



2019 HAWAII UNIVERSITY INTERNATIONAL CONFERENCES
ARTS, HUMANITIES, SOCIAL SCIENCES & EDUCATION JANUARY 3 - 5, 2019
PRINCE WAIKIKI HOTEL, HONOLULU, HAWAII

USING EXPLANATORY DATA COLLECTION METHODS TO STUDY ONLINE AIR FORCE ACQUISITION COURSES AND PERSONNEL PARTICIPATION

INGRAM, MELISSA CURRICULUM
AND INSTRUCTION COLLEGE OF
EDUCATION TEXAS TECH
UNIVERSITY LUBBOCK, TEXAS

MATTESON, SHIRLEY M.
CURRICULUM AND INSTRUCTION
COLLEGE OF EDUCATION
TEXAS TECH UNIVERSITY
LUBBOCK, TEXAS

Ms. Melissa Ingram
Curriculum and Instruction
College of Education
Texas Tech University
Lubbock, Texas

Dr. Shirley M. Matteson
Curriculum and Instruction
College of Education
Texas Tech University
Lubbock, Texas

Synopsis:

Participants in this qualitative case study were Air Force Acquisition personnel currently taking computer-based online courses. Air Force personnel were interviewed about their experiences with online courses and observed while engaging in an online course. The data were analyzed and themes emerged. This pilot study was conducted to support the completion of a Doctorate in Curriculum and Education.

**Using Explanatory Data Collection Methods to Study Online Air Force Acquisition
Courses and Personnel Participation**

Author Note

Paper presented at the 2019 Hawaii University International Conferences, Honolulu, HI, 3-5 January 2019. Do not cite without permission of the authors. Address all correspondence to Melissa C. Ingram, Texas Tech University, Melissa.Ingram@ttu.edu.

Abstract

The overarching purpose of this study was to determine if there was a relationship between the teacher-centered format of online course delivery and Air Force Acquisition (AFA) personnel (hereafter named “student”) participation. AFA personnel were particularly of interest, as they have been tasked with taking 3 to 30 online courses that are required to gain Air Force job certifications. Participants in this qualitative case study were Air Force Acquisition personnel currently taking computer-based online courses. Air Force personnel were interviewed about their experiences with online courses and observed while engaging in an online course. The data were analyzed and grouped into themes. Data analysis concluded the teacher-centered construct of online AFA courses was a major contributor to negative student participation but other factors may have also contributed to student feelings.

Keywords: AFA; computer-based training; case study; interview; student feelings

Introduction

The overarching purpose of this study was to determine if there was a relationship between the teacher-centered format of online course delivery and Air Force Acquisition (AFA) personnel participation. AFA personnel (hereafter named “student”) were particularly of interest, as they have been tasked with taking 3 to 30 online courses that are required to gain Air Force job certifications (Defense Acquisition Workforce Improvement Act, 2017).

In each course, the student is required to earn 100 percent on the end of course quiz; the final quiz is repeated until each student earns the passing grade (DAWIA, 2017). Yet, some courses only allow the student to take each quiz three times (DAWIA, 2017). If the student fails all three attempts, he/she is forced to re-register and start the course from the beginning (DAWIA, 2017). Assistance is only provided if the student reaches out to the instructor; if a student never contacts an instructor, he/she is never given one-on-one help in the course. Additionally, the courses are self-guided meaning the student never interacts with anyone else taking the course. Students who are struggling are not given the opportunity to query classmates for help. Anecdotal evidence suggests that the teacher-centered focus (e.g. repetitive nature, little peer to peer interaction, as well as the single form of summative assessment with no instructor feedback) can lead to negative feelings toward acquisition courses.

Research Question

This research proposal sought to answer the question “*How do students’ perceptions towards the current format (i.e. teacher-centered) of online AFA (AFA) courses affect AFA personnel (i.e. student) participation?*”

Significance to field

By determining students' feelings toward the offered online courses, the courses can be modified (if necessary) to improve participation, which would be significant to class designers. Greater participation can lead to increased achievement which could result in less time spent taking courses and improved retention of knowledge learned. Greater participation can ultimately save the Air Force time and money.

The findings of this study could also be extrapolated to better understanding participation in other online certification courses for other entities. Other companies and/or professional organizations can learn how to construct online courses using participant feedback to better fit the needs of the student and the end user. From an academic standpoint, this study will add to the body of knowledge on an under-investigated field.

Literature Review

Educational Theories

This study was guided by various educational theories, all tied to how students learn through social interaction (student-student) and feedback from more capable peers (student-teacher). The first theory guiding this study was behaviorism which makes three assumptions about learning that are all tied to observing student behavior to determine if learning occurred (Siemens, 2014). This study primarily relies on methodological behaviorism as this theory asserts reality can only be studied through observations (Nugent, 2013). Behaviorism assumes the learner does not have prior knowledge (Siemens, 2014). With a teacher-centered approach, students are often seen as “empty vessels” and it is up to the teacher alone to transmit needed information to the receiver (student) (Rodriguez, 2012, p. 177).

Cognitive learning theory is the second guiding theory. Ormrod (2008) stated this theory is driven by the need to examine the motivations students have to learn and take part in educational activities. Siemens (2014) noted cognitivism views learning as a means to code inputs stored in short-term memory and transfer them into long-term knowledge. Cognitivism also asserts the learner must be an active part of the learning process (Ertmer & Newby, 1993). Like behaviorism, cognitive learning theory asserts students have no prior knowledge of a given subject (Siemens, 2014). However, cognitivism differs from behaviorism in that cognitivism places an emphasis on the internal mental activities that lead up to individual learning (Ertmer & Newby, 1993).

However, a third theory, constructivist theory, asserts the active process of learning provides students with the opportunity to combine and interpret facts that are paired with personal experience to develop their own understanding of a situation (Piaget, 1936/1952). Students use these experiences to create schemes, or groups of like thoughts and/or actions that can be applied to environmental responses (Piaget, 1936/1952). These schemes can then be integrated into cognitive structures (Piaget, 1936/1952). Constructivist theory further states learning is a social; participation of the student and others is vital to the construction of knowledge (Oblinger, 2004). Constructing knowledge within a community of learners can build a stronger knowledge foundation which helps students gain competence (Oblinger, 2004).

A fourth guiding theory is situated learning theory. The foundation of this theory is skills learned by students are not transferrable if learned in a specific context (Brown, Collins, & Duguid, 1989). Ormrod (2008, p. 281) wrote, “transfer is more common when information and skills are perceived as context-free rather than context-bound.” Additionally, situated learning

theorists Lave and Wenger (1991) believed learning happens when students become more involved in their own educational process which is done through communities of practice.

