COMPARING ACTIVE DUTY AND TRANSITIONAL MILITARY VETERAN

STUDENTS' EVALUATION OF ONLINE DISTANCE HIGHER EDUCATION

LEARNING ENVIRONMENTS

by

Sherry Djo Crissman

Liberty University

A Dissertation Presented in Partial Fulfillment

Of the Requirements for the Degree

Doctor of Education

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ABSTRACT

Active duty service members' participation in non-traditional higher education designed for veterans and other non-traditional adults can be uniquely impacted by their unpredictable military schedules, geographic instability, and frequently limited access to technology needed to complete course requirements while in remote areas. The purpose of this study was to examine whether active duty undergraduates differed significantly regarding their attitudes toward distance learning and their perceptions of the distance learning environment compared to veterans and non-traditional adults. This causal comparative study examined adult students' perceptions after participating in 200-level undergraduate education delivered online at a private four-year institution based on their current status as active duty, veteran, or non-military non-traditional student using the Distance Education Learning Environment Survey. ANOVA was used to compare overall enjoyment of distance learning. MANOVA examined differences among groups regarding instructor support, personal relevance, and student autonomy. Participants included 203 online undergraduates who completed a 200-level general education course during the Spring 2017 semester. There was no significant difference between active duty members and veterans regarding enjoyment of distance learning, and no significant differences among groups for instructor support, personal relevance, and student autonomy. Based on the literature, there is a need to develop an instrument focused specifically on evaluating institutional and programmatic barriers. A mixed-methods approach that builds on existing literature regarding issues faced by active duty military students could result in the development of such an instrument.

Keywords: non-traditional higher education, adult learning, adult continuing education, military students, distance education

Copyright Page

Dedication

This dissertation is dedicated to the first and dearest veteran in my life, the late Joseph Victor Steadham (1931-1999) and his loving wife and my mother, Sherry Ann Hanson Steadham. This dissertation is further dedicated to my husband, David, and our sons Craig Joseph, United States Army, and Jonathon Tyler. Without the lifelong support of my family, and by the grace of our Father, our wildest pursuits are never fully achieved. I may even start cooking for you again! Thank you all for your tireless patience and devotion.

Furthermore, this is dedicated to all those serving or who have served our county's military at home and abroad. God bless you all. I wish you the best in all your personal, professional, and academic pursuits.

Acknowledgments

The work and encouragement required to complete an effort such as the doctoral journey is not possible without the support of many individuals. I would like to take this opportunity to honor the efforts of my dissertation committee: Dr. Lisa Foster, Dr. Ellen Lowrie Black, and Dr. Michelle Barthlow. Dr. Foster's weekly encouragement, shared frustrations, emotional support and enduring commitment was essential for completing this study, as was the countless hours dedicated to the needs of her doctoral candidates. Dr. Black's strength, grace, and personal challenge to her leadership students early in my initial coursework were catalytic in firming my commitment to pursue this journey and continued to prove indispensable through the final stages of research design and data collection. Dr. Barthlow's presence and mentorship at a pivotal time during the design process of this pursuit was but by the grace of God, along with her continued encouragement and advice. I would also like to thank my friend and professional colleague, Professor Bill Roeting, CAPT USN (Ret.), for his support and shared determination, and for sharing his vision and dedication to empowering the enlisted service men and women of the armed forced serving our country. His enduring effort to pay it forward has been truly inspirational.

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List of Abbreviations

Active Duty Service Member (ADSM)

Analysis of Variance (ANOVA)

Assessment of Prior Learning (APL)

Higher Education Institution (HEI)

Learning Management System (LMS)

National Center for Education Statistics (NCES)

Non-traditional Adult Student (NTA)

Service Veteran (SV)

Servicemember Opportunity College (SOC)

CHAPTER ONE: INTRODUCTION

Overview

Increasing numbers of higher education institutions recognize the significance of developing quality, flexible programs and specialized services intended to enhance the higher education experience for military students and their families. In the process of evaluating needed programs and services, active duty service members are often considered indiscrete from their service veteran peers. Given the many factors that can affect successful completion of adult degree completion programs, even those specifically designed for non-traditional students, active duty service members may be quite unique and offer differing perceptions regarding online learning environments (Machuca, Torres, Morris & Whitley, 2014; Starr-Glass, 2013).

Background

Understanding the unique experiences of service members and veterans, in particular how these experiences impact their educational and social needs as students, has become of major importance for colleges and universities seeking to better serve the increasing numbers of both active duty and service veteran students (Arminio, Grabosky & Lang, 2015; Hamrick & Rumann, 2013). Failure to acknowledge and adequately address the needs of active duty undergraduates as a unique student population compared to service veterans and other non-traditional students may result in active duty service members experiencing greater dissatisfaction and frustration, resulting in their increased potential for non-completion.

Active duty service members, consistent with other non-traditional adults, have become increasingly responsive to the growing need for post-secondary education to stay or become competitive in the overall labor force (Chen, 2014; Deggs, 2011; Grace, 2014). More recently, degree completion has become particularly important for career advancement, as enlisted service

members compete for promotion within the senior ranks. Because active duty military students have greater access to online distance higher education programs than other non-traditional programs offered on-site, this study focused on Active Duty Service Member (ADSM) and Service Veterans' (SV) participation in asynchronous online courses of instruction at a private four-year institution of higher learning.

Merriam, Caffarella, and Baumgartner (2007) and Tainsh (2016) recognize not only the increasing enrollment in online education programs, but additionally how high-quality and effectively delivered online learning is an emerging and valuable segment within the higher education community. Demillo (2015) purports, as information is increasingly available for free on the internet, it is the manner in which higher education institutions package and deliver information that will define the real value of education for future students. Limited literature is available, however, with a specific focus on active duty students, many of whom are dealing with increasingly longer and more frequent remote deployments and unpredictable operational requirements. At the same time, these students face increased pressure to complete their undergraduate education for continued enlisted advancement.

Existing studies regarding military students and higher education have typically involved transitional service veterans (those recently returning from active duty), or approach the needs of all military students as a collective population (Arminio et al., 2015; Brown & Gross, 2011; Evans et al., 2015; Naphan & Elliott, 2015; Nichols-Casebolt, 2012). Environmental factors such as flexibility (pacing/submission of course requirements), instructional delivery, availability of required technology affecting needed resources to meet course requirements while deployed, and faculty/student interaction can impact the active duty student's assessment of online learning environments, and their overall satisfaction with distance education. These issues become

increasing significant to higher education institutions confronting their own quality metrics regarding student evaluation of instruction, course disenrollment, and program discontinuation.

Cornelius, Gordon, and Ackland (2011) eloquently reflect the ADSM's need for increasingly accessible non-traditional higher education programs, asserting learner-centeredness demands greater flexibility regarding time and place, ensuring all students have access to educational resources when and where they need. Despite existing trends, HEIs continue to align non-traditional programs with traditional academic schedules and course frameworks. Perhaps most consequential for active duty students enrolling in online courses is the propensity for institutions to establish course structures (pacing and assignment submission requirements) based on traditional models (Brown & Gross, 2011; Machuca et al, 2014; Starr-Glass, 2013). Other concerns have included faculty perceiving active duty military students as high-maintenance, or worse, undesirable (Barry, Whiteman, & Wadsworth, 2014; Brown & Gross, 2011). Subsequently, in examining the needs of this unique student population, it is important for higher education institutions to consider whether the most significant issues are social, academic, or procedurally driven.

Historical Context

Early literature regarding non-traditional educational program management was primarily concerned with adult cognition and motivational strategies for dealing with learners considered atypical of the mainstream student population (Knowles, 1970, 1980). Morstain and Smart (1977) expanded the field of adult learning beyond cognitive theory by defining five groups of adult learners based on motivational determinants that foster their participation and continuation in formal education. Subsequently, Cross (1981) became a foundational reference for education practitioners regarding the effective facilitation of adult instruction. Subsequently, Wolfgang &

Dowling (1981) begin to substantiate the theory of adults as pre-determinants of their own learning, versus learning primarily based on external forces.

Driven by early efforts to address the challenge presented by an increasing adult student population, institutions attempted to understand and respond to the social and environmental needs of this new non-traditional demographic, generating research addressing anticipated versus real barriers to adult learning (Richter & Witten, 1984), and adapting institutions to better serve adult students (Terrell, 1990). It was not long before colleges and universities were compelled to address factors regarding higher levels of disenrollment and poor retention rates exhibited by non-traditional students (Carr, 2000; Mercer, 1993; Villela, 1991) and began exploring theoretical models of adult persistence in the formal higher education setting (MacKinnon-Slaney, 1994).

In recent decades, the higher education community has considered distance and other non-traditional program models as a socioeconomic reality and, much to their benefit, an emerging business model and one that is becoming both formally institutionalized in the overall higher education landscape as well as surpassing other initiatives in addressing students' needs (Fairchild, 2003; Kasworm, 2003; Muilenburg & Berge, 2005; O'Connor, 1994). More recently, Arminio, Grabosky, and Lang (2015) dedicate their effort to providing a detailed evolution of the relationship between the military and higher education institutions, government benefits for education and vocational training, as well as a contemporary approach to understanding the social needs of service veterans returning to complete higher education programs. Similarly, Hamrick and Rumann (2013) has become a desktop reference for military service program administrators, counselors, and other individuals who may be involved in coordinating veteran student advocacy programs. The limitations of most related literature in the field result from its

primary focus on returning service veterans and their assimilation and participation in on-campus programs.

Social Context

Institutional issues, that is how colleges and universities organize themselves to administer instruction, may in fact present the most difficult barriers for active duty military students to overcome in pursuit of higher education in programs typically structured for traditional students (Cross, 1981; Deggs, 2011; Fairchild, 2003). Such organizational barriers may significantly outweigh issues such as student academic readiness, time, and financial concerns as determinants of adult participation. Higher education institutions have an implied social responsibility to facilitate lifelong learning and the accumulation of knowledge for all populations. For the education community, this means allowing innovation and creativity to drive efforts to expand opportunity for higher education, as businesses and government agencies look to the higher education community as partners in continuing education and professional development for both credit and non-credit training (Merrill-Glover & Edwards, 2015).

Theoretical Context

Cross's (1981) categorization of barriers to adult participation provides the theoretical framework for the proposed inquiry. Barriers to adult learning are defined as: institutional, practices and systematic issues that include policies, procedures, attitudes and other formal and informal behaviors that discourage or prevent adults from enrolling in or successfully completing formal education; situational, factors affecting working adult students such as time, family commitments, money, irregular work schedules, and familial or collegial attitudes and support for higher education; and dispositional, confidence about academic ability, concerns about age, or unfavorable prior educational experiences (Cross, 1981). This framework has been similarly

applied in examining adults' developmental needs as students (Terrell, 1990), and characterizing

the perceived barriers of adult learners (Deggs, 2011).

Problem Statement

Despite greatly expanding opportunities for online distance learning, irregular and remote

operational commitments make it difficult for active duty service members to fully participate in

the learning environment and to meet course requirements bound by the traditional academic

calendar (Machuca et al., 2014; Starr-Glass, 2013). This inquiry sought to recognize this

potentially under-acknowledged population of high quality students with many benefits to offer

HEIs: experienced, motivated, achievement-oriented undergraduates desiring reputable, quality

online degree-completion programs. Baccalaureate degrees have become essential for senior

enlisted military advancement. Unlike the many returning service veterans ADSMs are so

commonly associated with, these students can be significantly burdened by unpredictable

operational schedules, geographic instability, tuition policies, and overall ability to devote

limited time and energy to their degree-completion efforts.

Increasing literature is emerging as institutions challenge each other for their share of the

transitioning service veteran market, particularly in response to enhancements in educational

benefits for service veterans and their families that occurred during this decade (Arminio,

Grabosky & Lang, 2015; Brown & Gross, 2011; Hamrick & Rumann, 2013; Naphan & Elliott,

2015; Nichols-Casebolt, 2012). There is limited literature, however, specifically devoted to

defining online higher education issues having the greatest impact on active duty students as it

relates to providing flexible, accessible programs (Machuca et al., 2014; Starr-Glass, 2013).

The problem is the lack of an overarching framework to guide program administrators

and university officials in developing structures to support military student populations (Evans et

al., 2015). Maximizing access to online distance education presents the most obtainable

solutions. Therefore, there is a definite need to examine specifically how ADSMs evaluate

online learning environments in which they participate, and their attitudes toward distance

learning opportunities compared to service veterans and other non-traditional students (Machuca

et al., 2014; Ross-Gordon, 2011; Starr-Glass, 2013).

Purpose Statement

The purpose of this causal-comparative study was to examine whether active duty

undergraduates differed significantly regarding their attitudes toward distance learning and their

perceptions of the distance learning environment regarding credit-bearing undergraduate

education delivered online when compared to returning service veterans and other non-

traditional adult students. Participants included 203 undergraduate students who completed a

200-level general education course delivered online during the Spring 2017 semester.

For this study, the independent variable was the student's current military affiliation:

active duty service member (ADSM), transitional service veteran (SV), or non-military affiliated

non-traditional adult undergraduate student (NTA). To obtain a measure of students' general

enjoyment regarding distance education, this study used the Distance Education Learning

Environments Survey (DELES) eight item attitudinal enjoyment scale (Walker, 2004; Walker &

Fraser, 2005). To obtain a measure of students' perceptions of the online learning environment,

three subscales provided by the DELES instrument were analyzed: a) instructor support, b)

personal relevance, and c) student autonomy. Along with demographic information, these

measures allowed for data to be analyzed based on military affiliation, as well as factors such as

age, rank, or prior online learning experience, which may be significant to guide future study.

