consent form.

Who is conducting this study?

Wanda Colon is the Principal Investigator of this research study. A Principal Investigator has the overall responsibility for the conduct of the research. However, there are often other individuals who are part of the research team.

Wanda Colon may be reached at (848) 932-9932 (work) or (305 5286263) mobile or wanda.colon@rutgers.edu.

The Principal investigator or another member of the study team (Nadia Akhtar, Course Instructor) will also be asked to sign this informed consent. You will be given a copy of the signed consent form to keep.

Why is this study being done?

The purpose of the research is to explore how blended learning (classroom and online self-paced content) can be used to create motivational, user-focused, computer-assisted, and self-directed training that builds on workforce's computer systems competencies and desire to want to learn on the job. The study is to explore your experiences of higher education professionals as learners using a blended training environment.

I propose to learn about their motivation, and challenges they encounter as learners. I will draw on your experiences to identify key factors that are important for computer- enhanced blended instruction to be accepted and to be effective in the workplace.

Who may take part in this study and who may not?

Rutgers University professionals with a Grants Administrator **role** in the ORACLE financial systems who self-enroll in the GCAR 120 course or the GCAR 120 Refresher courses offered between January 2020- March 2020. Use <u>lay</u> language; avoid scientific terms. If the employee does not have any grants financial administration duties in the system, they will be excluded.

Why have I been asked to take part in this study?

You are being invited because you are an end-user of the ORACLE financial system, specifically the Sponsored Projects application as a project investigator, or grants account administrator who

should have competencies in running the systems generated reports covered in the course. You are expected to have skill in running these reports to perform your job.

How long will the study take and how many subjects will take part?

Between 30 to 45 university employees registered in the GCAR 120 course will participate in this study conducted at Rutgers University site 33 Knightsbridge Rd, Piscataway, NJ 08855 during January 2020 through March 2020. Your participation will not extend the length of this period, You will participate in the study only during the time you are in the course, accessing online content and interview/ focus group meeting.

What will I be asked to do if I take part in this study?

If you take part in the research, you will be asked to participate in a redesigned **GCAR 120 Sponsored Project Reports in Oracle FMS** course, complete an online survey, and participate in a focus group discussion or individual interview conducted by Wanda Colon, doctoral student at Rutgers University Graduate School of Education. This research aims to study your experiences and explore your general attitudes towards a blended course (e-learning and instructor-led) which will require you to attend a 2

hour computer lab session with an instructor, access the Oracle Financial Management application with provided credentials, review related web-based videos and tutorials, complete online quizzes integrated in course video tutorials and interact with the instructor via the CANVAS learning management space if you have questions about the course.

Video Recording /Audio:

I will ask for your permission to allow me to video record the focus group and Individual Interview session. The recording will be used for analysis by the researcher only. The recording will be stored in a locked file cabinet. Any online video content will require the researcher's private password for access.

Your signature on this form grants the investigator named as the researcher permission to record you as described above during the participation in the above referenced study. The investigator will not use the recordings for another reason than those stated in the consent form without your permission. If you do not provide permission to video record, I will ask for your permission to only audio record as an alternative method of collecting your narratives.

What are the risks of harm or discomforts I might experience if I take part in this study?

No risks are associated with this study. Additionally, the course Trainer/Instructor of the course will not be privy to video and will not have access to any of identifiable comments made during the focus group.

Are there any benefits to me if I choose to take part in this study?

There are no direct benefits of taking part in this study other than providing feedback that may ultimately improve the way grants administrators systems training is designed at the university.

What are my alternatives if I do not want to take part in this study?

There are no alternative treatments available. Your alternative is not to take part in this study.

How will I know if new information is learned that may affect whether I am willing to stay in the study?

During the study, you will be updated about any new information that may affect whether you are willing to continue taking part in the study. If new information is learned that may affect you after the study or your follow-up is completed, you will be contacted.

Will I receive the results of the research?

In general, we will not give you any individual results from the study.

Will there be any cost to me to take Part in this study?
You will not have a cost for your participation in this study.

Will I be paid to take part in this study?
You will receive a $10.00 gift card for taking part in the study which includes , course participation, focus group or individual interview, and using Canvas to review course content.

sion and or Individual Interview.

How will information about me be kept private or confidential?
All efforts will be made to keep your personal information in your research record confidential, but total confidentiality cannot be guaranteed. However, your participation in this study is completely anonymous, your identity and place of work will not be shared. If there are questions that you would rather not answer, please feel free to say you wish to not comment. Data from the focus group or Individual Interview narratives will be used solely for educational purposes. The findings of this instructional design research study will be used to inform the design of future financial systems course presented in a work

Environment. If publish or presented at a conference, all identifying labels related to your narratives or from observations will be hidden.

P

What will happen if I do not wish to take part in the study or if I later decide not to stay in the study?

It is your choice whether to take part in the research. You may choose to take part, not to take part or you may change your mind and withdraw from the study at any time.

If you do not want to enter the study or decide to stop taking part, your relationship with the study staff will not change, and you may do so without penalty and without loss of benefits to which you are otherwise entitled.

You may also withdraw your consent for the use of data already collected about you, but you must do this in writing to Wanda Colon 33 Knightbridge Rd PMO , Piscataway, NJ 08855.

Who can I contact if I have questions?