The last learning theory that supported this research was connectivism which has been defined as “a process that occurs within nebulous environments of shifting core elements – not entirely under the control of the individual” (Siemens, 2014). This theory was spawned from the rise of the Digital Age; students may not be able to physically involve themselves in a phenomenon but may be able to learn from connecting to it through other people’s experiences (Siemens, 2014). The foundation of this theory is new information is continually being taken in by individuals who then determine what is important and what is not (Siemens, 2014). Connectivism relies on eight principles, several of which are applicable to this study, that state educators should nurture connections between information sources and authentic applications to encourage learners to continually seek out updated information through human and non-human sources (Siemens, 2014). A summary of the educational theories and application to online AFA courses is in Table 1 below.

Table 1

Educational Theories and Application to Online AFA Courses

Educational Theory	Highlights	Application to AFA Courses
Behaviorism	Students have no prior knowledge of a subject; educators assess if learning has occurred through the assessment of student actions (Rodriguez, 2012; Nugent, 2013)	Learning is assessed through the overuse of drill and practice and factual questions seen in mid-course (formative) and end-of-course (summative) multiple choice assessments (Schug, 2003)
Cognitive Learning	Students have no prior knowledge of a subject; learners code inputs stored in short-term memory to move into long term memory (Siemens, 2014)	Learners should move knowledge into long-term storage (potential application to job) but may be unable due to the passive role of the learner
Constructivist	Learning allows students to pair personal experience with presented facts; learners use communities/social interaction to build a stronger knowledge foundation (Piaget, 1936/1952; Oblinger, 2004)	Learners may use knowledge gained in future AFA courses
Situated Learning Theory	Skills learned are not transferrable if learned in a specific context; students learn more if they are active participants in the process (Brown et al., 1989; Lave & Wegner, 1991)	Online AFA courses rely on passive learning techniques; students may not be able to apply knowledge to real-life situations
Connectivism	Addresses changes in information due to Digital Age; learners take in information then decide if it is important; ties prior knowledge with socially-learned facts to amplify learning (Siemens, 2014)	Online AFA courses teach federal and Air Force regulations which change based on emerging needs; personnel may be able to better apply facts to real-life situations if the knowledge is transferred to the people who need it (DAWIA, 2017; Siemens, 2014)

The Shift to Student-Centered Online Instruction

Despite various educational theories supporting student-centered instruction, online education often struggles within being teacher-centered (DAWIA, 2017). One example of this is the use of presentations as a one-way communication device (Berge, 1997). Teacher-centeredness is especially noticeable in AFA courses which include little to no student-teacher

interaction (DAWIA, 2017). Keys and Bryan (2001) found in their literature review of practices within science education that student-centered teaching provides students the opportunity to gain critical content literacy in a way that is meaningful to each student. Shifting from teacher-centered to student-centered online courses can lead to increased thinking about the material and the ability for students to apply their knowledge beyond the single example provided in the lesson (Keys & Bryan, 2001).

Additionally, student-centered learning can easily incorporate authentic activities (Krajcik & Sutherland, 2010). One example of this Krajcik and Sutherland (2010) discussed was using questioning within the classroom as a means to teach scientific inquiry. Within the AFA environment, examples of authentic activities would include learning how to manage an acquisition contract by being presented situations that have occurred in real life and allowing the student to make decisions and learn the implications of each decision. These types of activities give students a way to access their prior knowledge and apply it to real-world situations (Krajcik & Sutherland, 2010).

Student-Centered Learning. Almost a decade ago Parscal and Hencmann (2008) discussed the need for a cognitive apprenticeship approach toward online learning. This teaching model includes coaching, articulation, scaffolding, reflection, modeling, and exploration. Parscal and Hencmann's (2008) combined experience in online instructional design and cognitive apprenticeship strategies led them to assert each part of the cognitive apprenticeship model serves a specific purpose. Articulation and reflection aid in learning problem solving by using students' own observations while becoming more conscious of their problem-solving abilities. Modeling, coaching, and scaffolding help students learn metacognitive and cognitive skills through supported and guided practice. Exploration gives students autonomy in their learning

through the ability to identify and solve their own problems. Parscal and Hencmann (2008) were quick to note the Cognitive Apprenticeship Model (CAM) relied heavily on scaffolding, so students can learn a skill then build upon it, and the social characteristics of learning.

Online-Learning. Hsin-Lin and Williams (2009) highlighted online learning practices for non-traditional college students. While student attitudes toward instructional media influence their motivation toward learning and their learning outcomes, the types of technology embraced by each student can vary greatly. Hsin-Lin and Williams (2009) conducted an exploratory study to examine students' learning experiences concerning the use of multi-modal objects (text, graphics, audio, and video) in online literacy courses. They found non-traditional students may not be able to easily use the same technologies as traditional college students (Hsin-Lin & Williams, 2009). Because of this, multi-modal learning objects are a better fit for non-traditional students, such as students taking AFA courses, due to the flexibility in learning opportunities (Hsin-Lin & Williams, 2009). Part of the effectiveness in online learning is a student's beliefs in his/her own abilities to use the technology needed. Without a student being comfortable with online learning, he/she may resist any attempts to take online courses.

Boling, Hough, Krinsky, Saleem, and Stevens (2012) conducted a case study concerning the experiences of six online course instructors and 10 adult students. The participants reported courses with individualized learning through text-based content were less helpful than interactive courses with multimedia use (Boling et al., 2012). Boling et al. (2012) applied the CAM model to their study results. Courses that relied heavily on text reading did not teach students "domain knowledge" to enable "expert performance" (Boling et al., 2012, p. 120). The construct of most of the courses included in the study were determined to limit "students' ability to develop higher order cognitive skills and creative thinking" (Boling et al., 2012, p. 120). One learner stated her

experiences with online classes were more about regurgitation than learning (Boling et al., 2012). She “didn’t feel like [she] was applying anything” (Boling et al., 2012, p. 120). Students also found classes were “good” if their teachers were in tune to their need for flexibility, individualized feedback, and accessibility (Boling et al., 2012). The same students found traditional feedback methods such as notes left in margin notes were common but not as helpful as one-on-one communication (Boling et al., 2012). Only one course in the study was found to give students real-world experience while connecting students to teachers and other students (Boling et al., 2012). As more institutions of higher learning are employing online courses, gathering methods to make these courses beneficial for both teachers and students becomes imperative (Boling et al., 2012).