Significance of the Study

Limited scholarly research has focused on evaluating learning environments that promote successful degree completion specific to students currently serving on active duty. Furthermore, efforts to support the military student population, which includes returning service veterans, has been characterized as ad hoc rather than strategic (Brown & Gross, 2011). As the authors indicate, ADSMs represent a mature, motivated, and achievement-oriented student population (Brown & Gross, 2011). They may also represent a unique population that is unnecessarily stymied in their quest for degree completion by current structures in place. Major observations point to course standards and expectations built on traditional student models, as well as some evidence of unfavorable faculty perceptions of military students in general (Barry et al., 2014; Brown & Gross, 2011). Failing to address these issues can leave institutions dealing with disproportionately high rates of disenrollment for these otherwise very task-oriented, high achieving individuals.

What was once non-traditional is now clearly a lasting and significant component of higher education program management (Ross-Gordon, 2011). Consequently, continued research is needed that gives greater regard to how institutions structure learning environments, and how such environments promote or fail to promote successful completion of non-traditional degree programs for all student populations (Brown & Gross, 2011; Nichols-Casebolt, 2012; Machuca et al., 2014; Ross-Gordon, 2011).

If undergraduate students serving on active duty did prove to differ significantly from service veterans and other non-traditional adults in their attitudes toward distance education, specifically the online learning environment, such findings would explain concerns with programs intended to support the military student population that only address this population as

an aggregate. These findings add to the body of literature regarding the unique needs of active duty military students' in providing flexible, accessible online higher education (Brown & Gross, 2011; Machuca et al., 2014; Ross-Gordon, 2011; Starr-Glass, 2013).

Research Questions

RQ1: Is there a difference in attitudes regarding general satisfaction/enjoyment of online undergraduate education among non-traditional students based on military affiliation (active duty, service veteran, non-military)?

RQ2: Is there a difference in perceptions of instructor support, personal relevance, and student autonomy regarding online undergraduate education among non-traditional student based on military affiliation (active duty, service veteran, non-military).

Definitions

Terms pertinent to the current study are defined as follows:

1. *Andragogy* – the art and science of helping adults' learning (Knowles, 1970, 1980; McCann et al., 2012).

2. *Assessment of Prior Learning (APL)* – the process of acknowledging adults' formal, informal and non-formal learning intentionally resulting in awarding of academic credit based on knowledge acquired outside of a formal academic setting (Stenlund, 2013).

3. *Dispositional barriers* - self-perceptions about oneself as a learner that discourage adults from participating in educational activities (Cross, 1981).

4. *Distance learning* – flexible learning in terms of time, place, or both relevant to instructional delivery (Beyth-Marom, Chajut, Roccas & Sagiv, 2003).

5. *Institutional (or environmental) barriers*- organizational "practices and procedures that exclude or discourage working adults from participating in educational activities such as

inconvenient schedules or locations, full-time fees for part-time study, inappropriate

courses of study, and so forth" (Cross, 1981, p. 98).

6. *Learning environment* – "the diverse physical locations, contexts, and cultures in which

students learn," including "the ways in which teachers may organize an educational

setting to facilitate learning" (Bates, 2013).

7. *Non-completer* – a student who enrolls in a course or program of formal instruction,

however, for reasons of academic preparedness, compatibility of their original choice, or

for other matters are not able to compete the course or program and dis-enroll (Ozga &

Sukhnandan, 1998).

8. *Non-enroller* – also referred to as a non-participant, a potential student dissuaded from

engaging in formal education for a variety of factors, included real and perceived barriers

to their successful participation (Cross, 1981).

9. *Non-traditional student* – students typically over the age of 24, and exhibiting at least

some of the characteristics that include being employed, having family responsibilities

other than themselves, with some years of separation between completing secondary

education and engaging in higher education courses of instruction (Chen, 2014; Fairchild,

2003; Khiat, 2015).

10. *Online learning*- internet enabled or assisted formal education where the primary learning

resources and instructional activities are conducted over the internet (Beyth-Marom et al.,

2003; Jordan, 2014).

11. *Situational barriers*- personal issues, such as time and money, family support, and social

attitudes that discourage adults from participating in educational activities (Cross, 1981).

12. *Transitional Service Veteran (SV)*; a term commonly used in the higher education

community referring to prior service members engaging in post-military careers, higher

education, or both, and generally regarded as being within the first years after separating

from active duty (Naphan & Elliott, 2015; Nichols-Casebolt, 2012).

CHAPTER TWO: LITERATURE REVIEW

Overview

Despite concerns over rising tuition costs and strained budgets, many higher education institutions appear to devote significant resources toward enhancing on-campus programs and facilities designed to recruit traditionally aged students. Non-traditional adult students, however, continue to represent an expanding student population electing to participate in online and other distance learning programs to fulfill their higher education goals. Despite increased focus on establishing on-campus programs to support returning veterans, a frequently underemphasized opportunity for innovation and outreach is in response to the unique needs of the military undergraduate still on active duty. Access to suitable baccalaureate degree completion programs for active duty service members remains an important factor for the service member, as it should likewise be for institutions desiring to expand outreach to this population (Machuca et al., 2014; Starr-Glass, 2013). The following literature review examines online learning environments and issues having the greatest impact on the successful participation of active duty adult students participating in online higher education.

Theoretical Framework

The theoretical framework driving this study is based on Cross's (1981) barriers to successful adult participation in formal education: institutional, situational, and dispositional. Cross expounds upon existing adult motivational theories such as Boshier, Houle, Knowles, Morstain and Smart, and Tough, providing a detailed explanation of the multitude of internal and external factors impacting non-traditional adult participation in formal education, with the goal of improving access to higher education opportunities for all populations and enhancing student motivation to promote their successful continuation (Cross, 1981). Cross's work continues to be

readily cited in current research, and is foundational to understanding issues dealing with designing accessible non-traditional educational programs for adults (Deggs, 2011; Hyland-Russell & Groen, 2011; McCann, Graves, & Dillon, 2012; Saar, That, & Roosalu, 2014).

Defining Barriers to Adult Participation

Improved access to higher education can be achieved through institutions examining their own barriers that lead to adult nonparticipation or disenrollment, and by systematically working toward their minimization or elimination (Cross, 1981; Deggs, 2011; Hyland-Russell & Groen, 2011; McCann et al., 2012; Saar et al., 2014).
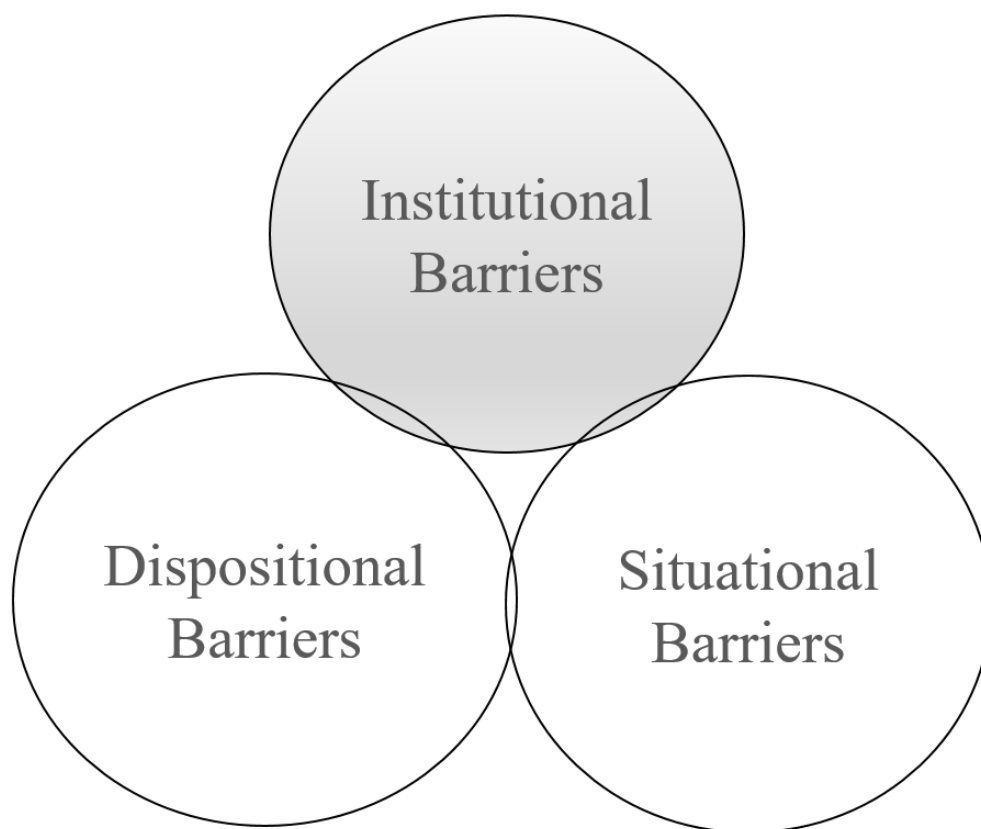
Figure 2.1. Cross's (1981) Categorization of Barriers to Adult Non-Traditional Participation in Formal Education Environments.

Cross's three categories of barriers exhibited in Figure 2.1 are amplified in Table 2.1, along with potential student impact on successful participation and completion:

Table 2.1

Barriers to Adult Participation in Formal Higher Education

Category	Description	Impact on Adult Student Participation
Institutional	institutional practices and systematic issues that include policies, procedures, attitudes and other formal and informal behaviors that discourage or prevent adults from enrolling in or successfully completing formal education	unable to enroll when desired based on admissions requirements or timelines lack of favorable tuition rates, especially for online delivery required courses not available online or asynchronously inflexible course participation requirements lack of recognition for prior learning and life experience unable to meet institutional residency requirements degree completion taking too long
Situational	factors affecting working adult students such as time, family commitments, money, irregular work schedules, and familial or collegial attitudes and support for higher education	costs disproportional to perceived benefit, or the impact on other family needs time and location making attendance or participation difficult or impossible relocation or mobility issues
Dispositional	confidence about academic ability, concerns about age, unfavorable prior educational experiences	fear of failure unable to relate benefits of participation to personal or career goals

Note. Adapted from *Adults as Learners: Increasing Participation and Facilitating Learning* by K. P. Cross, 1981, p. 98. Copyright 1981 by Jossey-Bass, San Francisco.

Understanding reasons that discourage adult participation in higher education is as significant to defining the problem as exploring factors that attract non-traditional adult students to continue their formal education, including flexibility, tuition costs versus perceived future benefit from education, and time necessary to complete degree requirements (McCann et al., 2012; Saar et al., 2014). Barriers may include those that exist within the structures of the organization, and those simply perceived by the student due to lack of outreach and communication regarding available opportunities (Cross, 1981). In either case, institutional barriers reportedly affect 10 to 25 percent of potential adult learners, ranking second to situational barriers (Cross, 1981). Situational barriers vary based on individual students, and are typically outside the control of the learning organization. Therefore, institutions intending to remain competitive in the adult education marketplace must increase access by reducing structural barriers to participation.

Cross additionally maintains how institutional barriers, those within the structures of higher education institutions, can perpetuate existing achievement gaps among income and other social groups (Cross, 1981). Individuals who have had positive educational experiences, or have families that strongly value education, typically those in higher income categories, are likely to be better motivated, thus more inclined to pursue their educational goals (Aslanian, 1983; Cross, 1981). Current efforts by the education community to minimize existing achievement gaps further exemplify the need to maximize access to, and improve both the flexibility and affordability of, educational opportunities for all individuals (Grace, 2014; Saar et al., 2014). This includes providing greater access to quality higher education for active duty enlisted personnel (Brown & Gross, 2011; Machuca, Torres, Morris, & Whitley, 2014; Starr-Glass, 2013), who can often be first generation college students (Evans et al., 2015).

Table 2.2 adapted from Cross (1981) demonstrates percentages of adult participants reportedly affected by specific institutional barriers as part of the author's earlier research:

Table 2.2

Perceived Institutional Barriers to Adult Learning

Perceived Institutional Barriers	Percentage of Potential Learners Reportedly Affected
Full time attendance requirements	35%
Time required to complete degree	21%
Unable to attend courses when scheduled	16%
Poor communication about course offerings	16%
Inflexible attendance requirements	15%
Courses unavailable when desired	12%
Difficult/complex enrollment procedures	10%
Unable to meet admission requirements	6%
Unable to get credit (*interpreted as *no credit for prior learning*)	5%

Note. Adapted from *Adults as Learners: Increasing Participation and Facilitating Learning* by K. P. Cross, 1981, p. 99. Copyright 1981 by Jossey-Bass, San Francisco.

University and college continuing education program managers and administrators are in the best position to respond to institutional barriers they may be perpetuating, wittingly or not, within their formal or informal structures, but only if they proactively explore and comprehend the extent to which such barriers impact student enrollment and successful continuation within the populations they intend to serve. Considering the public higher education community's social responsibility to be ever responsive to a dynamic U. S. and global economy, and respectful of the changing industry and workforce requirements of employers and technology partners,

McCann et al. (2012) express the criticality of understanding what sets adult students apart as successful participants in their pursuit of formal higher education.