If you have questions about taking part in this study you can contact the Principal Investigator: Wanda Colon

If you have questions about your rights as a research subject, you can contact the Rutgers IRB Director at: [Arts and Sciences IRB, 335 George St., Liberty Plaza Ste. 3200, New Brunswick, NJ 08901 (732) 235- 2866] or the Rutgers Human Subjects Protection Program at (973) 972-1149, email us at humansubjects@ored.rutgers.edu., or write us at 65 Bergen St., Suite 507, Newark, NJ 07107.

Who May Use, Share or Receive My Information?

The research team may use or share your information collected or created for this study with the following people and institutions:

- Rutgers University Investigators Involved In The Study
- The Rutgers University Institutional Review Board and Compliance Boards
- The Office for Human Research Protections in the U.S. Dept. of Health and Human Services

Will I Be Able To Review My Research Record While The Research Is Ongoing?

No. We are not able to share information in the research records with you until the study is over. To ask for this information, please contact the Principal Investigator, the person in charge of this research study.

Do I Have To Give My Permission?

No. You do not have to permit use of your information. But, if you do not give permission, you cannot take part in this study.

If I Say Yes Now, Can I Change My Mind And Take Away My Permission Later?

Yes. You may change your mind and not allow the continued use of your information (and to stop taking part in the study) at any time. If you take away permission, your information will no longer be used or shared in the study, but we will not be able to take back information that has already been used or shared with others. If you say yes now but change your mind later for use of your information in the research, you must write to the researcher and tell him or her of your decision: Wanda

How Long Will My Permission Last?

There is no set date when your permission will end.

RUTGERS, THE STATE UNIVERSITY OF NEW JERSEY IRB
AUDIO/VIDEOTAPE ADDENDUM TO CONSENT

You have already agreed to participate in a research study conducted by Wanda Colon.

We are asking for your permission to allow us to *both audio and videotape* as part of the

research study. You do not have to agree to be video recorded in order to participate in

the main part of the study.

The recording(s) will be used for a*nalysis by the researcher for educational purposes only.*

The video recording(s) will not include ***identifier be utilized, but will still include full***
facial pictures to help the researcher with analysis of interaction.

The recording(s) will be stored ***in a locked file cabinet and labeled with no names or***
other identifiable information **and will only be** ***destroyed upon publication of study***
results. Any online video content will require the researcher's private password for access.

Your signature on this form grants the investigator named above permission to record you

as described above during participation in the above-referenced study. The investigator

will not use the recording(s) for any other reason than that/those stated in the consent form

without your written permission.

AGREEMENT TO
PARTICIPATE

<u>**Subject Consent:**</u>

I have read this entire consent form, or it has been read to me, and I believe that I understand what has been discussed. All of my questions about this form and this study have been answered. I agree to take part in this study.

Subject Name (Print):

Investigator/Person Obtaining Consent (Print):   Wanda Colon, Investigator

Signature: *Wanda Colon*   Date:

Appendix H

ARCS Model Categories and Mediating Processes

This form defines the categories and mediating processes in the ARCS Model used for

the e-learning portion of the Instructional Design. It guides the data collection.

Categories (ARCS Model) Keller	Definition	Questions we needed to answer to inform our motivational web-based (online) learning environment	Mediating Processes
Attention/Interest	Concentrating and maintaining one's focus during training (in classroom, or online)	What can be incorporated to gain and maintain the adult learner's attention that complements the course systems content?	Increased **interest** for tasks & work related technology ORACLE systems applications
Relevant	Relevance refers to the learner's ability to relate to the content introduced in course as valuable to their work experience.	What can be incorporated to make each session relevant to the adult learner's present experience and future expectations?	Sees course as valuable and personally meaningful and is motivated to learn
Confident	Confidence refers to learner's positive attitudes and expectation to succeed at a task in training or at work.	What can be incorporated to increase adult learners self confidence in their ability to be successful in learning the technology to their job using the systems application?	Increased expectation of success (self-efficacy)
Satisfaction	Satisfaction refers to generated positive feelings about the experience.	What can be incorporated to increase the adult learner's satisfaction interacting with the online - design (materials) ease of technology) elements so that they feel positive about the learning experience?	Positive interaction and communication with peers in class and teacher virtually. Acknowledge Benefits of online content supporting ILT class instruction.

ARCS Model Codes Categorized

Codes Categorized Map	Definitions
Motivation	Highly driven and determined to engage in workplace learning, to learn the course content and to accomplish a task
Persistence	Continuing to put effort and attention toward the training presented despite boredom or failure to make progress
Positive Attitude	Having a positive attitude
Self-Confidence (Self-Efficacy)	Sense of self-assurance in one's ability to succeed in training and perform training-related systems task.
Job Experience	Specific experience in grant administration work related tasks
Collaborations Tendencies	Interactions with other grant administrations
Willingness to Collaborate with peers	Willingness to share knowledge and work with other grant administrators
Help seeking	Seeking assistance when one has difficulty understanding concepts during training in class or online
Offering help to peers	Sharing information or assisting others while in the class or online
Attribution	Trainees' belief s about the causes of learning outcomes in achievement situations (teacher/technology/experience/peers)
Exposure to Technology	Prior Experience with financial management systems
Prior Experience with Technology /Computer enhance live class	Previous opportunities to learn with technology (self-directed modules, hybrid, webinars)
Ability and Desire to learn on the job	Ability and interest to self- initiated learning find solution to problems and discover new work related knowledge
Willingness to learn on the job	Desire to obtain new knowledge and understanding at work
Effort	The amount of time that employee trainees devote to learning
Time Management	Making time to attend live class and dedicate time for online activities (CANVAS)

Appendix I

Sample of Future Course Registration (post GCAR120)

Sample: Evidence of one participant interviewed intention to take more work-related courses –

with the Virtual IL and online self- directed course content after 4/6 GCAR Blended course

intervention.