The teaching practices reported by Boling et al. (2012) closely resemble those of online AFA courses. There is a disconnect between teachers and students with most courses requiring no interaction with the instructor nor other students. The courses require very little analysis of the material but requires copious amounts of rote learning and memorization. Mayer (2002) examined three different learning scenarios involving a lesson in electrical circuits. One student worked to memorize the material, as seen in rote learning practices (Mayer, 2002). She did well listing the memorized facts but could not apply her knowledge to solve problems (Mayer, 2002). Another student engaged in *meaningful learning*, which allowed her to understand novel concepts and apply her knowledge to solve problems (Mayer, 2002, p. 227). As Boling et al. (2012) noted, “In order for any e-learning program to be successful, it must emulate an instructor’s guidance and interaction” (p. 119). This includes enabling students to build upon their knowledge to build mental representations of a problem then can then work to solve (Mayer, 2002). As the current acquisition training model does not require any interaction for

most of its courses nor does it require the student to solve problems through meaningful learning processes, participants are not equipped with the proper knowledge to be successful.

Previous Studies and Unanswered Questions. At present, there is a dearth of research available on the format of computer-based instruction (CBI) in AFA courses and student participation. Key words used to search Google Scholar included “Air Force Acquisition,” “Acquisition,” “computer-based instruction,” and “student participation.” Searching for each term separately and in various combinations yielded zero results. Therefore, the literature that supports this study revolves around the format (e.g., teacher-centered versus student-centered) of online education and CBI as a whole (Azevedo & Bernard, 1995; Fletcher, 1997). Although there have been quantitative studies on CBI in military settings (Fletcher, 1997) and qualitative studies among civilians in CBI (Azevedo & Bernard, 1995), there is a lack of qualitative analysis in the realm of CBI used for military instruction. More importantly, there are few studies exploring students’ perceptions of their military (Air Force) CBI experiences. Thus, this exploration may have more explanatory power than previous quantitative research to determine how their perceptions argument course participation.

Online project management certification courses closely resemble the structure and purpose of AFA courses. Pant and Baroudi (2008) found though their examination of *The Project Management Body of Knowledge* (PMBOK) that human skills were removed from the curriculum. These skills included the ability to understand a given situation and the people within it, engagement in leadership behaviors, and understanding how to work with others (Pant & Baroudi, 2008). Researchers determined “real success comes from knowing how to get things done through others” (Pant & Baroudi, 2008, p. 125). Unfortunately, the PMBOK coursework focused on hard skills in technical areas, leaving students without the tools to reach real success

(Pant & Baroudi, 2008). As Schulz (2008) found through his literature review, soft skills such as professional communication, can be taught using student-centered teaching techniques. Pant and Baroudi (2008) encouraged project management educators to re-examine their teaching practices to include project-based learning which increases application of explicit (textbook) and tacit (emotional and experiential) knowledge to real-world situations. Unfortunately, Pant and Baroudi's (2008) study did not discuss student attitudes toward online project management courses, but their findings did support a change in teaching style that may improve student feelings toward the subject.

Theoretical Framework

The theoretical framework guiding this study was comprised of the five educational theories listed above. All five learning theories (cognitivism, methodological behaviorism, constructivism, situated learning theory, and connectivism) are necessary to consider as AFA courses need to appeal to a wide variety of personnel with differing learning goals and strategies. For learning to be meaningful to novice and experienced AFA students, the knowledge must be stored long term, observed by the instructor, able to be related to their careers and job tasks, and adaptable with evolving regulations. Additionally, analyzing each theory through each of the frameworks can provide valuable information on ties and/or disconnects between AFA course goals and student experiences.

Methodology

A correlational explanatory approach that follows Yin's (2013) beliefs was employed for this qualitative study as the first author was most interested in seeking understanding while considering each participant's background (Hesse-Biber, 2017). Correlational studies have been used to examine the characteristics of a phenomenon while not altering the natural state (Fawcett

& Downs, 1986). A correlational approach was chosen to establish a relationship among variables (i.e. participants' feelings) while not conducting an experiment (Johnson, 2000). The data collected included both the experiences of each participant and some demographic information which provides a more complete background. The background information can influence each participant's feelings toward AFA courses. As such, this exploration may have more explanatory power than previous quantitative research in determining how the participants' perceptions augment course participation. Data gathered from participants were anticipated to reveal a cause-and-effect relationship between their feelings and participation in AFA courses which further supports an explanatory study (Fawcett & Downs, 1986). A major data collection tool of a correlational study is the interview; this study relied heavily on interviews to collect data.

Approach

The main reason a case study approach was chosen was due to data collection (Hesse-Biber, 2017). The design fell in line with Yin's beliefs and procedures (Yin, 2013) for case studies. As this study served as the foundation for future work, the procedures, to include the interview and observation protocols were refined among events (Yin, 2013). Yin also subscribes to a positivist epistemology that seeks to answer *how* and *why* questions in contexts where the researcher has little control (Yin, 2013). The combination of Yin's emphasis on creating validity and reliability (or credibility, transferability, and dependability for a qualitative study) and the influence scientific methodologies had on his practices were especially important elements as AFA leaders and policy makers tend to have scientific backgrounds (Yin, 2013).

This case study also took a phenomenological design approach in seeking to understand the experiences of participants through their words (Sokolowski, 2000). The experiences of

participants were collected through interviews, observations, and documents. A phenomenological design supported a correlational explanatory study in determining if there was a correlation between participants' feelings and participation in AFA courses solely based on their qualitative experiences.

Participants

The target participant population were AFA personnel located at various bases across the U.S. This pilot study was comprised of responses from 3 personnel ranging from 26-33 years of age. This group was particularly targeted as a wide range of individuals take AFA courses. The wide age range also aided in interviewing personnel who have taken a few courses (younger personnel) and numerous courses over the years (older personnel). All potential participants were native English speakers and active duty Air Force members. Actual participants were chosen due to their availability both in regard to proximity and time..

The three participants had slightly different AFA backgrounds. The following information was obtained from the demographics survey and interviews and was accurate at the time of data collection Lieutenant (Lt) Jones was a 31-year-old male who has been in the Air Force over 10 years, four of which were as an Acquisitions professional. He held two different AFA certifications and was pursuing a third. At the time of the study, he had completed 36 AFA courses; 30 were online courses. Captain (Capt) Matthews was a 33-year-old female who had been part of the Acquisitions career field for 4.5 years. She held three different certifications and had taken 34 different AFA courses. Lt Smith was a 26-year-old male who had been a part of the Acquisitions career field for just over one year. He had only taken two AFA courses. All three participants have Bachelor's degrees in a science or engineering field. Lt Jones and Capt

Matthews each have a Master's degree in an Acquisitions-related field. Lt Smith was currently in school to earn his Master's in an AFA-related field.

Data Sources

Data collected included three interviews, three observations, and artifacts/documents provided by the participants. The artifacts and documents consisted of records concerning online AFA courses completed by each participant. A reflexive journal was also maintained in which pertinent information about the interviews and observations were recorded.