This study focused on the first of these categories, as institutional barriers not only relate directly to the perceived learning environment, but are typically within the control of the learning institution and can be readily adapted depending on the organizational climate (Birnbaum, 1988; Saar et al., 2014). Thus, examining institutional barriers to active duty student participation, specifically improving access to appropriate learning environments, offers the greatest potential for the higher education community in its programmatic efforts.
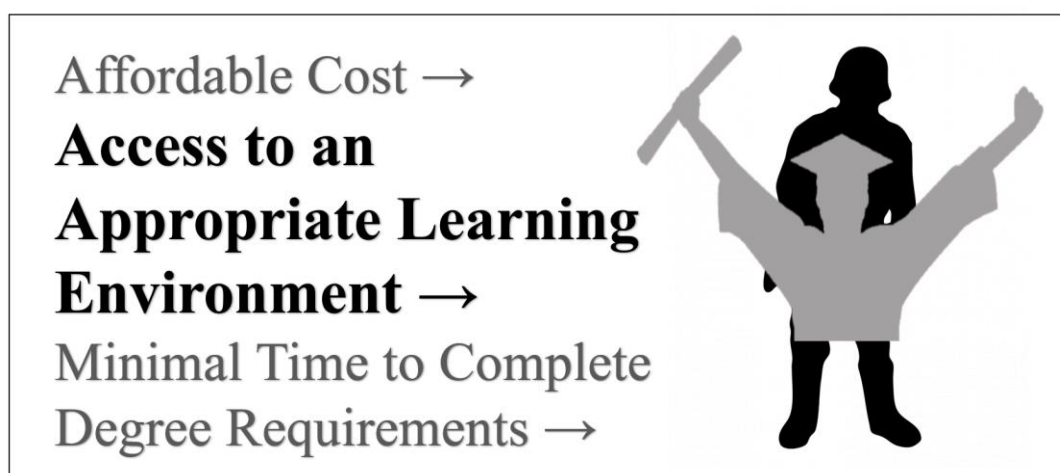
Figure 2.2. Institutional Requirements for Developing Successful Degree Completion Programs.

Conceptual Framework Applied in Other Research

Studies grounded in Cross's (1981) theory regarding barriers to adult participation include those focused on adapting the education community to better understand and serve adult students (Hyland-Russell & Groen, 2011; McCann et al., 2012; Terrell, 1990), with recommendations for implementing student services more responsive to the needs of specific populations. Earlier indications of the need to review not only curricular issues, but how higher education organizations must reevaluate institutional policies, practices, and perceptions

regarding recruiting and retaining adult students appear through previous decades (Cross, 1970, 1981; Knowles, 1970, 1980; Terrell, 1990), however, discussions calling for major change in the higher education community to adapt institutions to meet non-traditional students' needs continue to involve flexibility of access based on time and location, and affordability as prevalent issues (McCann et al., 2012; Saar et al., 2014).

Due to the time of publication, Terrell's discussion may not represent the existing range of adult students, considering the high percentage of those currently participating online (Brown & Gross, 2011; Tainsh, 2016), in making recommended institutional, or structural, responses such as offering convenient child care, and after-hours student services for evening and weekend students (Terrell, 1990). One can contend how many situational (family, career, time, cost) barriers could be overcome by providing well-designed, flexible, more affordable structures to deliver quality online instruction (Brown & Gross, 2011; Evans et al., 2015; Machuca et al., 2014; Saar et al., 2014). Terrell's (1990) conclusions are consistent with these more recent studies, asserting the need for assessing prior learning for credit (Stenlund, 2013), and for having faculty and advisors trained in issues faced by adult students (Bonura & Lovald, 2015; Miller, 2015).

Deggs (2011) initiated a qualitative study based on the barriers and categories as defined by Cross (1981) as the framework to examine perceived barriers to adult participants in an accelerated degree completion program. Noteworthy was the eventual recategorizing of adult perceived barriers as: academic-related, career and job-related, and intrapersonal, the author indicating how some participants provided concerns regarding the use of technology, as well as lack of face-to-face instructor presence, that eventually redefined issues with the online course presentation for participants as academic (Deggs, 2011). Furthermore, the study having involved

an accelerated program may also account for why participants perceived such structural issues as course pacing as academically-related versus institutional. The author is careful, however, to stress how the study's discussion of academically-related issues supplanting institutional should not replace Cross's original work (Deggs, 2011). Confidence using technology, in addition to the quality of online course delivery to support instruction, is additionally considered by Pickett (2009), and Tainsh (2016).

Saar et al. (2014) also utilized Cross's barriers framework in their research specific to structural barriers, during which they assessed four institutional factors affecting adult participation: diversification of available programs, ease of access to those programs, flexibility for completing academic requirements based on time and location, and affordability to promote access for more students. The study recognized the significant body of existing research focused on the adult as learner for its psychological contributions to the field, however, it determined the content lacking in fully considering the significance of structural barriers, those external to the student. Consequently, Saar et al. (2014) highlight the need to develop flexible, alternative programs that target a broader range of students, and include substantial opportunity for the assessment of prior learning for academic credit.

Studies specific to active duty military participation in online higher education include Starr-Glass's (2013) contemporary qualitative analysis of service members' needs as online students. Approximately half of the military student participants indicated the most significant barriers they experienced affecting satisfactory course completion dealt not with personal factors (lack of time, academic confidence, or readiness) but with programmatic issues such as course scheduling and inflexible handling of late assignments, primarily the result of limited access to the internet and other constraints on the service member when temporarily deployed or unable to

communicate (Starr-Glass, 2013). Based on the increasing demand for affordable, quality higher

education for active service members to achieve both personal goals and advancement

requirements (Brown & Gross, 2011; Callahan & Jarrat, 2014; Starr-Glass, 2013), program

managers and university administrators should become more aware and respectful of the issues

these students face, recognizing the nature of these students' lives, their service, and the value

they have to offer the educational community when provided suitable programs that encourage

and support their participation (Starr-Glass, 2013).

Related Literature

The higher education community continues to face a changing dynamic affecting student

populations, both within their traditional brick-and-mortar and virtual campuses, as increasing

numbers of non-traditional adult students return to continue their formal education, having spent

substantial time in the workplace (Chen, 2014; Ross-Gordon, 2011; Tainsh, 2016). Literature is

consistent in establishing who non-traditional adult students are: at least 24 years old, work at

least part time, financially independent, typically both a spouse and parent, and have been away

from formal education for a year or more (Bonura & Lovald, 2015; Hyland-Russell & Groen,

2011; Khiat, 2015; Saar et al., 2014; Tainsh, 2016).

The National Center for Education Statistics (NCES) reports the percentage of adult

students 25 years and older has remained 40% or higher since 1990 (NCES, 2015). As shown in

Figure 2.3, NCES data also substantiate the rise in non-traditional adult enrollment in post-

secondary education is keeping pace with, or in some years exceeds, traditional student

enrollment (NCES, 2015). Additionally, NCES (2015) indicates adult learners over the age of

24 are participating in the broad range of available higher education opportunities as shown in

Fall enrollment, in millions
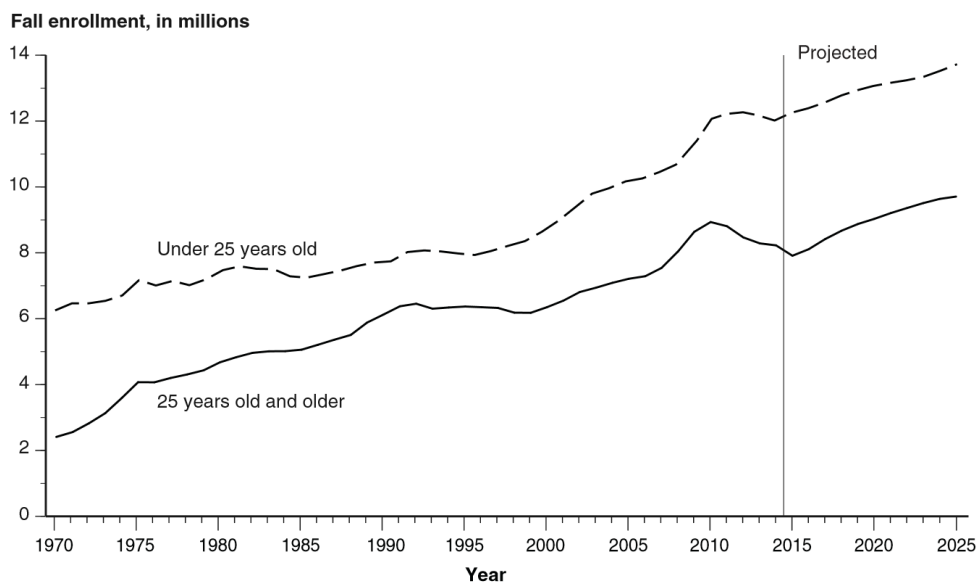
Figure 2.3. Fall enrollment in millions in postsecondary education. From "Enrollment in Degree-granting Postsecondary Institutions, by age: Fall 1970 through fall 2025" *Digest of Education Statistics 2015*, by the National Center for Education Statistics.
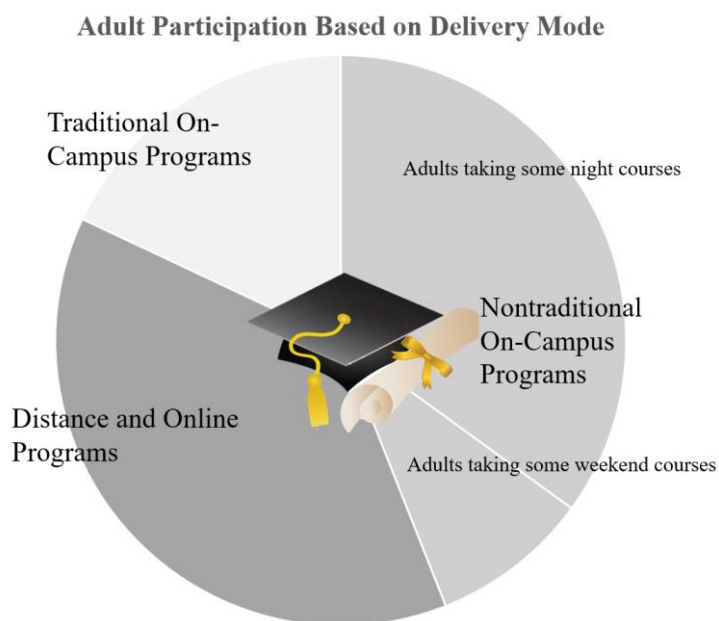
Figure 2.4. Adult Participation Based on Delivery Mode. Adapted from the Digest of Education Statistics, Table 311.20: "Number and Percentage of Undergraduate Students Taking Night, Weekend, or Online Classes, by Selected Characteristics," by the National Center for Education Statistics.

Figure 2.4: approximately 35% of adult students enrolled in some night classes; 9% of adults

enrolled in weekend courses; and 38% enrolled in courses offered online/distance. The given

percentages indicate at least 18% of adults are enrolled only in traditional daytime courses.

Most literature regarding enhancing adult learning environments focusses on academic

readiness, learning styles, or the sociological needs commonly affecting more mature individuals

in the formal educational environment (Chen, 2014; Grace, 2014; Khiat, 2015; Pickett, 2015).

Of greater relevance to this study, however, was the limited research available specifically

addressing how institutions organize, or fail to organize, their non-traditional programs in

response to demands for greater accessibility, specifically for online learning environments, and

what that means as applied to active duty military students (Brown & Gross, 2011; Nichols-

Casebolt, 2012; Machuca et al., 2014; Ross-Gordon, 2011).

Factors Resulting in Adult Population Growth on Campus

Research regarding the increased presence of adult learners in higher education

consistently acknowledges how non-traditional students are responding to the growing necessity

for post-secondary education and advanced professional certifications to stay or become

competitive in the overall labor force (Chen, 2014; Deggs, 2011; Ross-Gordon, 2011). McCann

et al. (2012) also point to global economic competition, emerging industry requirements for more

skilled workers, and an inadequate traditional education system as primary factors leading to the

influx of adults returning to formal education in the United States.

Adult learners have also responded to the increased availability of distance learning

programs. Figure 2.5 shows percentages of undergraduates age 24 to 29 enrolled in any distance

course rose from approximately 18% in 2003-04 to more than 25% in 2007-08, and 36% during

2011-12 (NCES, 2015). The data for online students age 30 and over is even higher, indicating

innovations having the greatest impact on adult learning will significantly involve online and other distance learning environments.