Katherine's –Future Organization sponsored

Course Registration Record

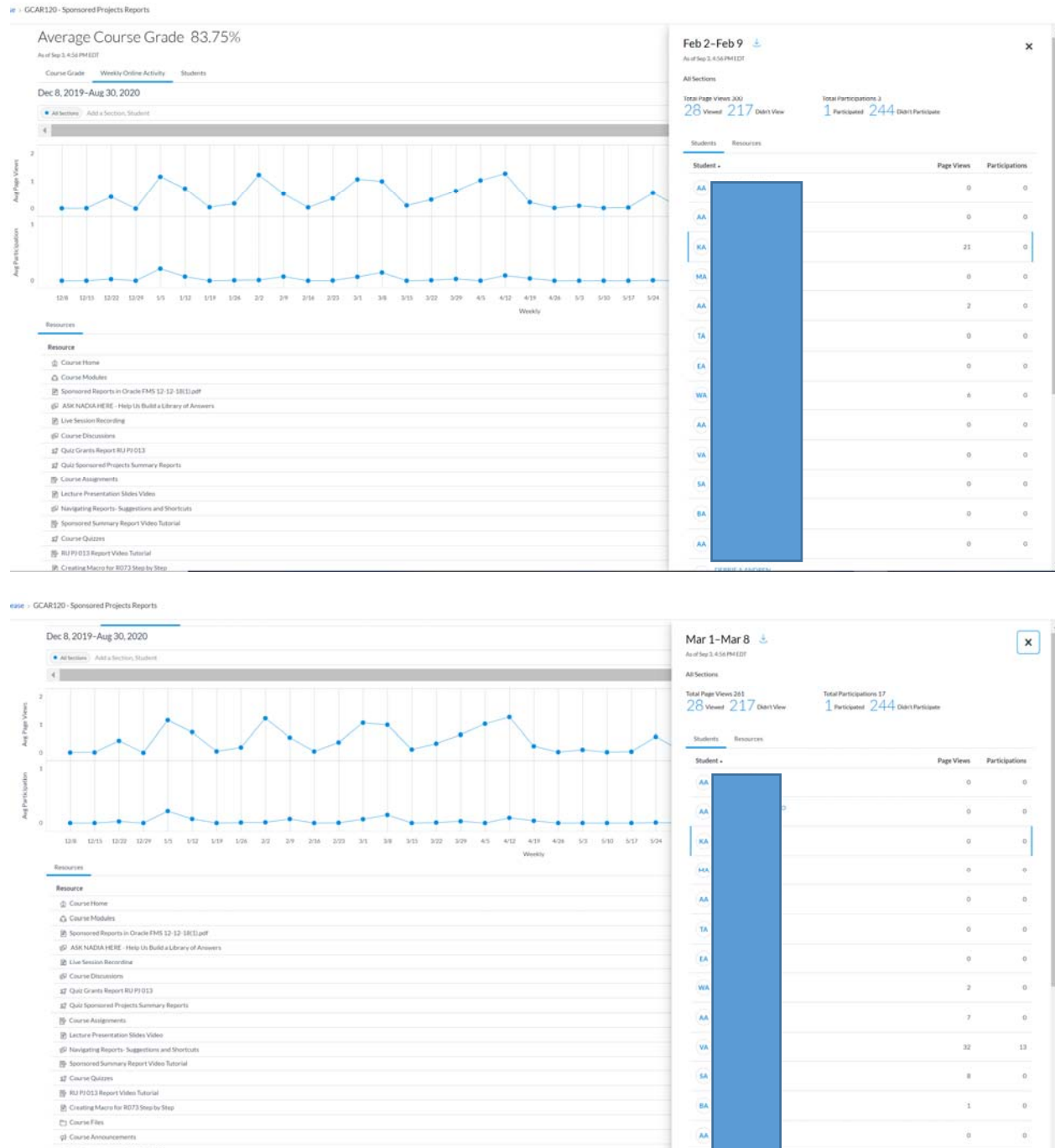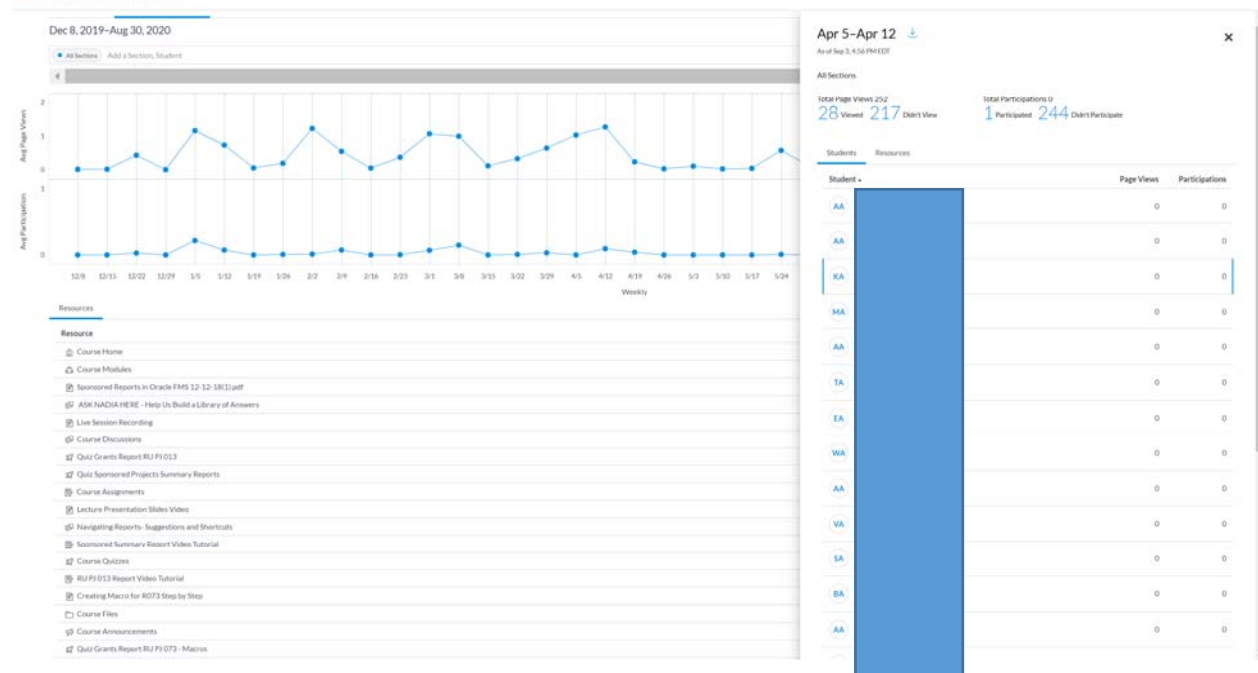| Program	Date/Time	Credit / Hours	Location	Register Time	Status
RTK018-Time Management: A self-learning packet	Wed, 01/01/2025 12:00AM	2.00	Not Applicable (Off Campus)	10/27/2018 3:46:00 PM	E
RHR301-B-Parenting During a Pandemic - How to Keep Your Sanity – hosted by Dr. Maurice Elias	Thu, 08/13/2020 11:00AM	1.00	WebEx Meeting (Off Campus)	8/12/2020 12:19:00 PM	Y
RHR301-E-Increasing Valued Living During COVID-19 – hosted by Dr. Samantha Farris	Tue, 07/28/2020 2:00PM	1.00	WebEx Meeting (Off Campus)	7/9/2020 11:24:00 AM	Y
RHR301-E-Increasing Valued Living During COVID-19 – hosted by Dr. Samantha Farris	Tue, 07/21/2020 5:00PM	1.00	WebEx Meeting (Off Campus)	7/9/2020 11:23:00 AM	Y
RHR301-C-Stressing & Coping – hosted by Dr. Kristen Riley	Thu, 07/16/2020 2:00PM	1.00	WebEx Meeting (Off Campus)	7/9/2020 11:23:00 AM	Y
RHR301-B-Parenting During a Pandemic - How to Keep Your Sanity – hosted by Dr. Maurice Elias	Wed, 07/15/2020 2:00PM	1.00	WebEx Meeting (Off Campus)	7/9/2020 11:23:00 AM	Y
RHR301-A-Returning to Work After COVID-19: The Impact of Psychological Trauma-hosted by Dr. Alexander Alperin	Mon, 07/13/2020 10:00AM	1.00	WebEx Meeting (Off Campus)	7/9/2020 11:22:00 AM	Y
TAB010-Introduction to Running Basic Tableau Reports	Thu, 05/14/2020 1:30PM	1.00	Virtual Class (Off Campus)	5/7/2020 9:32:00 AM	Y
GLPRR010-General Ledger & Project Journal Rules Virtual Training	Wed, 05/13/2020 1:30PM	2.00	Virtual Class (Off Campus)	5/7/2020 9:35:00 AM	Y