Interviews. During the semi-structured interviews, participant demographics were obtained. Three interviews were conducted at quiet, private locations of the participant's choosing. Each interview ranged from 15 to 30 minutes and was audio recorded. The audio recording was transcribed at the conclusion of each interview. The interview questions were intentionally tied to one or more educational theories (see Appendix A). Questions 1 through 3, 7, 9, and 11 were related to cognitivist beliefs. Questions 4, 8, and 10 were grounded in situated learning theory. Question 5 related to connectivism. Questions 12 through 14 may yield answers that tie to behaviorism.

Observations. A total of three observations were made. All three participants consented to take part in an observation. Prior to observing the course, the participants provided information concerning the course being taken, the intent of the course, and the perceived value of successful course completion. Participants were observed during the first 20 minutes of an AFA course. Participants were observed to see how they interacted with the course software and material, how the online instructor assigned to each AFA course fostered participation, participant's body language during the course, and any other items that were pertinent to the study. Unfortunately, one of the three participants was not able to take part in an AFA course.

Instead, the third observation was a discussion about a particular AFA online course, CLP068 (Intellectual Property), that occurred during a public meeting. The majority of meeting attendees were AFA personnel holding multiple AFA certifications.

Documents. Collected documents included de-identified training transcripts from each participant (also called an Acquisition Career Management System (ACMS) SURF), screenshots from various AFA courses, a pre-interview questionnaire, and the transcriptions of audio recordings of each interview. The courses taken by each participant to his/her AFA certifications were thoroughly examined. The criteria to earn each certification was then included in the study documentation.

Reflexive Journal. A reflexive journal was kept in order to document thoughts and feelings during the research process. Reflections included thoughts on interactions with participants, any potential biases, and thoughts on the data collection process. The journal also included notes on public discussions concerning AFA courses that may be relevant to the research topic.

Data Collection Procedure

Approval was gained from the unit commander to conduct the study at a given site. Contact information for each unit/unit commander was found through web searches on public internet sites. The site's AFA personnel were informed of the study during face-to-face group interactions. Participants returned signed consent forms and their answers to a brief questionnaire. The questionnaire collected demographic data such as rank, age, time in service, time spent as an AFA professional, approximate number of AFA courses taken, and types and levels of AFA certification. An interview time and location was set.

Each participant interviewed was then scheduled to be observed. Document collection occurred throughout the interview/observation process. The interview protocol can be found in Appendix A. During the interview, the participant brought his/her ACMS SURF with all personal information removed. Observation times were scheduled at the conclusion of the interview.

Observations took place during the first 20 minutes of a participant taking an online AFA course. The observation protocol can be found in Appendix B. Participants were asked to take screen shots of the course taken to illustrate discussion points made during the interview. Each participant was encouraged to bring to either the interview and/or the observation any other documents he/she thought would be beneficial to the study.

Data Analysis

Participant responses was analyzed in several ways. First, each answer was analyzed using Srivastava and Hopwood's (2009) three-question framework. In very generic terms, the three questions are:

1. What are the data telling me?
2. What is it I want to know?
3. What is the dialectical, or fluid/dynamic, relationship between what the data are telling me and what I want to know?

The data that was determined to apply to the research question was then analyzed using techniques listed by Onwuebuozie et al. (2012). The first technique used was a constant comparison analysis. Through this analysis, any recurring codes/words were then classified into separate themes (Onwuebuozie et al., 2012). A narrative analysis was also employed to provide a summary of the stories stemming from the identified themes. The themes and data collected were

compared to the educational theories to determine any ties or gaps among theory and current AFA course practices. The two types of analyses were compared to determine trustworthiness. Figure 1 is a visual representation of the data collection and analysis process tied to the research question.

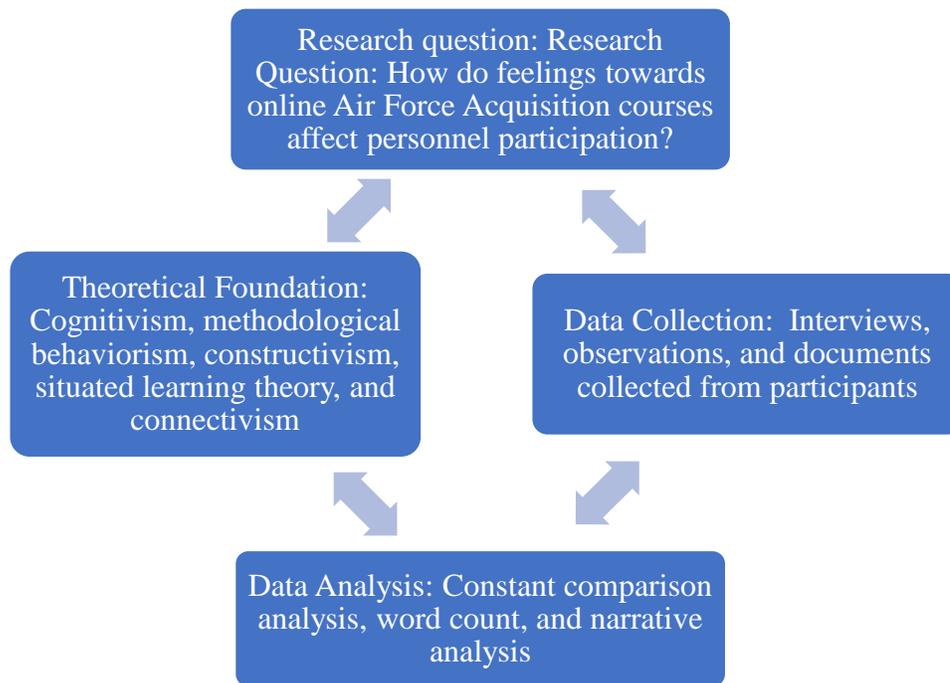


Figure 1

Data Collection and Analysis Process

Audit trail. Using a constant comparison analysis approach, Excel was used to group data gathered from the interviews into 12 different codes. The codes that emerged from the data were: application to current job; repetitive; course information/length; mandatory; targeted training; beneficial later in career; rote learning; group/authentic activities; user-friendly; supervisor input/influence; work/course balance; and motivation. The codes were then grouped into three overarching themes on a different Excel sheet: benefits to job/job effectiveness, educational practices, and learning environment.

Table 2

Interview Themes and Codes

<u>Overarching Theme With Supporting Codes</u>		
<u>Benefits to Job/ Job Effectiveness</u>	<u>Educational Practices</u>	<u>Learning Environment</u>
Application to current job	Group/authentic activities	User-friendly
Mandatory	Rote learning	Supervisor input or influence
Targeted training	Course information/length	Work/course balance
Beneficial later to career	Repetitive	
Motivation		

The same coding procedure used to group interview data was used to group observation data. The codes found through the observations data collected were: annoyance; neutrality; course/job balance; passive participation; rote understanding/procedures; expectations; and job application. The overarching themes for the observations were then determined to be the same ones used in interview data analysis (see Table 3). Participants' feelings and general demeanor exhibited during AFA courses and discussions were categorized as part of the participant's environment.