Percentage of Undergraduate Students Participating in Online/Distance Learning
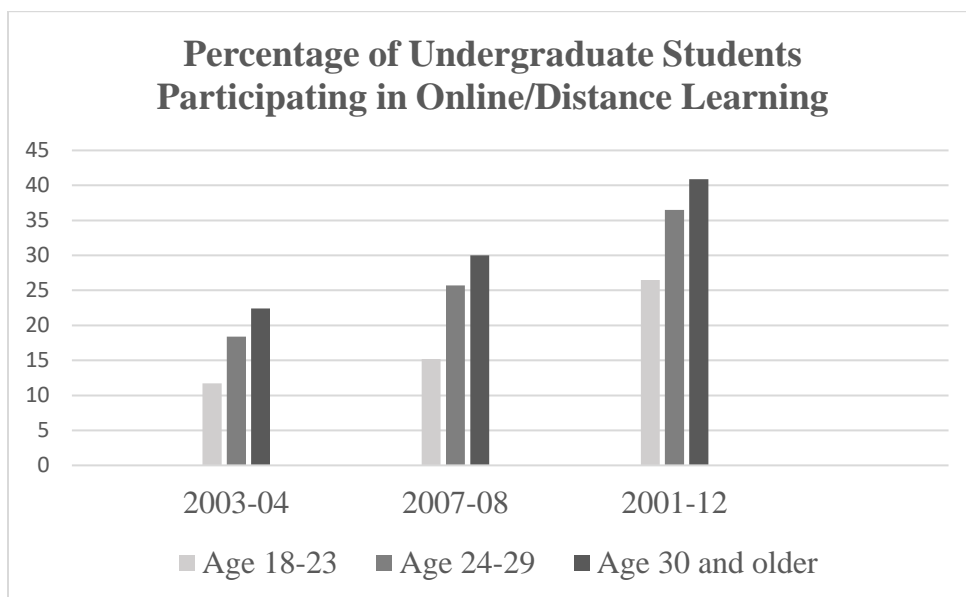
Figure 2.5. Percentage of undergraduate students participating in online distance learning. Adapted from the Digest of Education Statistics, Table 311.22: "Number and Percentage of Undergraduate Students Taking Distance Education or Online Classes and Degree Programs by Selected Characteristics: Selected years, 2003-04 through 2011-12," by the National Center for Education Statistics, 2015.

Recent efforts by Grace (2014) and Hyland-Russell and Groen (2011) continue to distinguish the merits of adult continuing education and lifelong learning, and have substantially contributed to institutions having a higher regard for adult students. These studies, pointing to long-held perceptions of non-traditional education as remedial, highlight how the higher education community, specifically four-year institutions and some government agencies have previously devalued adult and other alternative education programs in comparison to traditional formal secondary and higher education settings intended for younger students (Grace, 2014).

As a result of these lingering stereotypes, many innovations in non-traditional higher education that successfully address procedural issues versus academic issues, such as improving access through flexible enrollment, expanding online course offerings, and awarding credit for

prior learning, have been made in large part by community colleges and by specialized four-year institutions uniquely chartered to fill the need for more accessible adult baccalaureate degree completion programs (Evans et al., 2015; Machuca et al., 2014). Thus, there remains substantial room for innovation throughout most public and private four-year institutions.

Andragogy as an Expanding Field of Study

The term andragogy refers to the methods and practice of facilitating adult learning (Knowles, 1984). Although the term first appeared in the 19th century work of Kapp and Lindeman, it gained full recognition in the education community in the early 1970s when it became apparent simply borrowing teaching methodologies, or pedagogy, common to traditional secondary and higher education proved inadequate (McCann et al., 2012). Even contemporary theory regarding non-traditional higher education is so commonly associated with adult learning theory, a great deal of literature related to non-traditional education leadership and management focuses solely on the learning styles and psychosocial needs of the more mature student (Grace, 2014; Khiat, 2015; Pickett, 2015).

Recent analyses, however, frequently point to administrative factors such as course scheduling and appropriately flexible learning environments as issues of greater concern for many working students (McCann et al., 2012; Saar et al., 2014; Starr-Glass, 2013). Furthermore, students now have greater expectations that institutions will recognize knowledge and skill acquired outside the boundaries of formal higher education (Evans et al., 2015; Ross-Gordon, 2011; Stenlund, 2013). Non-traditional higher education program managers and adult learning practitioners are increasingly aware of the need to merge informal and nonformal learning experience of working adults within the formal setting, and continue to progress toward merging methodologies proven successful across multiple settings (Grace, 2014).

Current discussions exemplifying the full range of non-traditional learning constructs include: open colleges that support formal individualized study (Carrey, 2015; DeMillo, 2015), self-learning documented by testing and professional portfolios (Carrey, 2015), and partnerships with public and private workforce development for the purpose of documenting technical and professional knowledge (Merrill-Glover, 2015; Stenlund, 2013). DeMillo (2015) asserts, that as more information is freely available on the internet, the real value of an education will be based on factors other than traditional content. As a result, adult learning practitioners should consider expanding the theoretical constructs related to andragogy to encompass these aspects of the larger learning environment.

Characterizing adult learners. Knowles (1984) describes the adult learner as having the following characteristics: self-directed, experienced, eager to learn and succeed, interested, self-motivated, with the need to relate to the usefulness of the learning expectations in any educational environment, formal or informal. This definition is commonly referenced to support other studies regarding adults in a variety of learning environments (Chen, 2014; Deggs, 2011; McCann et al., 2012; Tainsh, 2016). Based on Knowles's earlier work, Terrell (1990) describes the primary developmental needs of the more mature learner to include: low self-concept due to extended separation from formal education; not having the time or energy to devote to a formal academic program; emotional demands faced by adult life situations; financial stability; work, social, or civic responsibilities; family needs having priority over personal and educational goals; and the student's continued reappraisal of their personal and professional goals.

Merriam (2001) additionally contends how the previous constructs and experiences of adult students entering or re-entering the formal education setting used to relate new content toward transforming attitudes and redefining goals and understandings are significantly more

substantial that those of younger students. Resultantly, compared to the goal of attaining knowledge for its own sake more commonly associated with traditional programs of study, adult learners have a stronger need to relate educational objectives to previous and future tasks and goals (Chen, 2014; Deggs, 2011; Tainsh, 2016). Other widely held concerns continue to include fear of failure, lack of time and money, competition with job and family responsibilities, and the emotional demands faced by life's situations (Deggs, 2011; Khiat, 2015; Terrell, 1990).

Additionally, adult learners are likely to disenroll from programs they perceive as frustrating, or as unduly competing with family or work commitments (Hyland-Russell & Groen, 2011; Merrill-Glover & Edwards, 2015; Saar et al., 2014). Organizations that focus solely on helping non-traditional students better assimilate into traditional learning environments versus adapting programs and structures in a way that acknowledges the above traits will be found wanting.

Despite trends demonstrating increasing non-traditional adult participation, many higher education institutions appear to direct significant resources at enhancing on-campus facilities and promoting programs primarily designed for traditionally aged students, without proportional efforts aimed at developing more accessible alternative education programs for adults. As a result, such institutions will be ill-prepared to relate to or contend with the potential impact of this changing dynamic (Chen, 2014; Grace, 2014). Pickett (2015) best summarizes the implications of these trends, asserting how essential it is for educators to critically reevaluate the realized value of traditional education as it is currently offered, the author referring not only to existing curricular content, but how the delivery of that education is shaped in both formal and informal learning environments.

Military Participants in Higher Education

Current literature regarding military undergraduates is primarily directed at veterans transitioning to post-active duty careers and lifestyles (Naphan & Elliott, 2015; Nichols-Casebolt, 2012). While there is not yet a plethora of studies regarding transitioning military students, a solid foundation of prior research is beginning to populate special interest journals. One such report describes an institution's creation of a Green Zone, a term most military members regularly associate with a safe zone (Nichols-Casebolt, 2012). In this article, the author outlines how the university set in place initiatives such as voluntary faculty training and support services for transitioning veterans. Additionally, the work of Naphan and Elliott (2015) addresses how transitioning veterans respond to the absence of the command and control structure, organization, and lack of clear communication and direction they experience in the higher education environment, where they are expected to act as creative, reflective and transformational participants in the larger campus community.

Another issue impacting the learning environment for returning service veterans is directly related to student and faculty negative perceptions of the military in general. Barry et al. (2014) report cases where students and faculty personally disparaged former military students based on anti-war sentiments, at times resulting in direct name-calling and other acts of animosity. Seemingly less offensive, however equally insensitive for those who have bravely served, are cases where students or instructors questioned returning veterans about whether they have ever killed someone (Barry et al., 2014).

Closing achievement gaps. Enlisted service veterans electing to engage in higher education are often first-generation college students (Evans et al, 2015), and can face differing situational (family, social, financial) and dispositional (attitudinal, emotional) expectations about

their educational goals that can affect their academic persistence (Bonura & Lovald, 2015; Cross, 1981). While these conditions are internal to and unique for each student, Saar et al. (2014) concluded that institutional structures, those manifesting from the policies and practices of the educational or governmental organization, are important factors that can greatly enhance or discourage adult participation in higher education, depending on how actively the institution works to identify and overcome such barriers for non-traditional student groups.

Charging the higher education community with being slow to respond to demands for greater flexibility to increase access for all student populations (Saar et al., 2014), studies such as Deggs (2011), Starr-Glass (2013), and Saar et al. (2014) continue to call for undergraduate instruction that is not only affordable, but flexible in time and location, and mindful of the experience adult students bring with them to the on-campus or virtual classroom.

Military students as adult learners. Military undergraduates returning to formal education, like other adult learners, do not approach their learning as "blank slates" (Nelken, 2009, p. 183). Due to their maturity, need for efficiency, and internal motivation, students with extensive military experience expect to be able to clearly relate to how the learning activities they are asked to complete effectively lead to accomplishing established course objectives, and how they relate to their vocational and personal goals (Tainsh, 2016). Similarly, military students also have a greater need to understand how their previous and ongoing professional experiences relate to new content in the formal setting (Cornelious, Gordon & Ackland, 2011). Due to the quality and highly structured nature of their previous training, in addition to expectations facilitated by their military organizations, military adult learners expect a more formalized and consistent approach to assessing their prior learning for academic credit when returning to complete their civilian education (Brown & Gross, 2011; Machuca et al., 2014; Saar

et al., 2014; Stenlund, 2013).

Despite the increased attention directed at enhancing campus services for veterans and other military students enrolled in higher education (Callahan & Jarrett, 2014; Evans et al., 2015; McBain et al., 2012), there has been no apparent increase in evaluating or understanding the unique needs of this student population (Barry et al., 2014). The largest body of research compares psychosocial and academic issues faced by military veterans on campus with non-military affiliated students, but has no specific emphasis on access to suitably flexible learning environments. Campus initiatives have included providing staff and faculty training specific to dealing with issues affecting veteran students (Brown & Gross, 2011; Callahan & Jarrat, 2014), identifying veteran-friendly spaces to support students (Nichols-Casebolt, 2012), and promoting veteran student organizations on campus (Evans et al., 2015). The effectiveness of existing programs designed to support military students is still relatively unexplored, and data collection to support longitudinal analysis has been inconsistent (Evans et al., 2015).

Fall, Kelly and Christen (2011) sought to compare differences in communication and perceived instructional immediacy among civilian and military students participating in an online learning environment. Findings, however, failed to support the original premise that military students would be more motivated by direct, formal communication (Fall et al., 2011). Barry (2015) indicates active duty and veteran participants did not demonstrate significantly differing rates of psychological or stress related disorders when compared to non-military students, however, the presence of psychological issues such as post-traumatic stress did prove to be a strong predictor of social issues on campus (Barry et al., 2014).

Veterans Education Assistance Act of 2008. The increase in military veterans, active service members, and their families on campus, including the virtual campus, is largely attributed

to enhanced benefits afforded separating veterans and their families by the new Post-9/11 GI Bill (Arminio et al., 2014; Bonura & Lovald, 2015; Brown & Gross, 2011; Nichols-Casebolt, 2012). Recent changes in legislation regarding benefits for participating in voluntary education have become major contributing factors affecting that affect both the long-term retention of active duty service members in addition to the more common consideration as a recruitment incentive (Evans et al., 2015; Callahan & Jarrett, 2014).

The Post-9/11 Veterans Education Assistance Act of 2008 (or Post-9/11 GI Bill) that went into effect in 2009 is referred to by Barry et al. (2014) as the most generous offered to date for service members and their families. The new legislation caused education institutions to be effectively overwhelmed by military affiliated students, with over 300,000 service members electing to use their new benefits during the first year the program was in effect (Barry et al., 2014).

Many institutions are responding to the increasing demand generated by the Post-9/11 GI Bill through directed marketing of adult degree completion programs intended to align with current trends in employment opportunities, or based on related military experience (Brown & Gross, 2011; Evans et al., 2015; McBain et al., 2012; Stenlund, 2013). Furthermore, the growth of online asynchronous instruction has directly resulted in increased institutional outreach to military populations. Sixty four percent of military tuition assistance benefits were reportedly used for online instruction during fiscal year 2010 (Brown & Gross, 2011; Evans et al., 2015).

Success at serving an expanding military student population. For military students, continuing their training with civilian higher education is seen as a means for capitalizing on the knowledge and skill acquired through both the formal and informal experience they gained while serving, however, Wilson (2014) refers to the 2012 United States Census in estimating 71% of

active duty and service veterans had not achieved an earned bachelor's degree at the time of the

report, indicating their mere participation in formal education did not always result in successful

degree completion. According to the National Center for Education Statistics in 2014, while

most colleges and universities have military students enrolled, the support they receive can vary

substantially (Bonura & Lovald, 2015).

At the time of their study, Radford and Weko (2011) reported only one percent of all

military-affiliated students were active duty service members, and only three percent were

service veterans, indicating the remaining population consisted of military spouses and

dependents. The percentages for actual military members is alarmingly low considering the

extent to which voluntary education efforts are supported through tuition benefits and increased

advancement potential (Arminio et al., 2014; Callahan & Jarrett, 2014; Starr-Glass, 2013;

Wilson, Smith, Lee, & Stevenson, 2013). Service branches clearly recognize how formal

education enhances technical skill and professional competencies such as leadership (Evans et

al., 2015; Starr-Glass, 2013). The low statistic perhaps indicates existing learning environments

and structures for accessing higher education fail to address the needs of adult military students,

specifically those on active duty (Starr-Glass, 2013). Consequently, military education benefits

may be of greater utility to the member's spouse and children.