FM030B-Financial Management System Non-Sponsored Projects Reporting Virtual Training	Tue, 05/12/2020 10:00AM	1.50	Virtual Class (Off Campus)	5/7/2020 9:34:00 AM	Y
APA010C-Advanced Project Revenue Adjustments	Mon, 05/11/2020 10:00AM	1.00	Virtual Class (Off Campus)	5/7/2020 9:32:00 AM	Y
FM030A-Financial Management System GL Reporting Virtual Training	Fri, 05/08/2020 10:00AM	1.50	Virtual Class (Off Campus)	5/7/2020 9:31:00 AM	Y
P2P310-Change Order Management	Tue, 04/21/2020 9:00AM	2.00	33 Knightsbridge Road Rm E105 (Off Campus)	4/2/2020 3:04:00 PM	C
EXP320-Expense Report Process and Responsibilities in Oracle Expense	Thu, 04/16/2020 10:00AM	2.00	33 Knightsbridge Road Rm E105 (Off Campus)	4/2/2020 3:04:00 PM	C
COA020-Chart of Accounts Virtual Training	Tue, 04/14/2020 10:00AM	2.00	Virtual Class (Off Campus)	4/2/2020 3:03:00 PM	Y
ACCT010-Accounting 101 Virtual Training	Fri, 04/10/2020 10:30AM	2.00	Virtual Class (Off Campus)	4/2/2020 3:01:00 PM	Y
GLPRR010-General Ledger & Project Journal Rules Virtual Training	Thu, 04/09/2020 10:30AM	2.00	Virtual Class (Off Campus)	4/2/2020 3:01:00 PM	Y
GCAR120-Sponsored Projects Reports in Oracle FMS – Introduction	Mon, 04/06/2020 1:30PM	2.00	Virtual Class (Off Campus)	4/2/2020 3:00:00 PM	E
RHR207-Deferred Compensation Plan Overview	Tue, 04/30/2019 2:00PM	2.00	Newark - Blumenthal Hall 201 (Newark)	2/28/2019 4:24:00 PM	Y
P2P000-Procurement On-site Training	Tue, 04/30/2019 10:00AM	3.00	To Be Announced -Newark (Newark)	4/18/2019 3:44:00 PM	Y