Table 3

Observation Themes and Codes

<u>Overarching Theme With Supporting Codes</u>		
<u>Benefits to Job/ Job Effectiveness</u>	<u>Educational Practices</u>	<u>Learning Environment</u>
Expectations	Passive participation	Annoyance
Job application	Rote understanding/ procedures	Neutrality
		Course/job balance

Trustworthiness

Trustworthiness of the study was evaluated using four criteria, credibility, transferability, dependability, and confirmability (Lincoln & Guba, 1986). Credibility was addressed through numerous methods. First, well-recognized research methods were used for the data collection and analysis. Each method supported the type of study conducted as evidenced in the sources used and cited throughout the study. Additionally, the participants used were randomly selected; they were all volunteers who decided to take part after hearing about the study. Third, the data underwent member checks. All observation and interview transcripts were given to the applicable participant for review prior to analysis. Lastly, the first author is familiar with AFA culture as she is a member of the AFA Corps.

Transferability was gained by understanding and reporting on background data used to contextualize this study as well as outlining the specific procedures used to gather data. As there was a dearth of published studies directly pertaining to online AFA courses and participation, studies for similar courses/certifications were used. While the pool of participants used in this study was small, the data collected illustrated a common theme that may be found within other AFA communities if the same or similar study was conducted.

Dependability was addressed through a detailed outline of data collection methods and through multiple data analysis techniques. The data analysis techniques also provided overlap as both analysis methods generated the same overarching themes.

Confirmability was met by disclosing the first author's biases and maintaining a reflective journal, recognizing shortcomings in the study, and allowing the research methodology and results to be scrutinized by including a detailed description of the methodology used.

Researcher Bias – First Author

My ontological view of this topic falls in line with positivism or constructivism due to my experiences with online AFA courses. I identify quite closely to the research topic, participants, and data collected in the pilot study. As an AFA Corps member, I have taken over 80 courses (most online) and cannot remember an instance when I used any of the knowledge learned in any of the jobs held over the course of a 12-year career. Taking each course is a chore; I spend my time advancing slides online while not reading any of the material but rather downloading study guides so I can pass each test. The amount of training and the redundancy of each course when compared to other course has left me bitter in regards the mandatory nature. My experiences led me to create my own sense of reality in which my negative feelings toward online AFA courses created a cause-and-effect relationship seen in positivist ontology; hating the courses caused me not to study or try to learn the material (Guba & Lincoln, 1994). Due to the number of courses I have taken, my construction of the reality surrounding online AFA courses is informed but alterable which is part of the constructivist ontology (Guba & Lincoln, 1994).

My own feelings coupled with the rantings of other friends and coworkers led me to attempt to formalize these feelings through a qualitative study. As the participants for this study were coworkers, consideration were taken to ensure the work environment and professional relationships were not impacted by the study. As I have very strong feelings on this topic, it was important for me to divorce those feelings when conducting the focus groups as any emotion could potentially sway the thoughts and responses of the participants.

Limitations and Delimitations

There are a few limitations and delimitations associated with this study. Limitations include the executive officer not sending out the call for volunteers so other avenues were used

to find volunteers to participate in the interviews and observations. The participants who did volunteer could have been doing so out of their friendship with the first author or because they had the most negative comments concerning their experiences with AFA courses. Either motivation could skew the results. Additionally, the knowledge generated does have limits to its validity as the experiences of AFA students may not mimic that of students in other online professional certification programs.

Delimitations include only using a population of 35 military members from a single location which could make the results not transferable to other locations with larger military populations. Additionally, civilian AFA members were also excluded as it was unknown as to how recently civilian AFA members completed online courses and/or certifications. As a result, civilian AFA members were left out of the study as their feedback may not be applicable to the current online course construct.

Findings

The different analyses employed in this study were found to answer the research question “*How do students’ perceptions towards the current format (i.e. teacher-centered) of online AFA (AFA) courses affect AFA personnel (i.e. student) participation?*” The short answer was the teacher-centered construct was a major contributor to negative student participation but supervisor interactions may also play a role in AFA personnel attitudes and actions. Participants reported the courses were repetitive and the mandatory courses did not apply to their daily jobs. The same information was presented in many different courses but there was too much information for the participants to absorb it in a meaningful way. Additionally, the participants did not enjoy taking the courses and found balancing the AFA course requirements with their

current job duties difficult. Because of this, the participants had no drive to truly learn the material which reflected in their experiences and interactions with the AFA online courses.

Three-question Framework

Using Srivastava and Hopwood's (2009) framework, I determined each response for all 14 questions in each of the three interviews gave insight into participant feelings toward AFA courses and/or background concerning each participant that led him/her to have those feelings. This finding corresponds to Question 1 "What are the data telling me?" (Srivastava & Hopwood, 2009). Because the responses all could tie into the overarching research question, I determined the data gathered matched the knowledge desired and answered Question 2 "What is it I want to know?" (Srivastava & Hopwood, 2009). I determined Question 3 "What is the dialectical, or fluid/dynamic, relationship between what the data are telling me and what I want to know?" had also been addressed (Srivastava & Hopwood, 2009). The data collected during the observations was analyzed using the same procedure. Only the part of the meeting that discussed AFA courses was used from Observation 2. The data collected during the observations was also found to meet Srivastava and Hopwood's (2009) criteria.

Narrative Analysis. A narrative analysis of the data showed the interviews and observations depicted roughly the same story. The participants would enjoy the courses more if they could apply the knowledge to their jobs. Lt Jones only enrolled in courses that were mandatory for job certification and then "brain dumped" the information right after passing the course. He stated, "There is no way I am going to absorb all of this information in conjunction with my daily responsibilities" (Lt Jones, personal communication, October 1 2017, lines 52-53).

During assessments, Lt Jones found himself "searching through [his] saved material for the answer" (Lt Jones, personal communication, October 1, 2017, line 163), thus illustrating a

lack of concern for learning the material. Lt Jones was not being able to tie the information back to his daily duties and there was too much information presented. Lt Jones did keep the downloaded documents for reference when he may be able to use the information in his job (Lt Jones, personal communication, November 22, 2017, lines 73-76). The only AFA courses he found enjoyable had student-to-student and student-to-instructor interaction that allowed individuals “to work through concepts and talk about ideas and share opinions” (Lt Jones, personal communication, October 1, 2017).