Despite the significant increase in use of military education benefits reported on their

campuses, McBain, Kim, Cook and Sneed (2012) indicate less than half of the 690 institutions

participating in their study provided intentional training for their faculty and staff related to

issues specific to both active duty and service veterans. Studies addressing best practices for

serving military students (Bonura & Lovald, 2015; Brown & Gross, 2011; Evans et al., 2015;

Machuca et al., 2014) begin to define the challenges they face, but clearly assert most approaches

by schools have been less than strategic (Brown & Gross, 2011). The authors further contend how failing to address the needs of this unique population no doubt results in unfavorable experiences for students, faculty, and advisors seeking to retain struggling students (Brown & Gross, 2011), leaving institutions dealing with disproportionately high rates of disenrollment for these otherwise very task-oriented, high-achieving individuals.

Significance of Assessing Prior Training and Experiential Learning

The practice of recognizing the formal, informal, and non-formal training and experience of non-traditional students, including creating systems to assess and credential acquired knowledge and skills, is commonly referred to by the education community as assessment of prior learning, or APL (Stenlund, 2013). Formal learning, even that which occurs outside the university, is more readily recognizable due to the nature of its structure. Colley, Hodkinson, and Malcolm suggest informal learning is unstructured, that which occurs as part of all the individual's daily practices, while non-formal learning typically occurs in the workplace, or by means of other organized activities, and is more intentional in nature (as cited in Stenlund, 2013).

Evolving expectations regarding alternative adult degree completion. Obtaining appropriate academic standing and recognition for their high levels of work and life experience, technical knowledge, and significant leadership and management training is an important consideration reasonably expected by all adult students (Barry et al., 2014; Brown & Gross, 2011; Evans et al., 2015; Merrill-Glover & Edwards, 2015; Ross-Gordon, 2011; Stenlund, 2013). This is especially true for technically skilled military and prior-military students (Brown & Gross, 2011; Evans et al., 2015).

Both active duty and service veterans can feel bored and frustrated when required to complete introductory coursework that simply repeats the very high levels of technical and

leadership training and other experiential learning they achieved during many years of service (Evans et al., 2014). Grace (2014), however, asserts continuing concerns about long-standing biases within the professional education community toward the quality and legitimacy of non-traditional adult education, including credit for life and work experience. Such biases foster existing structures that challenge the successful accreditation of degree-conferring non-traditional programs based on informal and non-formal learning (Grace, 2014; Stenlund, 2013).

Assessment of prior learning has become an increasingly significant decision-making criterion for students, employers, and other stakeholders who may also fund such programs (Ross-Gordon, 2011; Stenlund, 2013). In reducing the necessary time to complete degree requirements for military and other experienced adults participating in higher education, it is important to recognize and value the preexisting knowledge and skills acquired as part of those past experiences (Evans et al., 2015; Ross-Gordon, 2011). Also noteworthy is the early inclusion of awarding formal credit for prior learning as a suggested response to students insecure about returning to complete formal higher education due to low self-concept (Cross, 1981; Terrell, 1990). Citing Klein-Collins, Ross-Gordon (2011) offers profound statistics regarding successful degree completion rates for students who received credit for prior learning: 43% versus the 15% rate for non-traditional students who received no prior learning credit.

Consistency of standards and academic rigor. A major issue in providing academic programs that include the assessment of prior learning results from the subjective measures typically used in assessing work-based and other types of non-formal learning, suggesting the process can be plagued by poor levels of interrater reliability the more removed the prior learning experience is from any formal training environment, where consistent criteria for measuring specific knowledge and competencies may be lacking (Stenlund, 2013). Many public

colleges and universities have committed to acknowledging the American Council of Education (ACE) recommendations for the awarding of credit as the standard (Brown & Gross, 2011; Callahan & Jarratt, 2014; Evans et al., 2015), however decisions regarding the transferability and acceptance of those recommendations, including how they can be applied to meet existing programs requirements, remains up to the individual institutions (Stenlund, 2013). Fewer institutions have distinguished themselves by joining Servicemember Opportunity Colleges (SOC) in order to benefit from the organization's existing structure and resources that facilitate the awarding of military credit, credit transfer due to mobility, and degree completion (Evans et al., 2015; McBain et al., 2012).

There is a significant lack of consistency across institutions regarding the assessment prior learning, even among public institutions. Significant training and commitment on the part of individual program managers and transfer administrators is required to effectively evaluating the prior knowledge of military service members, given the range of significant experience these students bring to the academic setting (Barry et al., 2014). As institutions compete, or perhaps fail to compete, to attract their share of the active duty and service veteran market and be categorized as military friendly, consistency in standards is critical to ensure both the credibility, as well as the desirability, of institutions' non-traditional adult degree completion programs (Stenlund, 2013). This is true for both the institution itself, as well as for students who choose to invest their time and energy with the expectation of obtaining reputable academic credentials.

Active Duty Service Members as a Unique Student Population

Many institutions fail to differentiate veterans from active duty students in providing services and outreach to the military population, typically lumping all military affiliated students into a single category (Bonura & Lovald, 2015). Existing studies regarding service veterans

returning to complete higher education offer the community interesting parallels on the topic of supporting military students on campus such as their feelings of isolation and exclusion in a traditional campus environment (Nichols-Casebolt, 2012), and transitioning from a highly organized and structured lifestyle to college life (Naphan & Elliott, 2015). Most scholarly research, however, either fails to or minimally addresses specific structural or programmatic barriers to successful degree completion encountered by active duty service members.

Evans et al. (2015), Machuca et al., 2014, and Starr-Glass (2013) underscore the importance of distinguishing academic barriers that disproportionally impact service members. Like other non-traditional adult students, active duty students have extensive life commitments beyond their higher education goals. Similarly, undergraduate degrees have become essential for advancement and the fulfillment of long-term occupational goals for military as well as non-military affiliated students. Thus, in addition to serving the active duty military community, addressing such issues as flexibility and accessibility relative to online learning environments may prove beneficial for the larger population of all non-traditional adult students.

Factors that set ADSMs apart. Active duty service members, unlike their veteran and other adult counterparts, are atypically burdened by irregular duty cycles, unpredictable mission requirements, and locational instability. They work in very structured, disciplined environments, and do not have similar controls over their personal and work schedules compared to their civilian or transitioning service veteran counterparts (Bonura & Lovald, 2015). Because deployments and other remote operational commitments may come up unexpectedly (Machuca et al., 2014; Starr-Glass, 2013), or may not align with the established academic calendar (Brown & Gross, 2011), even a brief commitment during which the student may be *comms-out* or have restricted access to a dedicated computer with internet can mean disenrollment, or that the

opportunity for an entire eight or 16-week semester may pass with no guarantees the same situation will not repeat itself in following semesters. Active duty members are, however, still burdened by the expectation to pursue higher education to remain competitive for advancement in rank (Starr-Glass, 2013).

Understandably, given limited budgetary and faculty resources, being able to provide the wide range of needed programs to effectively serve both veteran and active duty service members, in additional to non-military adult students, can be quite an overwhelming task for individual institutions (Evans et al., 2015). Ultimately, overcoming these issues will require creating innovative partnerships including online communities with shared instructional resources to expand affordable access. Many of these innovations will likely defy the traditional boundaries of state borders and existing structures throughout private, public, and workplace institutions in achieving new ways to deliver affordable, high-quality courseware (Carey, 2016; DeMillo, 2015). Such solutions will be disruptive to existing precepts of institutional autonomy and competition that currently plague the higher education community (Christensen, Horn, & Johnson, 2011).

Meeting the Needs of Active Duty Students

In striving to provide the level of effective, flexible, and accessible programs called for by Evans et al. (2015), Machuca et al. (2014), and Starr-Glass (2013), evaluation of exclusionary policies and practices affecting specific categories of adult learners such as active duty students should be an ongoing and proactive internal process (Cross, 1981; Saar et al., 2014). Supporting potential active duty military students means determining which existing structures within the learning environment may prevent their successful participation. Working closest with students, sensitive and willing faculty and counselors can best recognize the most common issues facing

online students, purposefully seeking to provide sufficiently flexible programs, but may be unable to respond accordingly due to governing policies or lack of institutional support (Brown & Gross, 2011; Machuca et al., 2014; Starr-Glass, 2013).

Prospective active duty military students are more concerned with finding programs that allow for their part-time, online participation, with flexible enrollment opportunities than other non-traditional populations (Callahan & Jarrat, 2014). The most commonly expressed issues continue to include rigid admission and enrollment requirements, lack of flexibility in course scheduling and assignment submission policies, and failure to acknowledge prior learning and experience accomplished while on active duty to accelerate degree completion (Bonura & Lovald, 2015; Brown & Gross, 2011; Machuca et al., 2014; Ross-Gordon, 2011; Starr-Glass, 2013). Such barriers continue to be perpetuated even in non-traditional programs that remain inflexibly bound by the traditional academic calendar (Brown & Gross, 2011; Evans et al., 2015; Machuca et al., 2014).

Reaching Active Duty Students Where they are Online

Merriam, Caffarella, and Baumgartner (2007) maintain online learning as a growing and significant market segment, one that is increasing both in numbers and recognition. Well-planned instruction delivered effectively through online learning management systems is essential for reaching student populations for whom traditional on-campus attendance is impractical or impossible (Tainsh, 2016). Most higher education institutions, however, continue to align their non-traditional programs, even those online, with traditional academic schedules, even those advertised as asynchronous simply due to the absence of scheduled class times (Brown & Gross, 2011). Recent studies indicate the primary concerns reported by active duty students enrolled in online education dealt with potentially avoidable programmatic issues:

course scheduling, inflexible handling of late assignments by instructors and staff, and restricted access to the internet to communicate with faculty and submit assignments (Callahan & Jarratt, 2014; Starr-Glass, 2013).

Technology as an academic and institutional barrier. Technology has been reported as both a structural as well as academically perceived impediment to successful course completion, with research primarily focused on students' attitudes toward and comfort level using technology resources like online learning management systems and other instructional resources adult students may be unfamiliar using (Deggs, 2011; Pickett, 2009; Tainsh, 2016). The concept of technology as a barrier to successful active duty military student participation can be expounded upon to include: lack of regular and reliable access to the internet, as well as limited access to a dedicated computer to complete and submit required coursework (Brown & Gross, 2011; Machuca et al., 2014; Starr-Glass, 2013).

Academic choices made by adult students, military students specifically, frequently result from having restricted access to the internet and limited computers for personal use needed to support course participation due to deployments, where service members may be shipboard or in remote locations with restricted communications, even for short durations of time (Cornelius, Gordon & Ackland, 2011). Machuca et al. (2014) found incidents involving service members having difficulty notifying instructors regarding late assignments when units must unexpectedly secure communications due to security concerns. These situations, when handled insensitively, can impact the active duty service member's grade and create lasting impressions on both the service member and their colleagues regarding the faculty member and the institution as a whole.

Best practices for increasing access to online education. In a best practices article (Brown & Gross, 2011) and related studies (Machuca et al., 2014; Nichols-Casebolt, 2012), the

authors address many of the ways both institutions and individual faculty members can accommodate military students when issues of limited communications or available technology are known in advance. Likewise, Bonura and Lovald (2015) call for more standardized policies and procedures for supporting military students, particularly when service requirements unexpectedly affect their participation outside of their control.

The following practices reflect those presented in the literature as having been reportedly successful in resolving temporary academic issues when access to reliable internet or a computer was determined to be limited or unavailable: flexible, alternative assignment submission requirements such as allowing assignments to be mailed or emailed when access to the LMS is predicted to be unreliable; ensuring all required materials are available for print or download in advance, alleviating the need for extended online access; appropriately altering collaborative group assignments when such participation is not critical to the learning objectives; ensuring faculty are aware of active duty students in their sections; and offering awareness training to cognizant instructors and school officials related to common issues they face (Bonura & Lovald, 2015; Brown & Gross, 2011; Machuca et al., 2014; Nichols-Casebolt, 2012).