Appendix J

Interview Questions ARCS Codes and Categories

Coding Map for Qualitative In-depth Interview Narratives	Code of Constructs in ARCS
What was the video you most remember, and why?	Attention/Interest
Did the instructor give you feedback on how you were doing? (In-person or online)	Self- Confidence Interaction
Did seeing, trying the system tasks exercises in class help you feel that you could do this at work?	Experiment- Self Confidence
Did you enjoy your interaction with anyone in the live session that does the work you do? How did that make you feel about the course?	Interaction/Satisfied
Do you think you had time to think before responding to questions in the live session?	Interaction
Where you ever bored in the computer lab? Why? and When?	Interest/Attention
Did you have an interest in taking a course fully online? Did you participate in the computer hands- on activities?	Interest/Engaged
How many times did you use the CANVAS content? What motivated you to do so?	Motivation
Did you register in this blended course with a desire to learn how to do a specific work-related tasks? Did you?	Motivation/Self-efficacy
Did you participate in poll questions or self-check quizzes, did they have any impact on your motivation in the class?	Motivation
What was the best part of the course?	Positive Attitude
Did it matter how a topic was presented to you in the session?	Relevancy/ Course value
Did you see the content of this online portion of the course relate to your work experiences? Did you find it useful?	Relevancy/Online course value
Do you think participation in this blended course will help you in the future? (on job)	Relevancy
Did you like this method of learning in both classroom and online? Why or Why not	Satisfaction
What would you change about the training course?	Satisfaction
Were you satisfied in the online, web-based job aids?	Satisfaction
Based on your experience would you attend another blended course like this? Why or Why not?	Satisfaction

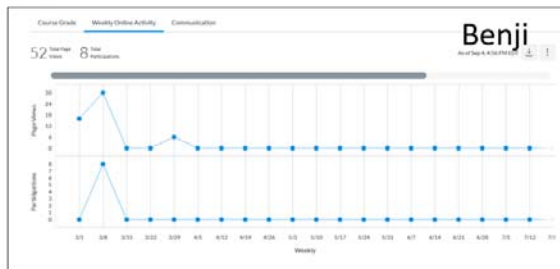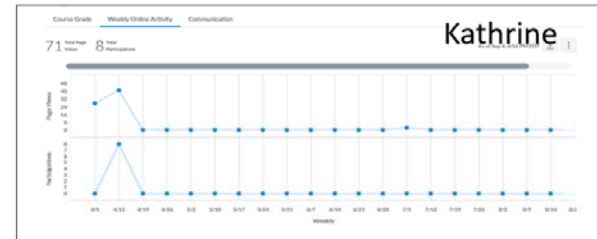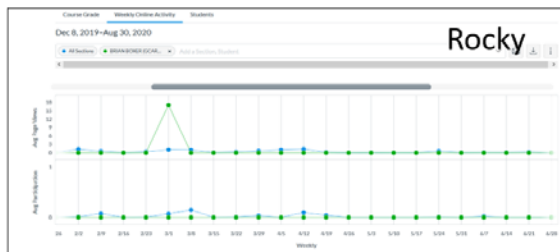**Appendix K:**

CANVAS Student User Analytics

Online Student User Activity

Appendix L

Summary of GCAR120 Course (offerings) through Research phases

Source: University Course Registration System

Course Code	Course Name	Session Dated	Start Time	Hours	Instructor	Format	Seats	# Students Completed Course	Research phase /Activities
GCAR120	Sponsored Projects Reports in Oracle FMS – Introduction	11/22/2019	10:00AM	2	Ms A	pilot hybrid	14	5	Course Design Phase gathering course content information
GCAR120	Sponsored Projects Reports in Oracle FMS – Introduction	11/25/2019	2:00PM	2	Ms A	pilot hybrid	22	2	Tested GCAR 120 Canvas course functionality
GCAR120	Sponsored Projects Reports in Oracle FMS – Introduction	12/11/2019	1:30PM	2	Ms A	pilot hybrid	17	2	Developed Module structure and videos with Instructor
GCAR120	Sponsored Projects Reports in Oracle FMS – Introduction	12/16/2019	2:00PM	2	Ms A	hybrid	21	3	Developed videos with Instructor
GCAR120	Sponsored Projects Reports in Oracle FMS – Introduction	1/14/2020	2:00PM	2	Ms A	Hybrid course	22	2	Reviewed accuracy of videos created with an instructional designer. Added students to Canvas Online Rosters
GCAR120	**Sponsored Projects Reports in Oracle FMS – Introduction**	**2/4/2020**	**2:00PM**	**2**	Ms A	Hybrid Course	18	6	Observed life sessions after IRB approval. Added to online roster
GCAR120	**Sponsored Projects Reports in Oracle FMS – Introduction**	**3/4/2020**	**10:00AM**	**2**	Ms A	Hybrid course	14	10	Observed life sessions after IRB approval. Added to online roster
GCAR120	**Sponsored Projects Reports in Oracle FMS – Introduction**	**4/6/2020**	**1:30PM**	**2**	Ms A	Web-based Only	46	4	Partial Observation of Chat Activity, WebEx Recording. Added to online roster
GCAR120	**Sponsored Projects Reports in Oracle FMS – Introduction**	**5/27/2020**	**10:00AM**	**2**	Ms A	Web-based Only	31	19	Observed Instructor interaction/Technology competence. Added to online roster
Total Course Participants								**53**	Potential Subjects for Study/ Intervention

This table depicts the GCAR 120 Courses, dates, format, attendance, and additional information related to the sequence of development and observations conducted by the researcher. These were delivered using the new *Blended* designed beginning on November 22 of 2019 as Pilot sessions and then in April as fully web-based instruction.