In addition to echoing Lt Jones’s response, Lt Smith reported he also “did not like the way the material was presented” (Lt Smith, personal communication, November 14, 2017, lines 97-98). He felt some of the presentations were “childish” and did not correspond to the audience as AFA personnel all hold at least a Bachelor’s in a technical field (Lt Smith, personal communication, November 14, 2017, line 100). The main theme throughout Lt Smith’s interview and observation was he felt he was taking courses that were “quite a waste...learning something that I won’t be doing for the next few years” (Lt Smith, November 14, 2017, line 66). Lt Smith found it “difficult to remember detailed information about legal requirements, paperwork, processes that will most likely change in the next year or two” (Lt Smith, personal communication, November 14, 2017, lines 109-111). Lt Smith reported he better enjoyed the in-person AFA courses as the “instructors kind of made it more enjoyable and relatable” (Lt Smith, personal communication, November 14, 2017, lines 210-211).

Instead of downloading the notes from each module, Lt Smith copied and pasted the text from each slide in the module into a Word document without reading it (Lt Smith, personal communication, November 20, 2017, line 19). He also copied and pasted the text from each hyperlink text box into the same Word document as Lt Smith realized most of the information in

the assessments came from the hyperlinks (Lt Smith, personal communication, November 20, 2017, lines 40-41). Lt Smith then saved the Word documents to reference later in his career (Lt Smith, personal communication, November 20, 2017, lines 89-90).

Capt Matthews did not spend much time discussing her AFA course experiences but made her feelings very clear - "In general, I feel like the online acquisition courses are a waste of time" (Capt Matthews, personal communication, November 3, 2017, line 45). Capt Matthews balanced work tasks with taking online AFA courses, which sometimes made her "click through the slides as fast as I can" (Capt Matthews, personal communication, November 3, 2017, line 103). Like Lt Jones, she completed two online AFA courses that were not mandatory for job certification but helped with daily duties. Capt Matthews found those two courses helpful and relevant to her job. Her frustration toward online AFA courses in general led her to assert "I don't think there is anything that will change my level of participation in these courses" (Capt Matthews, personal communication, November 3, 2017, line 97).

Capt Matthews experience mimicked the verbal and nonverbal sentiments expressed during the staff discussion concerning an online AFA course. Meeting attendees groaned and murmured once the discussion turned to reminding personnel of a requirement to complete a mandatory online AFA course by the end of calendar year 2018. The person informing the crowd of the requirement tried to make the course less of a chore to take by stating "This course isn't that bad. There's a lot of good information" (Staff Meeting, personal communication, October 2, 2017, line 39). While the crowd may have heard that appeal, they seemed to share the same motivation to take the course that Lt Jones, Lt Smith, and Capt Matthews had; the course was a required part of the job.

Constant comparison analysis. As previously stated, both the interviews and observations yielded three major themes, benefits to job/job effectiveness, educational practices, and learning environment. While these three major themes corresponded to the themes found through narrative analysis, use of a constant comparison analysis generated these themes through the inductive reduction of data into codes (Onwuegbuzie et al., 2012).

Benefits to Job/Job Effectiveness. Data from all three interviews and observations indicated there was not a substantial benefit to taking the majority of online AFA courses. Participants reported an absence of intrinsic benefit as most courses were not applicable to their current jobs. Lt Jones “can count on one hand the amount of times I can recall utilizing the items that were given to me in my actual job” (Lt Jones, personal communication, October 1, 2017, lines 96-97). Capt Matthews echoed Lt Jones by stating “I do not believe these courses have a significant effect on job performance...I did not find the information in the online courses relevant to my specific job” (Capt Smith, personal communication, November 3, 2017, lines 91-93). Each participant reported they would be motivated to take any AFA course if the material was directly tied to their current job duties. Lt Smith asserted “Nothing would make me want to get involved in the material as much as knowing that my mastering that would make my life easier in my job” (Lt Smith, personal communication, November 14, 2017, lines 178-180).

While Lt Jones was interested in using the knowledge gained through one set of AFA courses, he still found the constant “rebuilding of the foundation” not beneficial to his current job goals (Lt Jones, personal communication, October 1, 2017, line 106). Lt Jones also reported he would be more motivated to take the online AFA courses if longer courses were converted to in-person courses. “I get more value out of these than [sic] online counterparts” (Lt Jones, personal communication, October 1, 2017, line 132).

Despite the absence in direct job benefits, participants took the courses because of workplace expectations. Participants were expected to either to earn a mandatory certification or to fulfill a need-based mandate. Lt Jones reported he only took the courses “for which your current position is coded” (Lt Jones, personal communication, October 1, 2017, line 40). Capt Matthews reported “With few exceptions, I only take the courses which are required to achieve the desired acquisition certifications” (Capt Matthews, personal communication, November 3, 2017, lines 49-50). Lt Smith was much blunter with his motivation: “I’m told what courses to take...for certification” (Lt Smith, personal communication, November 14, 2017, line 80).

Participants struggled with integrating the concepts presented with their daily duties. Lt Smith stated it was “quite a waste to have me learning something that I won’t be doing for the next few years” and felt he “literally [could] be doing anything else and provide greater benefit” to the Air Force and his immediate work area (Lt Smith, personal communication, November 14, 2017, line 66; Lt Smith, personal communication, November 20, 2017, line 74). Lt Jones agreed most online AFA courses provided little value to his actual job but he completed them as a “checking the box” activity (Lt Jones, personal communication, November 22, 2017, line 64). Additionally, the intellectual property course discussed in Observation 2 was taken by AFA personnel as it was made mandatory due to a lack of patents, not because it helped AFA personnel earn job certifications (Staff Meeting, personal communication, October, 2, 2017, line 11). The mandatory nature of online AFA courses was also emphasized during Observation 2 as the levied requirement for course completion outweighed personal and professional feelings harbored by the meeting attendees concerning the utility of the course.

Participants found the most beneficial courses were not the ones taken as part of a job certification. This is supported through the data collected from Lt Jones, Capt Matthews, and

during Observation 2. Capt Matthews (personal communication, November 3, 2017, lines 112-114) found the two courses she took based on her supervisor's recommendation were "directly applicable to my job [and] increased understanding of the munitions I was working with." Early in Lt Jones's career, he found the test and evaluation courses he completed useful as they aided in his understanding of his job responsibilities (Lt Jones, personal communication, October 1, 2017, lines 47-48). However, those courses were not applicable to the job certification he was required to earn. The briefer in Observation 2 informed the crowd the course on intellectual property it was useful to those pursuing patents within their research efforts (Staff Meeting, personal communication, October 2, 2017, line 11). Lt Smith (personal communication, November 14, 2017, lines 201-204) discussed how he found certain courses such as data management potentially useful for his job, but they did not fall in line with any job requirements.