Recommendations for Removing Barriers to Active Duty Participation

Bryant and Wertheim (2009) present nine recommended principles of effectiveness for adult learning focused institutions currently espoused by the Council for Adult and Experiential Learning (CAEL). The CAEL principles in Table 2.3 are further amplified by literature with potential applications for significantly enhancing support for active duty military students:

Table 2.3

Principles for Serving Adult Learners

Principle	Description of the Principle in Practice	Application for ADSMs supported by literature
Outreach	Removal of barriers in "time, place, and tradition" to create "lifelong access to educational opportunities" (p. 33)	develop alternative, flexible assignment submission proceedures (Machuca et al., 2014; Sarr et al., 2014; Starr-Glass, 2013) incorporate flexible semesters (Machuca et al., 2014; Saar et al., 2014; Starr-Glass, 2013) create downloadable modules that do not require extended internet access (Machuca et al., 2014; Starr-Glass, 2013)
Life and Career Planning	Career and academic advising driven by the learners' life and career goals, as it aligns with institution's ability to achieve those goals	incorporate customized degree plans within larger accredited programs (Evans et al., 2015; Ross-Gordon, 2011; Saar et al., 2014)
Financing	Inclusion of flexible payment options	incorporate favorable tuition rates for veterans and active duty (Evans et al, 2015) allow for extended payment plans (McCann et al., 2012)
Assessment of Learning Outcomes	Defining and assessing prior and ongoing acquisition of knowledge and skills from life and work as it relates to credit that is applied to adult participation in formal, degree-conferring programs	partner with service branches for specific occupational specialties training evaluation (Evans et al., 2015) collaborate with training commands to improve ACE evaluation of formal training (Evans et al., 2015)

Teaching-Learning Process	Using a variety of instructional strategies that adults can readily relate to in order to connect new concepts to skills the adult perceives as useful	encourage students to incorporate case studies and problem-based learning based on their military experience (Merrill-Glover & Edwards, 2015)
Student Support Systems	Having adequate systems in place to support students' needs that facilitate self-directedness	engage student advisors trained in handling military-specific administrative issues (Evans et al., 2015), and develop faculty training to support initiatives (Callahan & Jarrat, 2014; Evans et al., 2015)
Technology	Using technology to enhance the timeliness and relevance of available information	remain alert to when technology requirements for accessing learning resources and participating in student collaboration becomes a barrier to course completion (Khiat, 2015)
Strategic Partnerships	Partnering with employers, industry, and other organizations to create and enhance greater opportunity	include technology partners and nearby military training commands in developing research opportunities for student participation (Evans et al., 2015; Merrill-Glover, 2015)
Transitions	Providing supporting services that facilitate student achievement and result to a successful transition to one's career goals	remove barriers that prevent obtaining credit via non-traditional means, even after admission (Merrill-Glover, 2015; Ross-Gordon, 2011; Saar et al., 2014) provide continuous counseling and support for developing experiential portfolios to document individual learning in the workplace (Merrill-Glover & Edwards, 2015; Stenlund, 2013)

Note: Adapted from "The Adult Student Priorities Survey: An Analysis at a Private Central Appalachian University," by J. T. McCann, D. B. Graves, and M. E. Dillon, 2012, *Journal of Multidisciplinary Research, 4*(2), p. 33. Copyright 2012 by St. Thomas University.

Summary

Higher education institutions typically focus on adult learning issues such as offering support for study skills, learning needs assessments, and providing online academic support services (Deggs, 2011; Grace, 2011). This approach may lend itself more toward how to make existing structures work for adults adapting to the traditional role as student, versus purposeful efforts toward restructuring programs in consideration of elements of the traditional educational model that prove inadequate (Brown & Gross, 2011; Evans et al., 2015; Saar et al., 2014; Starr-Glass, 2013). Furthermore, campus administrators must move beyond the stereotype of adult learning as remedial (Grace, 2014), realizing what was once considered non-traditional is clearly a lasting and significant component in the overall landscape of today's colleges and universities.

As adult students prioritize learning goals against life's other demands, the most significant implications for those charged with developing, enhancing, or marketing adult education programs demand administrators adapt to changes in technology, evolving demands of the workplace, and socioeconomic factors affecting the perceived suitability and marketability of alternative degree completion programs (Grace, 2015; Merrill-Glover, 2015; Saar et al., 2014). Furthermore, as technology continues to pervade every aspect of the workplace and social interactions with family and friends, it is naïve for distance education program managers to maintain an overly applied assumption that more mature students will continue to need significant support simply navigating the online learning environment. Overall student satisfaction may in fact result more from inflexibly applied course structures rather than fear of technology (Evans et al., 2015; Machuca et al., 2014; Starr-Glass, 2013).

Designing programs that provide maximum flexibility in time and location offer the active duty student the greatest opportunity for success (Grace, 2014; Ross-Gordon, 2011; Saar

et al., 2014;). Because of the flexibility offered by community colleges regarding enrollment and instructional delivery, many two-year institutions have taken the lead in this area (Evans et al., 2014), providing the higher education community with useful models for enhancing the learning environment that can be applied within the higher education community at four-year institutions (Evans et al., 2015; McBain et al., 2012). A related field where community colleges have lead the way is in finding increasingly innovative approaches to award credit for prior learning and life experience without compromising academic rigor (Stenlund, 2013).

Institutions serious about enhancing access to underserved student populations: recognize the ineffectiveness of support services aimed merely at helping non-traditional adults assimilate into traditional programs and structures (Brown & Gross, 2011; Saar et al., 2014); understand most differences specific to active duty service members regard the flexibility of the overall learning environment (Machuca et al., 2014; Starr-Glass, 2013); actively explore existing structural barriers to participation potentially affecting adult enrollment or continuation; and are purposeful about eliminating unnecessarily restrictive practices and policies (Deggs, 2011; Evans et al., 2015; Saar et al., 2014)

Differentiating adult students as learners. Korr, Berwin, Green, and Sokoloff (2012) expertly summarize the adult learner with the following assumptions: previous experiences become more significant for processing new content and for transforming previous constructs as one matures; adults are more begrudged by activities that merely replicate existing knowledge or skills; adults have a greater need to relate new content to the world around them versus acquiring knowledge for its own sake; adults are more apt to characterize their participation in formal learning as external to their daily lives and obligations, a factor that significantly contributes to adult noncompletion; and adult learners require more frequent and individualized feedback about

their efforts, in addition to grades, to remain motivated. Khiat (2015) similarly references Doyle and Knowles, reinforcing how adult learners' motivation and success stems from a mature self-directedness that includes time management, goal setting, planning, problem solving, self-monitoring, and organization.

Based on the above characterizations, one can understand how adults participating in formal learning typically have a high regard for their previous experiences, specifically, highly skilled military personnel and other adults who have spent considerable time in the workplace (Evans et al., 2015; Ross-Gordon, 2011). Adult participants also expect the learning organization to respect their time, indicating the need to create efficient, meaningful instructional activities learners can directly relate to specific goals, and to eliminate unnecessary or repetitive requirements (Saar et al., 2014; Tainsh, 2016).

Differentiating Military Veterans and Active Duty Students as Learners. There is emerging literature concerning the social and learning needs of service veterans on campus (Arminio et al., 2015; Barry, 2015; Bonura & Lovald, 2015;), and the effect of combat experience on students' social behavior (Barry et al. 2014). Such studies support concerns regarding returning veterans who are often leaving the structured environment they know best (Naphan and Elliott, 2015). One should use caution, however, in over-generalizing the findings of studies limited to veterans on campus due to their limited application to online learning environments.

Ample literature emerges as institutions challenge each other for their share of the transitioning veteran market in response to recent enhancements in educational benefits for veterans and their families (Arminio et al., 2015; Brown & Gross, 2011; Naphan & Elliott, 2015; Nichols-Casebolt, 2012). Additionally, Brown & Gross (2011) point out the quality of these

highly-motivated students, indicating their nature to be both task-focused and achievement-oriented. The ability to self-regulate, amplified by the discipline, assumed responsibility, and well-developed leadership commonly exhibited by achievement-oriented active duty students (Naphan & Elliott, 2015) makes both veteran and active duty military students as a population a valuable commodity for the supporting learning organization, one likely to demonstrate higher than average completion rates when they are afforded suitable programs that can accommodate their unique lifestyle (Brown & Gross, 2011; Starr-Glass, 2013).

Unlike their active duty counterparts, transitioning service veterans typically enter higher education without the same restrictions on their time, geographic stability, tuition assistance benefits, and with more overall ability to devote efforts to continuing their education. Active duty students face external barriers that include frequent deployments, irregularly scheduled operational commitments, and intermittent limitations on internet access and communications while in remote areas or due to operational security (Machuca et al., 2014; Starr-Glass, 2013). These conditions are unique to active duty students that can best be served by institutions that acknowledge the needed flexibility to support them as active participants, particularly in terms of time and location (Cornelious et al., 2011).

Active duty students are frequently stymied, however, in their quest for suitable degree completion programs at reputable institutions when the learning organization: offers programs with limited flexibility with regards to completing course requirements, communicating with faculty and other students, and accessing online learning resources; has difficulty relating the service members' prior work experience and formal military training to transferable credits for the purposes of academic standing and meeting degree requirements; and has institutional residency restrictions, as well as continuing enrollment requirements that hinder a very mobile

student population's access to more affordable tuition rates, thus leaving the market open to a

growing collection of for-profit and marginally accredited institutions more than willing to

respond to the demand.

CHAPTER THREE: METHODS

Overview

This study involved quantitative comparisons of group means for non-traditional adult students based on their current military affiliation regarding their participation in online higher education. Survey data was used to examine active duty military, service veteran, and other non-traditional adult online students' overall attitudes toward distance learning, and their perceptions toward the online learning environment of 200-level general education courses for which they are currently or have recently participated. Students were asked to respond to 34 psychosocial items regarding an online course, as well as eight attitudinal scale items regarding distance education in general using the Distance Education Learning Environment Survey, or DELES (Walker, 2004; Walker & Fraser, 2005).

Design

This causal-comparative study examined whether active duty undergraduate students differed significantly from service veterans and other non-traditional undergraduates in their assessment of online learning environments. For this study, the three independent groups used for analysis consisted of Active Duty Service Members (ADSM), transitioning Service Veterans (SV) no longer on active duty, and non-military affiliated non-traditional adult (NTA) students. A causal comparative research design was appropriate for such investigations comparing quantitative means for a given dependent variable among groups based on the independent variable (Gall, Gall & Borg, 2007).

Survey data was collected regarding students' evaluation of the distance education learning environment related to their recent participation in credit-bearing online higher education. Analysis was conducted to compare the three groups in terms of their means on a

given dependent variable, testing the null hypotheses that there is no significant difference in mean scores of the dependent variable across the three groups (Gall et al., 2007). This procedure was appropriate for the given research questions regarding whether active duty service members differ significantly from transitional service veterans or non-military affiliated non-traditional adult students regarding their attitudes toward distance learning and their assessment of online learning environments used to deliver undergraduate higher education.

Research Questions

RQ1: Is there a difference in attitudes regarding general satisfaction/enjoyment of online undergraduate education among non-traditional students based on military affiliation (active duty, service veteran, non-military)?

RQ2: Is there a difference in perceptions of instructor support, personal relevance, and student autonomy regarding online undergraduate education among non-traditional student based on military affiliation (active duty, service veteran, non-military).

Null Hypotheses

$H_0$1: There is no statistically significant difference in attitudes regarding general satisfaction/enjoyment of online undergraduate education among non-traditional students based on military affiliation (active duty, service veteran, non-military).

$H_0$2: There is no statistically significant difference in perceptions of instructor support, personal relevance, and student autonomy regarding online undergraduate education among non-traditional student based on military affiliation (active duty, service veteran, non-military).

Participants and Setting

Participants for this study were recruited using convenience sampling of current online undergraduate students enrolled at a private, regionally accredited, four-year institution located

in central Virginia. The institution consists of approximately 50,000 undergraduate students, of which 42% are male, and 58% female. According to the National Center for Education Statistics (NCES) website, 45% of undergraduate students are enrolled part-time, with the remaining 55% full time students. Furthermore, 39% of enrolled undergraduates are non-traditionally aged 24 years and older, with approximately 7700 military affiliated undergraduates based on students receiving military education benefits (https://nces.ed.gov/collegenavigator/?id=232557).

The DELES survey was initially distributed via student email to potential undergraduate participants enrolled in one of six three-credit hour 200-level general education academic courses offered online during the spring semester of the 2016-2017 academic year. To minimize naturally occurring variation, participants were enrolled part-time in credit-bearing courses offered completely online and asynchronous, with no on-campus requirement for collaboration or final assessment. Full-time students were not considered appropriate participants, as they represented a different population of undergraduate students with differing expectations. For comparison, students were grouped based on their current military affiliation: active duty, service veteran, or non-traditional adult.

Of those invited to participate, 407 participants from the courses surveyed initiated a response to the online survey. Initial data screening yielded 191 usable response sets based on survey completion and adherence to the formal definition of a non-tradition student based on the literature (Chen, 2014; Fairchild, 2003; Khiat, 2015). Multiple reminded were sent over a two month period in order to enhance participation. The final sample population consisted of $n = 14$ ADSM, $n = 51$ SV, and $n = 138$ NTA, resulting in an overall estimated sample size of $N = 203$. Except for the small number of active duty respondents, this sample size was adequate for conducting analysis of variance using three nominal groups based on current military status to

obtain a medium effect size at the 0.05 alpha level with statistical power at the 0.05 level (Gall et al., 2007). Demographics for the final sample population are displayed in Table 3.1.

Table 3.1

Overall Demographics of Final Sample Population based on Military Status, Course, Gender

Military Status	Overall	Course		Gender	
Active Duty (ADSM)	n = 14	Econ	2	Male	8
		Eng	0	Female	6
		Math	5		
		Psy	6		
		Soc Sci	0		
		Gov	1		
Service Veteran (SV)	n = 51	Econ	9	Male	37
		Eng	0	Female	14
		Math	12		
		Psy	18		
		Soc Sci	5		
		Gov	7		
Non-military Adult (NTA)	n = 138	Econ	26	Male	22
		Eng	5	Female	116
		Math	30		
		Psy	46		
		Soc Sci	17		
		Gov	14		
Total	N = 203				

Instrumentation

Students' attitudes toward the online learning environment were assessed using the Distance Education Learning Environments Survey (DELES) (Walker, 2004; Walker & Fraser, 2005). The DELES can be administered either electronically or in print version, and typically takes the respondent approximately 15 minutes to complete.

The DELES consists of 34 items measuring six psychosocial characteristics of the

distance learning environment: instructor support, student interaction and collaboration, personal relevance, authentic learning, active learning, and student autonomy. The DELES also incorporates an eight-item attitudinal assessment used to measure overall satisfaction/enjoyment regarding distance education in general. Results from the attitudinal scale were used to respond to the first research question. Results from the instructor support, personal relevance, and student autonomy subscales were used to respond to the second research question.