Appendix M

Myra Coded Transcribed Interview

Code for: ARCS and ILT, Online Virtual Instructor Led -t , Social Interaction

Edited—815: and coded video interview transcription

Myra (sudo) CODING KEY RESPONSES 3ʳᵈ review of the interview transcript. 6/22

Background about the participant

Started as an administrative assistant, learned skills on the job as she picked up the work of others. She discovered a love for accounting. Now is a business specialist dealing with grants for 8 years learning and transferring to different departments from engineering to business to communications school to work with grants budgets and reports.

Key Activities

She identifies herself as a lifelong learner. Cares about knowledge and trust of instruction. Training should be user sensitive. **She "hates" the University's CANVAS LMS**. She is one to take online professional development courses offered by the university's Continuous Studies Department. She suggests that the university invest in a better infrastructure (LMS for employees) so that online training will be more enjoyable experience.

Although her job only entails her to work with the post award, reporting, cost transfers for of sponsored projects. She said she enrolled in the sponsored programs academy offered by the university research and development office.

How do you learn?

"I believe in training. I'm always going for training at work, register when I'm not busy. I try to take Oracle GCA classes with the same instructor, Angeles. She is very knowledgeable. I talk to her on the phone, to help me."

Motivation:

"GCA instructor is knowledgeable on Excel, and a great communication"

Researcher: Tell me a little about the grants class you took in the 33 lab?

I started the certification program they offer for Sponsored Programs Academy that offers training for research administrators to learn the lifecycle of pre and post award. I completed introduction now going to Advanced. I know I took some with Humberto (Compliance Associate Director), he sometimes teachers the grants accounting classes too.

Motivation-

" *I think it's a personal trait, I like knowing I can navigate the (ORACLE) system. I'm one of the few that attends training, I like to know"*

Summarized- motivation to teach others what she knows…

Myra referred to the classes offered by the university as being encouraging her to learn and to share the new knowledge she gains with her colleagues in her business unit. Are you give the ability to take these classes? yes

Satisfaction: Instructors Experience*: "I have only good things to say about everybody, they have different styles of teaching and communicating."*

On the pace of live ILT Instruction

About Instructor:

She thought that GCA Instructor was a good instructor and encouraged participation.

Quote: "*She does not mind if you interrupt because that subject matter can help others and she connects it with the rest of the course material. She is knowledgeable. "*

Summarized – Satisfaction for Instructor led live classroom session:

She dislikes teacher that go too fast. They should care about the student's needs, otherwise he is wasting her time. *"If I'm learning at his (Instructor's) pace it should be back and forth, they have to consider my needs as a student" –*

Summary: She appreciates that Angeles encourages participation in the GCA course.

How do you learn best? Classroom setting? (In-classroom EXPECTS NEW REPORT MAKE LIFE (JOB) EASIER)

Researcher: We have a computer lab, if you had a magic wand and this training could be developed in a way that you would learn better?

 "Sometimes I don't know, it is aggravating that going to the classes you have big hopes that maybe there is a new Report or they are changing a report that will make life easier" but sometimes the instructor is trying to help you but the tools are not there, or the reports are unreliable, and that makes my job harder."

Summary— Although she may trust that the instructor to teach her what she needs to know and show her reports that make her (work) life easier, the system fails her, and the reports she learned to run are not reliable they are unreliable .

Code RELEVANT

Researcher: Is the material presented in the GCAR120 course relevant to your job?

"Yes, I remember the last training with Angeles and we all want to know what reports she recommends for us to run" She gives you the reports and compares their usefulness and explains why one is more efficient to use than the other… like tips! "We rely on the information she provides in class."

Explained: Instructor offers tips and best practices with real-life scenarios

How do you learn in class? (Figure things out on own by trying…at work in system….)

"I learn by trying to do it on my own at work…You get burned, one report gives you different information than the other so after that happened several times you know."

Summary : She learned to run several sponsored projects financial reports to check accuracy on individual actual costs and payroll cost per grant so that she does not have to go back a month later to try to resolve consolidation issues.

Instructor Knowledge-Recommendation –TIPS AND BEST PRACTICES

If the instructor recommends a report to use why would you follow her recommendations? " I know she can back it up, she is giving me the right information I TRUST HER JUDGEMENT.In the class she is running the reports (demonstrating) she know how to navigate and she really knows what she is talking about so I trust her.

After 2hr class do you feel confident when you go back to the office that you can do what she taught you to do?

Self-Confidence: Based on what was taught in class.

Teachers---Intro ton ONLINE Guidance

Feelings on CANVAS/LMS as a tool ? Teacher guidance to online content

"Nadia made it clear for me to navigate to the course modules. Canvas is not user friendly and even with SPACE training the instructor says ok the materials will be there tomorrow, just go to CANVAS and get it…and its not there. It turns out that if the instructor does not give you rights to enter the course you cants see it. Instructor makes us go into the Canvas tile to check our access in class." " I don't like Canvas, it's not a one stop shop in training."