Participants also held out hope the information learned would be useful at some point in their career. Lt Jones (personal communication, November 22, 2017, lines 73-76) and Lt Smith (personal communication, November 20, 2017, line 41) kept the notes taken from each course in hopes they would need to reference the material in a future job. However, as Lt Jones stated, the material may only provide a starting point for review. Lt Smith (personal communication, November 14, 2017, lines 126-127) asserted he would find the material useful if he were a project manager but was unsure if right now was "the right time to be...taking that."

Educational Practices. The educational practices used in online AFA courses were not determined to benefit study participants. The participants found the courses relied on rote learning as evidenced by their repetitive nature. Lt Jones (personal communication, October 1, 2017, lines 34-35, 59-60) found the course long-winded and "no longer buil[t] new concepts on a foundation of the previous ones but red[id] the same foundation...[and was a] rehashing of

information instead of expounding on concepts.” He also stated the material in each course was not difficult as “most of it is simply a regurgitation of knowledge” (Lt Jones, personal communication, October 1, 2017, lines 188-119). Lt Smith’s (personal communication, November 14, 2017, lines 185, 110-111) view slightly differed from Lt Jones as he found the courses to be “quite advanced” and was a deep dive into concepts that “will most likely change in the next year or two.” Capt Matthews (personal communication, November 3, 2017, lines 64-65) did not see “the benefit in having to memorize specific minute details” such as regulation numbers. Lt Jones (personal communication, October 1, 2017, line 121) found all but one course he completed “has been just the memorization of concepts.”

Lt Jones (personal communication, October 1, 2017) and Lt Smith (personal communication, November 14, 2017) would prefer to learn through group projects and authentic activities, both of which were absent in the two observed courses. Lt Smith (personal communication, November 14, 2017, lines 210-211) found his in-residence course experience “slightly better” as the “instructors kind of made it more enjoyable and relatable.” Lt Jones (personal communication, October 1, 2017, lines 163-165) emphasized that mandatory AFA courses should be in person “where people can ask questions and work with peers on real scenarios to implement the concepts.”

The course information and length of each course was also a point of contention. Capt Matthews (personal communication, November 3, 2017, lines 79-80) reported she did “not see how these courses work together” overall despite the majority of her courses working toward specific certifications. All interviewees believed the information presented in each course was so similar it caused some connectivity in concepts. Capt Matthews (personal communication, November 3, 2017, lines 71 and 73-75) asserted the targeted training (i.e. shorter) courses “seem

to go over an appropriate amount of information” while the more generic online AFA courses “have too much information and take too long” as some take days or weeks to cover the required amount of information before taking a formative or summative assessment. Lt Smith (personal communication, November 14, 2017) found his entry-level online AFA course was long but could be broken up into parts. Lt Jones (personal communication, October 1, 2017) was overwhelmed with the amount of information presented in one course as courses with 12 different lessons and 100 slides per lesson. Lt Jones (personal communication, November 14, 2017) mentioned that even though one AFA course included copious amounts of information, the online course was one of his favorites because it was based in student-to-student and student-to-instructor interactions and featured group work and discussions.

Learning Environment. Participants were also turned off from online AFA courses due to their environment. Part of the environment was the course itself. Capt Matthews (personal communication, November 3, 2017) and Lt Smith (personal communication, November 14, 2017) found the courses not user-friendly. Capt Matthews (personal communication, November 3, 2017, line 64) felt the “cute interactive options embedded in some of the courses...did not “tell [her] what [she] need[ed] to know.” Lt Smith (personal communication, November 14, 2017, lines 99-100) thought “the way the courses were presented was kind of childish.” Instead of learning through text included in cartoon bubbles, Lt Smith (personal communication, November 20, 2017) would rather learn through scales and charts as he felt they better appealed to his scientific background. Lt Smith (personal communication, November 20, 2017) also disliked having to not only read all the various parts of a lesson but also select and read each hyperlink on a given module page.

Lt Jones and Lt Smith commented not only on the courses themselves but also on the course assessments. Lt Smith (personal communication, November 20, 2017, line 128) found the material for most assessment questions came from these hyperlinks and believed this was a “deceptive test practice.” Lt Smith commented further on the assessment practices as he learned test-taking techniques through continued online AFA course participation. Lt Smith (personal communication, November 20, 2017, lines 55-56) found he “memorized rote answer[s] because that’s what the Air Force wants.” Lt Jones and Lt Smith acknowledged their assessment practices tested their ability to find key words not their knowledge of the information (Lt Smith, personal communication, November 20, 2017; Lt Jones, personal communication, November 22, 2017). Both participants downloaded the course information into a separate searchable document (Lt Smith, personal communication, November 20, 2017; Lt Jones, personal communication, November 22, 2017). When it was time for the assessment, both participants performed a key word search to find the concept that matched the assessment question. As soon as they found the “right rote answer” the participants ended their search and selected the corresponding answer in the assessment (Lt Smith, personal communication, November 20, 2017, line 59; Lt Jones, personal communication, November 22, 2017). If either answered a question incorrectly, both Lt Jones and Lt Smith would conduct a different key word search to find the answer. In their observation, only Lt Smith needed to retake an assessment.

Other parts of the environment that influenced participants’ interactions with online AFA courses were the participant’s supervisor and the participant’s work/course balance. All participants agreed supervisors influenced both the courses taken and how the courses are taken. None of the three participants were currently nor have taken online AFA courses of their own free will; all have been suggested/mandated by his/her supervisor (Capt Matthews, personal

communication, November 3, 2017, Lt Smith; personal communication, November 22, 2017; Lt Jones, personal communication, October 1, 2017). Despite the mandate, Lt Smith and Lt Jones found the time spent taking the course was a direct conflict with the time needed to complete their daily job tasks; this conflict led to both gentlemen to not read the slides in each module prior to downloading the course material (Lt Smith, personal communication, November 20, 2017; Lt Jones, personal communication, November 22, 2017). Lt Smith (personal communication, November 22, 2017, lines 67, 78-80) found his process in taking online AFA courses a “time consuming lesson in futility” and was “embarrass[ed] this is how I [take the courses]...but everyone I’ve talked to takes [them] the same way.” Lt Smith (personal communication, November 14, 2017, lines 221-224) felt his practices were partially “based on how much time I’ve had to spend with the courses I have to take” in addition to focusing “on the work I need to be doing.” Lt Jones (personal communication, October 1, 2017) suggested the online AFA courses should allow people to work at their own pace to make it more convenient while Lt Smith (personal communication, November 20, 2017, line 68) now prefers to take courses at home “in a relaxed environment.”