The DELES invites participants to respond to each of the psychosocial items using a five-point Likert scale. Responses range from: always = 5, often = 4, sometimes = 3, seldom = 2, and never = 1 (Walker & Fraser, 2005). Each of the six psychosocial scales has between three to eight items. For scoring, a subscale with eight items such as instructor support would have a possible score ranging from 8 (never) to 40 (always). The seven item personal relevance subscale has possible scores ranging from 7 (never) to 35 (always). Student autonomy, with five items, would have a possible score ranging from 5 (never) to 25 (always).

The DELES's eight-item attitude scale, enjoyment, asks student to respond to their general satisfaction with distance learning. Responses range from strongly disagree = 1, disagree = 2, neither disagree or agree = 3, agree = 4, and strongly agree = 5 (Walker & Fraser, 2005). Possible scores range from 8 (strongly disagree) to 40 (strongly agree).

In addition to gender and age, demographics collected but not included in the DELES survey were: current military affiliation, military rank (if applicable), employment status, and self-reporting of prior level of experience with online learning (self-reported as total number of online credit hours previously enrolled). Additionally, participants were asked to respond to whether they have needed to disenroll from a previous online university course (yes/no), and if they received academic credit (APL) for prior training and experience (yes/no).

Reliability and Validity

Reliability for the DELES attitudinal assessment of overall satisfaction or enjoyment (eight items) is excellent, reporting a Cronbach's Alpha coefficient of 0.95 (Walker & Fraser, 2005). Reliability data for each of the DELES subscales includes: instructor support (eight items, α = .87); student interaction and collaboration (six items, α = .94); personal relevance (seven items, α = .92); authentic learning (five items, α = .89); active learning (three items, α = .75); and student autonomy (five items, α = .79) (Walker & Fraser, 2005).

To ensure content validity during item development, individual survey items were reviewed for face-validity by a panel of international subject matter experts and practitioners (Walker & Fraser, 2005). Factorial validity was then examined by conducting principal component factor analysis, ensuring the retention of items displaying high factor loadings only for that scale to be retained in the final instrument (Walker & Fraser, 2005).

Origins of the Survey Instrument

The DELES was developed with the goal of providing the education community a valid instrument for use with asynchronous distance higher education courses, as existing instruments for assessing the learning environment of traditional courses were not designed to consider the unique differences of the online learning environment (Walker, 2004). The DELES offers researchers a tested instrument designed for a broader population and greater utility than existing instruments used in distance education. The development of DELES items and subscales was driven by current research involving the assessment of learning environments as well as issues specific to distance education (Walker, 2004). A Spanish version of the instrument was developed and validated by the author in 2015 (Fernández-Pascual, Ferrer-Cascales, Reig-Ferrer, Albaladejo-Blázquez & Walker, 2015).

The design and validation of the DELES occurred in three stages: 1) identification of relevant scales; 2) individual item development, and content validation by a panel of subject matter experts; and 3) field testing with subsequent item analysis for reliability and construct validity (Walker, 2004). Field testing of the DELES instrument included analyzing responses from 680 international participants, resulting in the current instrument after principle component factor analysis and internal consistency reliability analysis (Walker, 2004). The final instrument contains six psychosocial scales and one attitude scale (enjoyment). The DELES has been used in other related research involving comparing students' perceptions based on distance education modalities (Biggs, 2006), predicting student satisfaction (Sahin, 2007), and evaluating student preferences related to online instructional strategies (Cuthrell, 2007).

Procedures

Institutional Review Board (IRB) approval was received to conduct this study. Subsequently, all students enrolled in the Spring 2017 online sections of six 200-level general education courses were invited to participate in the DELES survey via their student email. To ensure student anonymity, information regarding the research and the emailed invitation to participate was sent using the institution's analytics and decision support survey tool. The email, which included a link to the survey, informed students of the purpose of the study, explaining they had the option not to participate if they so choose. To ensure participating students remained anonymous to the researcher, all information regarding the study was directed to students' email using the survey tool. At no time did the researcher have access to individual students' names or emails.

Because respondents were of adult age, participants acknowledged privacy rights and informed consent as part of the electronic survey process prior to beginning the survey.

Informed consent was accomplished by responding to item one of the survey on the opening

page. A negative response to item one ended the survey. After responding affirmatively to item

one, participants were directed to an electronic version of the DELES (Walker, 2004; Walker &

Fraser, 2005). Permission to use and reproduce the DELES instrument was obtained and is

documented in Appendix B.

Participants were assured no personally identifying information would be electronically

stored or tracked to them due to their participation. Once redirected to the survey website,

collection of personal information was limited to the demographics included in the instrument.

Because the survey instrument used no recognizable identifier for individual participants, only

demographic and survey item responses were available to the researcher. Additionally,

participants were afforded the option of exiting the survey at any point if they desired to opt out.

No training was required to support survey delivery or completion. The researcher

obtained anonymous response data from the institution's analytics and decision support office

downloaded from the survey tool. The researcher will store all data collected for the study in a

locked container and password-protected removable drive to which only the researcher will have

access. Data will be documented as destroyed after a period of seven years.

Data Analysis

One-way Analysis of Variance, or ANOVA, was appropriate to address the first research

question that compared students' overall attitudinal means toward the distance learning

environment as measured by the DELES attitude scale, enjoyment, based on their military

affiliation (Gall et al., 2007; Warner, 2013). For the second research question, Multivariate

Analysis of Variance, or MANOVA, was used to examine differences based on military

affiliation measured by three of the DELES psychosocial scales: instructor support, personal

relevance, and student autonomy. Use of the MANOVA for the second research question was appropriate to test the null hypothesis that population means for two or more dependent variables did not differ statistically among three or more groups (Gall et al., 2007; Warner, 2013).

Preliminary Data Screening and Assumption Testing

Initial data screening involved the elimination of incomplete response sets (missing values), reviewing for errors in data entry into analytical software, and visual examination of the data set using analytical software to identify any unexpected values, or extreme values (box plots to identify potential outliers) (Warner, 2013). Additionally, non-participant responses were eliminated from the data set. A non-participant included any survey respondent that failed to meet the research definition of any of the three independent groups. For example, a military student under the age of 24 is not non-traditional by definition. An adult student not employed at least part time also fails to meet the research-based definition of non-traditional. Additionally, a service veteran enrolled full-time, but taking an online course, would also be considered a non-participant.

Use of Analysis of Variance (ANOVA) to respond to the first research question assumed: normal distribution of the dependent variable for each subgroup, equality of variance for the dependent variable for all populations, and individual cases were random and independent. Except for the active duty subgroup which used Shapiro-Wilk, normality was examined using Kolmogorov-Smirnov testing, as the sample size was larger than 50, in addition to visual inspection of histograms. The assumption of equality of variance was deemed tenable, as Levene's Test for Equality of Variance returned significance levels greater than 0.05 (Gall et al., 2007).

In addition to examining the data to appropriately remove any extreme values, and to

ensure linearity and equal variance, use of Multivariate Analysis of Variance, or MANOVA, to respond to the second research question assumed: univariate and multivariate normal distribution of the dependent variable for each subgroup, multicolinearity of the dependent variates measured independently, and homogeneity of varience-covarience (Gall et al., 2007; Warner, 2013). Likewise, univariate normality was examined using Kolmogorov-Smirnov and Shapiro-Wilk testing, in addition to visual inspection of histograms. Homogeneity of variance-covariance was examined using Box's M to ensure a significance level larger than 0.05 (Gall et al., 2007: Warner, 2013).

Items to be Reported

For both hypotheses, results from assumption testing as part of the initial screening of data are reported in chapter four, to include any rationale that would not support continuing with the use of the selected parametric procedures. Descriptive statistics, including overall sample size and subgroup sizes, mean, and standard deviation for groups and subgroups are also provided. Consistent with the reporting of analysis of variance and multivariate findings, conclusions and reported findings include: degrees of freedom (DF within/df between), observed F-value, significance level, post hoc comparisons conducted, and overall power and effect size (expressed as a partial eta squared) (Gall et al., 2007; Warner, 2013).

CHAPTER FOUR: FINDINGS

Overview

This study was conducted to determine whether a statistically significant difference was present in attitudes regarding online participation in undergraduate higher education among non-traditional adult students based on military affiliation given their responses to the Distance Education Learning Environment Survey (DELES) (Walker, 2004). To conduct both analysis of variance for the first research question, and multivariate analysis of variance for the second research question, participants were grouped as either Active Duty Service Members (ADSM), Service Veterans (SV) no longer on active duty, or Non-military Non-traditional Adult (NTA) students. The results reported in this chapter are based on statistical analysis of data collected using the DELES, which was administered to all participants online.

For the first research question regarding overall satisfaction with distance learning, analysis of variance demonstrated that the effect of military status was significant for the independent variable, enjoyment attitudinal scale, at the $p = 0.05$ level [$F(2 , 200) = 3.67$, $p = 0.027$, $N = 202$]. However, due to the small sample size for ADSM and SV participants, the more robust Welch statistic [$F(2 , 31.23) = 2.39$, $p = 0.108$] is noted as being insignificant. As a result, the researcher failed to reject the null hypothesis that a significant difference is fully substantiated. Furthermore, non-parametric procedures were favored for the second research question regarding perceptions of instructor support, personal relevance, and student autonomy over MANOVA due to untenable normality of subgroup and overall data sets based on factors.

Research Questions

RQ1: Is there a difference in attitudes regarding general satisfaction and enjoyment of online undergraduate education among non-traditional students based on military affiliation

(active duty, service veteran, non-military)?

RQ2: Is there a difference in perceptions of instructor support, personal relevance, and student autonomy regarding online undergraduate education among non-traditional students based on military affiliation (active duty, service veteran, non-military).

Null Hypotheses

H₀1: There is no statistically significant difference in attitudes regarding general satisfaction/enjoyment of online undergraduate education among non-traditional students based on military affiliation (active duty, service veteran, non-military).

H₀2: There is no statistically significant difference in perceptions of instructor support, personal relevance, and student autonomy regarding online undergraduate education among non-traditional students based on military affiliation (active duty, service veteran, non-military).

Descriptive Statistics

The DELES survey was initially distributed via student email to potential participants enrolled in one of six 200-level general education courses. Of this group, 407 participants from the courses surveyed responded to the survey. Initial data screening yielded 203 usable response sets based on survey completion and adherence to the formal definition of a non-traditional student based on the literature (Chen, 2014; Fairchild, 2003; Khiat, 2015). The final sample population consisted of ADSM ($n = 14$), SV ($n = 51$), NTA ($n = 138$), and Total ($M = 203$). For each hypothesis, descriptive statistics are displayed in the following sections.

Null Hypothesis One

Research question one examines students' satisfaction with distance learning in general based upon an enjoyment total, and eight items related to enjoyment included in the attitudinal scale. Descriptive statistics for the first null hypothesis are provided in Tables 4.1 and 4.2.

Table 4.1

Enjoyment Total Subgroup and Overall

Factor	ADSM (*n* = 14)		SV (*n* = 51)		NTA (*n* = 138)		Total (*N* = 203)	
	m	*SD*	*m*	*SD*	*m*	*SD*	*M*	*SD*
Enjoyment Total	28.07	8.53	30.82	6.92	32.33	5.57	31.66	6.24

Note: The total possible score for enjoyment total is 40.

Table 4.2

Enjoyment Subscale Items by Subgroup and Overall

Factor	ADSM (*n* = 14)		SV (*n* = 51)		NTA (*n* = 138)		Total (*N* = 203)	
	m	*SD*	*m*	*SD*	*m*	*SD*	*M*	*SD*
Distance education is stimulating	3.43	1.16	3.96	1.04	4.01	0.82	3.96	0.91
I prefer distance education	3.21	1.37	3.78	1.14	4.01	1.00	3.90	1.08
Distance education is exciting	3.50	1.16	3.65	1.02	3.77	0.87	3.72	0.93
Distance education is worth my time	4.00	1.11	4.43	0.90	4.49	0.70	4.44	0.79
I enjoy studying by distance	3.57	1.28	3.84	1.08	4.16	0.86	4.04	0.96
I look forward to learning by distance	3.36	1.28	3.78	1.06	4.02	0.92	3.92	1.00
I would enjoy my education more if all my classes were by distance	2.93	1.21	3.08	1.18	3.55	1.05	3.39	1.12
I am satisfied with this class	4.07	1.00	4.29	0.81	4.32	0.71	4.30	0.76

Note: The total possible score for each item is 5.

Null Hypothesis Two

Research question two examines students' perceptions of distance learning with regards to instructor support, personal relevance, and student autonomy. Descriptive statistics for each subscale, in addition to a psychosocial total and DELES total score are provided in Tables 4.3 and 4.4.

Table 4.3

Descriptive Statistics for DELES Psychosocial Total by Subgroup and Overall

Subscale	ADSM (*n* = 14)		SV (*n* = 51)		NTA (*n* = 138)		Total (*N* = 203)	
	m	*SD*	*m*	*SD*	*m*	*SD*	*M*	*SD*
PsySoc Total	128.00	14.15	132.51	14.48	130.58	14.57	130.89	14.49
DELES Total	156.07	19.66	163.33	19.51	162.92	17.83	162.55	18.38

Note: The maximum score for the DELES Psychosocial Subscales Total is 170. Maximum possible DELES total is 210.