"I'm not 100 percent CONVINCED with canvas, maybe that is why I may not use it to its full potential"

Angeles showed us how to use the canvas **search feature** to find what I need, not have to look and its not there.

What do you use Canvas for –MACRO VIDEO- DEMO IN CLASS WITH SHOW IT- THEN STUDENT DRIVING IT _ THEN POSTED VIDEO ON CANVAS –showed them where to go

" I go before class print the Power Point so that I can take to the class and use it to take notes. "

RELEVANCY –Macros AND Satisfaction

She shows us in the class the videos to create **Macros for Excel** spreadsheets and she explained that to us., she had one person created a macro and recorded on the large screen, and I went back to my office **and I needed** it- to do it right-- so I went in to see it as a guide…"

Have you gone back to CANVAS after the class?

Yes

Tell me h e experience.? "It was a repeat of class" it was good, good, good for me because im older so I remember its like a reminder

What would you Change about class?21:14

Satisfaction:

I think it was a comprehensive presentation of materials , thinking about the audience, it may be first time they are taking it so based on that it was good – that these are the tools we have. Would not change anything(speaking of the instructor led class)

What if you could not teach anymore live sessions in that computer room?

(Citing personal experience with another Hybrid type continuing studies class)

It can be a little bit complicated, maybe use certain systems or programs. She discussed how she is taking some online continuous studies calss with recorded lectures that are posted –"So amazingly enough I've been getting a lot out of those lectures and the quizzes and the interactive exchanges with the other student." " Of course you wont be the same you miss a lot, but it can be done.(23.26)

Deeper dive—asked Myra to talk about that experience with **continuous education on** canvas…

I don't know. This is a 4 week course and each week you have a lecture to me or some readings are and you have to post and comment on other people's papers and that's how we interact. I read the write ups and comments on there, and then the instructors does the same.

How much time?

" I'm in the middle I take a look at some comments, take my time but don't waste anymore time. " But I underestimated how long that class takes out of my life"

Value-- Motivation for taking classes.

(Add this as institutional support –for more education –Institutional culture!

I know these classes don't have anything to do with my job… its part of professional education, and development, *I think Plus she is part of the school of communications and they sent a mass email saying these classes were free for employees since I'm new, I took it, it's about $1000.*
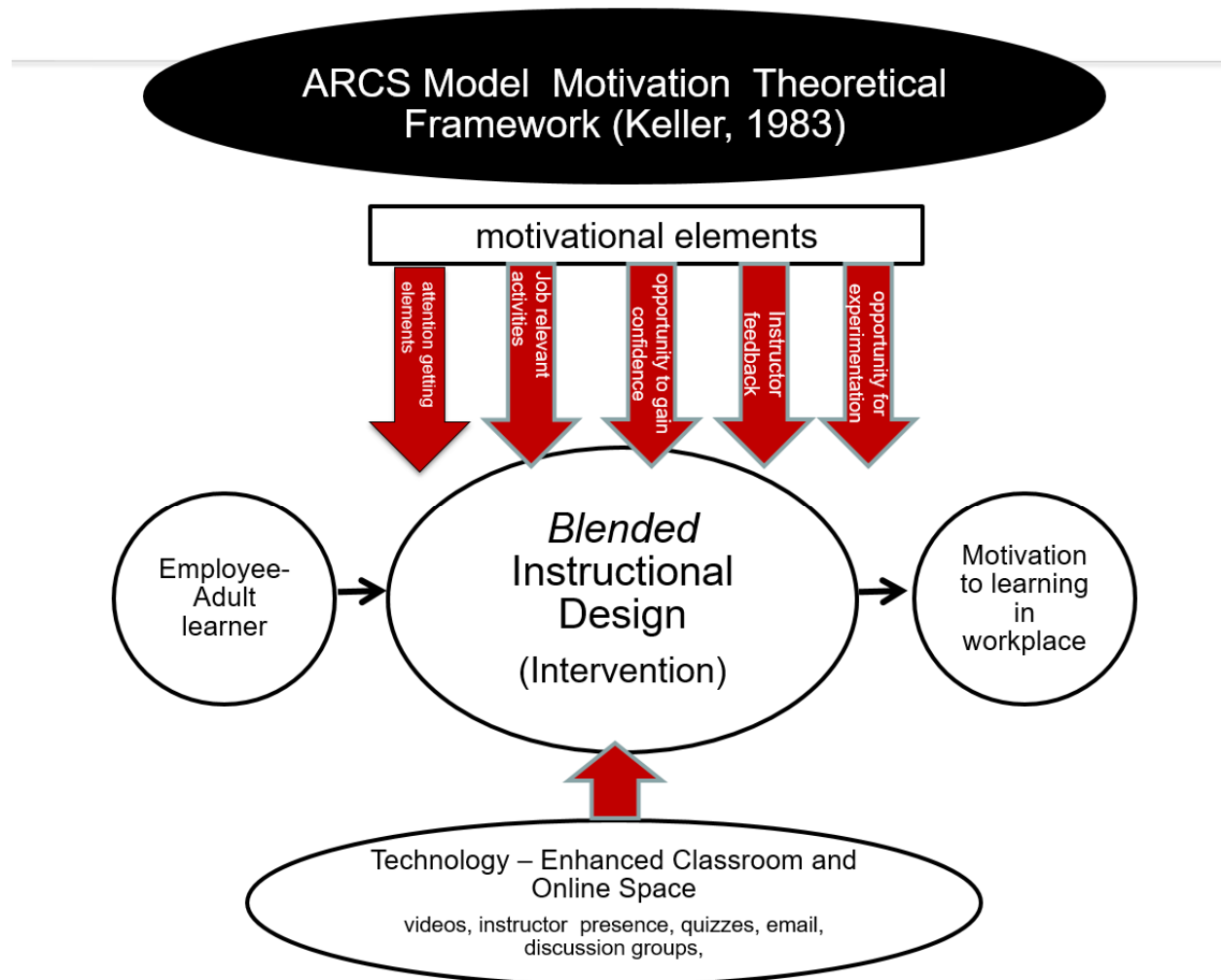
 COVID INFLUENCE:

Suggestions on improving overall systems training what would you recommend I –that is user friendly for you as an employee?

Recommendations: CANVAS Resource Investment

The University can invest in better infrastructure systems. This may be a new way going forward. Maybe the buildings will be closed. VPN was not as slow Even using ORACLE systems from the cloud at home is slow.
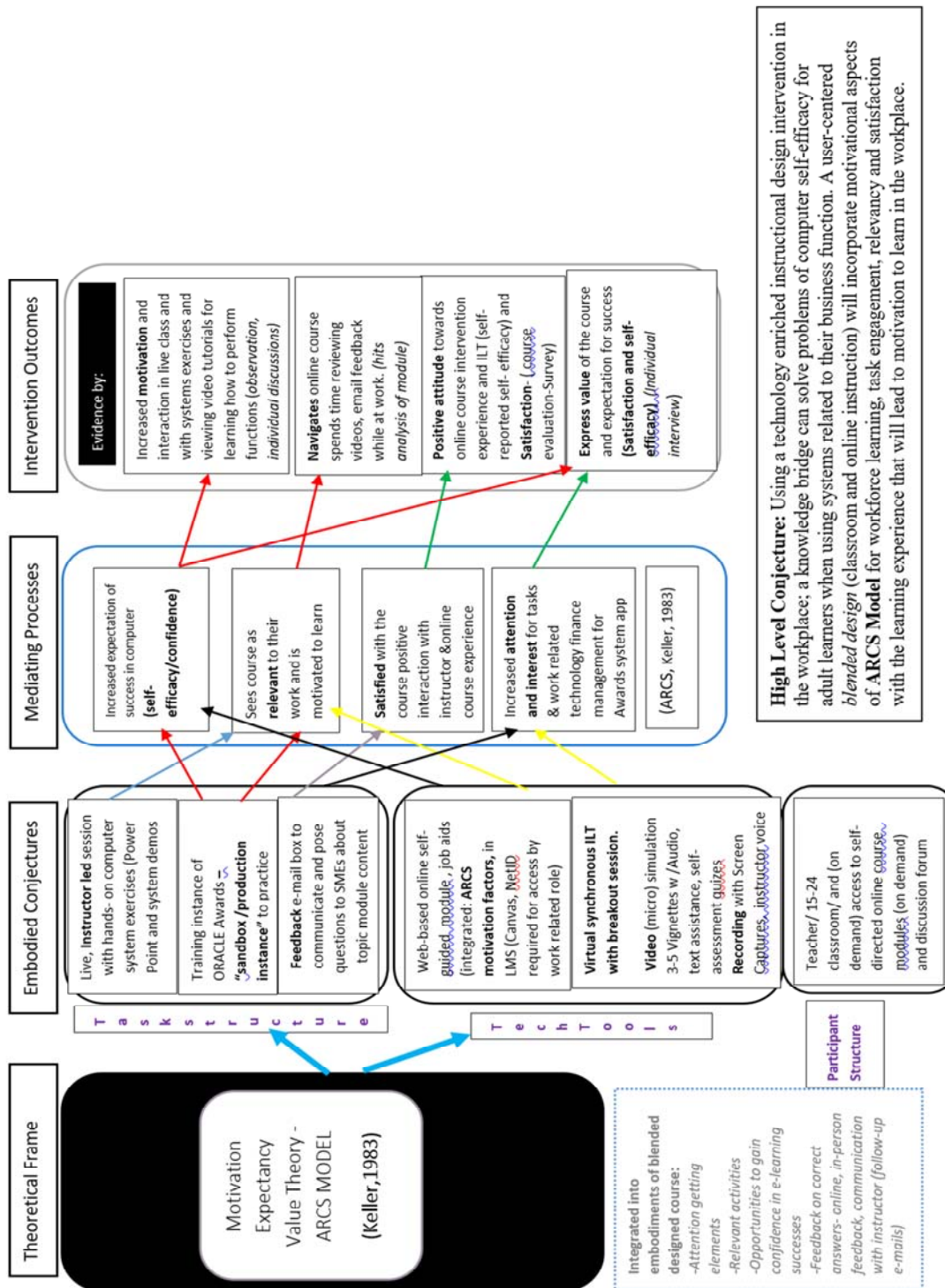
Figure 1

Conceptual Diagram

ARCS Model Motivation Theoretical Framework (Keller, 1983)

motivational elements

attention getting elements

Job relevant activities

opportunity to gain confidence

Instructor feedback

opportunity for experimentation

Employee-Adult learner

Blended Instructional Design (Intervention)

Motivation to learning in workplace

Technology – Enhanced Classroom and Online Space

videos, instructor presence, quizzes, email, discussion groups,

Figure 2

Conjecture Map Based on ARCS Model