Discussion and Implications

The findings of this study proved the majority of online AFA courses were based in teacher-centered practices. Most courses were reported by the participants to be repetitive without peer interaction nor instructor feedback which helped create the negative feelings harbored by AFA personnel included in this study. While a teacher-centered approach does support parts of behaviorism and cognitivism, the current construction of online AFA courses does not fully support cognitivism nor behaviorism. To support cognitivism, the participant must be an active part of the learning process. The participants in this study acknowledged they were

passive in their own learning as they did not see a benefit to truly knowing the material. Online AFA courses were not found to support behaviorism as the behavior change observed in the participants was in terms of growing more passive course completion techniques as opposed to performing their job duties more skillfully. Additionally, the assessment techniques do not test for behavioral changes. Instead, assessments gauge the ability to regurgitate factual knowledge.

Online AFA courses do not showcase constructivist theory concepts either. The current construction of each online AFA course relying on teacher presentations (i.e. slides) that each student progresses through and which end in assessment solely comprised of factual questions does not account for any knowledge already held by the student. While students may be “empty vessels” in terms of acquisition knowledge, Lt Smith wanted the acquisition community to acknowledge he had some level of education. The repetitive nature of each course, as outlined specifically by Lt Jones, does not give students the opportunity to create the schema needed to transfer the course knowledge to other AFA courses. To properly employ constructivist techniques, AFA leaders should consider using the same types of group and instructor interaction mentioned by Lt Jones’s interview and observation. These interactions with other Acquisition professionals would lead to a more enriching learning environment.

Situated learning theory was also not exhibited in online AFA courses. None of the participants stated their mandatory courses were able to be used in their current job. This may be because of a complete disconnect of the course content to the participants’ daily duties. However, this also could be because the participants do not know how to use the knowledge presented. All the courses discussed by the participants and seen in the observations were context-bound and did not allow students to become involved in their own learning. Despite

online AFA courses being led/moderated by other AFA professionals, students are not given the opportunity to engage in *legitimate peripheral participation*, a key concept for situated learners.

Lastly, despite acquisitions practices resting in connectivism, this educational theory was not fully utilized. Participants in this study were allowed to determine what information was most important to them, but this unfortunately led to the majority of information deemed non-essential. The lack of opportunity to discuss opinions with others greatly limits student ability to know connect information sources and learn from others. This includes learning the soft skills vital to properly use knowledge gained through AFA courses in a real-world environment. Students of online AFA courses are not nurtured by mentors nor do the courses help students connect necessary ideas and concepts. Most importantly, the current construct of online AFA courses do not give students the opportunity to make their own decisions concerning the use of information presented in a shifting environment.

More overall research is needed concerning student participation in online AFA courses. While the three interviews and observations paint a clear picture of the feelings of these three AFA personnel, currently there is not enough information to propose wide-spread changes in online AFA course structure. Additional studies should be conducted at multiple locations and include the feelings of civilian and military AFA personnel. Inputs from both groups of professionals are needed to paint a more comprehensive picture of the feelings of AFA personnel. Studies examining the influence supervisors have on AFA members while they are taking and/or needed to take online AFA courses also need to be conducted.

Recommendations

Once more research is conducted, two recommendations may help improve the participation of AFA personnel in online course. The first recommendation is to turn the findings

of the additional studies into an action plan for a revision of online AFA courses. Future research could compare the complaints concerning current online AFA teaching practices to sound educational theory. The comparison of practices could lead to recommended changes within the AFA curriculum. These proposed changes can then be reviewed by a sampling of military and civilian AFA personnel or they could be enacted within an online AFA course via beta testing using a small contingent of AFA personnel. Either method should garner feedback to determine how students feel about the new course construct. Once a course is revised to meet student needs, the course can be deployed to the rest of the AFA community. This process can subsequently be applied to each AFA course that needs revision.

The second recommendation is to examine the need for AFA personnel to take AFA courses at time-triggered points in their careers. As one of the major themes of the data collected relates to taking online AFA courses when they are not applicable to a person's daily duties, the Air Force Acquisition Corps should re-evaluate the trigger for taking each AFA course and consider making them job/duty-based certifications.

Conclusion

This study illustrated a few key concepts within student participation in online AFA courses. First, online AFA courses use teacher-centered teaching practices. When implemented correctly, teacher-centered practices can be beneficial to novice AFA professionals. However, the wide-spread use of teacher-centered practices coupled with an incomplete deployment of learning theories that support teacher-centered practices can lead to negative feelings of AFA personnel toward online courses. Second, supervisor interactions and practices can be a contributing factor to Acquisition personnel having negative feelings toward online courses. If students are not given the resources nor motivation to engage in each course, students may

develop negative feelings leading toward each course and not learn the material. Third, AFA personnel want to take courses that directly impact their job. This is important as it means personnel could have positive experiences if they can tie the learning objectives back to daily tasks. The AFA participants also believed they could learn from others which can then help them apply the information presented in their work areas. Lastly, a shift to student-centered teaching practices grounded in various learning theories would address the Captor complaints participants had with their online AFA course experiences. Employing sound instructional practices within online AFA courses can lead to greater student participation.

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Appendix A

Interview Protocol

Participants were read a participatory statement and allowed to reconfirm their consent. Each participant selected a pseudonym prior to the start of the interview. At the end of the interview, each participant was asked if he/she would like to take part in an observation. The interview questions are below.

- Please tell me about your military experience (e.g., years of experience, current assignment and years in that assignment).

- The next series of questions specifically focus on the AFA courses.

1. What are your general feelings toward online acquisition courses?
2. What makes you choose which courses to take?
3. What courses have you taken that were not required?
4. How was the information presented in each course? Probes: Was it easy to understand? Was the material easy to remember? Why or why not?
5. What do you think about the quantity of information presented in each course? Probes: Is it too much, too little, or just right? Why?
6. How do you think the courses you've taken work together?
7. What do you think about the length of each course? Probes: Do you think they are too long, too short, or just right? Why?
8. How would you describe the effectiveness of these courses in relationship to the skills you need to do your job?
9. What might affect your active participation in the course?
10. Tell me about the level of content you learn in the courses?
11. What about these courses might affect your future course enrollment? What about participation?
12. Tell me about your top three courses taken? Why are these in your top three?
13. What are your bottom three courses taken? Why are these in your bottom three?
14. Is there anything else you would like to share concerning your feelings toward or experiences with online acquisition courses?

Appendix B

Observation Protocol

Date:

Time:

Pseudonym:

Title of Course Observed:

How Many Courses Were Taken Previously:

Reason for Course Enrollment:

Demeanor of participant:

Body language (posture, facial expression):

General Attitude (annoyed, studious):

Process of taking the course (reads slides, clicks ahead):

How many modules are completed during the observation?:

Did the participant go back to review any course material? If so, why?:

Process of taking course assessment (uses notes, tries to remember facts):