Table 4.4

Descriptive Statistics for DELES Psychosocial Subscales by Subgroup and Overall

Subscale	ADSM (*n* = 14)		SV (*n* = 51)		NTA (*n* = 138)		Total (*N* = 203)	
	m	*SD*	*m*	*SD*	*m*	*SD*	*M*	*SD*
Instructor Spt	33.57	4.64	33.97	4.66	34.18	4.50	34.08	4.53
Student Int	16.21	4.30	15.80	5.50	15.61	5.00	15.70	5.07
Personal Rel	25.57	5.29	27.90	4.64	27.24	4.71	27.29	4.74
Auth Learn	18.64	3.86	19.98	3.69	18.89	3.25	19.14	3.43
Active Learn	12.36	1.78	12.69	1.52	12.15	1.77	12.30	1.72
Student Auto	21.64	2.34	22.16	2.27	22.52	2.27	22.37	2.28

Note: The maximum scores for each subscale are 40 (Instructor Support), 30 (Student Interaction), 35 (Personal Relevance), 35 (Authentic Learning), 15 (Active Learning), and 25 (Student Autonomy).

Results

Data Screening

Initially, 407 students from the six general education courses surveyed initiated a

response to the DELES survey. Of the total respondents, 65 surveys were significantly

incomplete and were immediately discarded. Of the remaining 342 responses, 55 cases were

identified as non-participants due to age (under 24 years old), with an additional 84 removed due

to employment status as student only, neither criteria meeting the definition of a non-traditional

adult student (Chen, 2014; Fairchild, 2003; Khiat, 2015). Due to the small number of military

students responding (ADSM $n = 14$ and SV $n = 51$), values for minor cases of missing data were

replaced with series means (Downey & King, 2010). Additionally, the decision was made not to

remove outliers, as doing so did not impact the findings. The final overall sample consisted of

203 participants across the six surveyed courses.

Null Hypothesis One

The first null hypothesis states there is no statistically significant difference in attitudes

regarding general satisfaction/enjoyment of online undergraduate education among non-

traditional students based on military affiliation (ADSM, SV, NTA). For research question one,

a one-way between subjects ANOVA was conducted to compare the effect of military status on

overall enjoyment of distance learning as measured by the DELES (Walker, 2004) attitudinal

scale, enjoyment.

Assumption testing. To substantiate use of parametric testing for Analysis of Variance

(ANOVA) for the first research question, visual examination of histograms overall and for each

subgroup, in addition to reporting a Shapira-Wilk result indicated normal distribution for the

active duty group ($W = 0.94$, $p = 0.40$), however not for service veterans ($W = 0.93$, $p = 0.00$),

other non-traditional adults ($W = 0.953$, $p = 0.00$) or overall ($W = 0.94$, $p = 0.00$). Based on group sizes over 50, the Kolmogorov-Smirnov statistic indicated tenable normality for the service veteran group, $D(51) = 0.11$, $p = 0.20$, but not for other non-traditional adults, $D(138) = 0.09$, $p = 0.02$, or overall, $D(203) = 0.09$, $p = .00$. As a result, non-parametric analysis was additionally explored. Equality of variance was evaluated using Levene's Test, yielding a insignificant result, $F(2,200) = 2.50$, $p = 0.085$, indicating equal variance can be assumed,.

Findings. Analysis of variance demonstrated that the effect of military status was significant for the independent variable, enjoyment, at the $p = 0.05$ level [$F(2 , 200) = 3.67$, $p = 0.027$, $N = 203$]. Due to the small sample size for ADSM ($n = 14$) and SV ($n = 51$) groups compared to the NTA group ($n = 138$), the more robust Welch statistic is noted as being insignificant [$F(2,31.23) = 2.39$, $p = .11$]. Additionally, a non-parametric Kruskal-Wallis H test further demonstrated there was no statistically significant difference in enjoyment based on military status, $\chi^2(2) = 4.065$, $p = 0.131$, with a mean enjoyment total of 77.89 for active duty, 95.14 for service veterans, and 106.98 for other non-traditional adults. As a result, the researcher failed to reject the null hypothesis for the first research question.

Of note, item analysis using separate independent *t*-tests for enjoyment scale items showed significant differences were present among ADSM and NTA group means on six of the eight items on the attitudinal scale as displayed in Table 4.5, whereas there were no significant differences regarding any items among ADSMs and SVs. Service veterans no longer on active duty differed significantly from NTAs only on two of the enjoyment scale items as displayed in Table 4.6.

Table 4.5

Significant Enjoyment Subscale Items Comparing Active Duty to Non-traditional Adults

Factor	ADSM ($n = 14$)		NTA ($n = 138$)	
	m	*SD*	*m*	*SD*
Distance education is stimulating $t(150) = -2.45, p = 0.016$	3.43	1.16	4.01	0.82
I prefer distance education $t(150) = -2.76, p = 0.007$	3.21	1.37	4.01	1.00
Distance education is worth my time $t(149) = -2.35, p = 0.02$	4.00	1.11	4.49	0.70
I enjoy studying by distance $t(150) = -2.33, p = 0.021$	3.57	1.28	4.16	0.86
I look forward to learning by distance $t(150) = -2.47, p = 0.015$	3.36	1.28	4.02	0.92
I would enjoy my education more if all my classes were by distance $t(150) = -2.05, p = 0.042$	2.93	1.21	3.55	1.05

Note: The total possible score for each item is 5.

Table 4.6

Significant Enjoyment Subscale Items Comparing Service Veterans to Non-traditional Adults

Factor	SV ($n = 51$)		NTA ($n = 138$)	
	m	*SD*	*m*	*SD*
I enjoy studying by distance $t(187) = -2.09, p = 0.038$	3.84	1.08	4.16	0.86
I would enjoy my education more if all my classes were by distance $t(184) = -2.61, p = 0.01$	3.08	1.18	3.55	1.05

Note: The total possible score for each item is 5.

Null Hypothesis Two

The second null hypothesis states there is no statistically significant difference in perceptions of instructor support, personal relevance, and student autonomy regarding online undergraduate education among non-traditional student based on military affiliation (ADSM, SV, NTA). Multivariate Analysis of Variance (MANOVA) was conducted to compare population means on the DELES (Walker, 2004) subscales Instructor Support, Personal Relevance, and Student Autonomy based on military affiliation. The psychosocial total score as well as the other subscales were additionally examined. Due to lack of adequate normal distribution of univariate data, individual subscales as well as the Psycho-Social Total and DELES total were examined using both one-way ANOVA and non-parametric Kruskal-Wallis H tests.

Assumption testing. To support the use of parametric procedures for the second research question involving Multivariate Analysis of Variance (MANOVA), normality of data distribution was both visually examined as well as using Shapiro-Wilk or Kolmogorov-Smirnov tests depending on group size for each of the dependent variables. The results are displayed in Table 4.7. Equality of variance was examined and found tenable using Levene's Test for Instructor Support, $F(2,200) = 0.053$, $p = 0.949$; Personal Relevance, $F(2,200) = 0.338$, $p = 0.713$; Student Autonomy, $F(2,200) = 0.101$, $p = 0.904$; Student Interaction, $F(2,200) = 1.62$, $p = 0.20$; Authentic Learning, $F(2,200) = 0.661$, $p = 0.517$; and Active Learning, $F(2,200) = 0.381$, $p = 0.683$. Homogeneity of variance-covariance was tenable based on Box's M for Instructor Support, Personal Relevance, and Student Autonomy at $F(12,5835) = 9.836$, $p = 0.678$. For all six subscales (including Student Interaction, Authentic Learning, and Active Learning) at $F(42,4356.662) = 1.089$, $p = 0.32$. However, due to the lack of normal distribution of data, the

idea of relying on MANOVA was abandoned in favor of the non-parametric alternative to one-way analysis of variance using Kruskal-Wallis H tests for each subscale of interest.

Table 4.7

Tests for Univariate Normality based on DELES Subscale

Subscale	Group		Kolmogorov-Smirnov			Shapiro-Wilk		
			Statistic	df	Sig.	Statistic	df	Sig.
Instructor	ADSV	$n = 14$	0.165	14	0.200*	0.949	14	0.540*
Support	SV	$n = 51$	0.156	51	0.003	0.921	51	0.002
	NTA	$n = 138$	0.098	138	0.003	0.922	138	0.000
	Overall	$N = 203$	0.097	203	0.000	0.928	203	0.000
Student	ADSV	$n = 14$	0.094	14	0.159*	0.921	14	0.224*
Interaction	SV	$n = 51$	0.128	51	0.037	0.964	51	0.119*
	NTA	$n = 138$	0.068	138	0.200*	0.979	138	0.034
	Overall	$N = 203$	0.064	203	0.045	0.982	203	0.00
Personal	ADSV	$n = 14$	0.248	14	0.019	0.900	14	0.112*
Relevance	SV	$n = 51$	0.077	51	0.200*	0.961	51	0.090*
	NTA	$n = 138$	0.114	138	0.000	0.954	138	0.000
	Overall	$N = 203$	0.106	203	0.000	0.958	203	0.000
Authentic	ADSV	$n = 14$	0.291	14	0.002	0.760	14	0.002
Learning	SV	$n = 51$	0.140	51	0.014	0.935	51	0.008
	NTA	$n = 138$	0.122	138	0.000	0.942	138	0.000
	Overall	$N = 203$	0.128	203	0.000	0.940	203	0.000
Active	ADSV	$n = 14$	0.294	14	0.002	0.832	14	0.013
Learning	SV	$n = 51$	0.185	51	0.000	0.918	51	0.002
	NTA	$n = 138$	0.134	138	0.000	0.949	138	0.000
	Overall	$N = 203$	0.150	203	0.000	0.946	203	0.000
Student	ADSV	$n = 14$	0.148	14	0.200*	0.929	14	0.2978
Autonomy	SV	$n = 51$	0.124	51	0.049	0.915	51	0.001
	NTA	$n = 138$	0.191	138	0.000	0.875	138	0.000
	Overall	$N = 203$	0.171	203	0.000	0.901	203	0.000

Note: Subgroups with tenable normality for given subscale are indicated with *

Findings. The initial MANOVA indicated there was not a statistically significant difference in students' perceptions of the distance learning environment based on instructor support, personal relevance, and student autonomy, $F (6, 396) = 0.898$, $p = 0.496$; Wilk's $\Lambda = 0.973$, partial $\eta2 = 0.013$. Additionally, there was not a statistically significant difference in students' perceptions of the distance learning environment across any of the six DELES

subscales, which include student interaction, authentic learning, and active learning, F (12, 390) = 1.226, p = .263; Wilk's Λ = 0.929, partial $\eta2$ = .036.

Table 4.8

Effect Size for Individual Subscale (MANOVA)

Dependent Factor	Results	Observed Power
Instructor Support	F(2,200) = 0.134, p = 0.874, $\eta2$ = .001	0.07
Personal Relevance	F(2,200) = 1.359, p = 0.259, $\eta2$ = .013	0.29
Student Autonomy	F(2,200) = 1.247, p = 0.290, $\eta2$ = .012	0.269
Student Interaction	F(2,200) = 0.105, p = 0.901, $\eta2$ = .001	0.066
Authentic Learning	F(2,200) = 2.084, p = 0.127, $\eta2$ = .020	0.425
Active Learning	F(2,200) = 1.889, p = 0.154, $\eta2$ = .019	0.390

Due to significant lack of normal distribution of data to support parametric procedures, two additional statistical procedures were conducted: 1) one-way ANOVA was conducted for the three independent factors and the Psychosocial total Instructor Support, Personal Relevance, and Student Autonomy, and 2) non-parametric Kruskal-Wallis H tests were used to substantiate any significant findings. Analysis of variance demonstrated that the effect of military status was not significant for the independent variable Instructor Support at the p = 0.05 level [F(2 , 200) = 0.134, p = 0.874, N = 203]. The more robust Welch statistic was also insignificant [F(2,33.620) = 0.128, p = 0.880]. Additionally, the non-parametric Kruskal-Wallis H test further demonstrated there was no statistically significant difference in Instructor Support based on military status, $\chi2(2)$ = 0.251, p = 0.882, with a mean Instructor Support of 94.89 for active duty, 101.32 for service veterans, and 102.97 for other non-traditional adults.

Analysis of variance demonstrated that the effect of military status was not significant for the independent variable Personal Relevance at the $p = 0.05$ level [F(2 , 200) = 1.359, $p = 0.259$, $N = 203$]. The more robust Welch statistic was also insignificant [F(2,33.181) = 1.163, $p = 0.325$]. Additionally, the non-parametric Kruskal-Wallis H test further demonstrated there was no statistically significant difference in Personal Relevance based on military status, $\chi2(2) = 1.778$, $p = 0.411$, with a mean Personal Relevance of 86.39 for active duty, 109.05 for service veterans, and 100.98 for other non-traditional adults.

Analysis of variance demonstrated that the effect of military status was not significant for the independent variable Student Autonomy at the $p = 0.05$ level [F(2 , 200) = 1.247, $p = 0.290$, $N = 203$]. The more robust Welch statistic was also insignificant [F(2,33.694) = 1.186, $p = 0.318$]. Additionally, the non-parametric Kruskal-Wallis H test further demonstrated there was no statistically significant difference in Student Autonomy based on military status, $\chi2(2) = 3.109$, $p = 0.211$, with a mean Student Autonomy of 81.50 for active duty, 95.82 for service veterans, and 106.36 for other non-traditional adults.

CHAPTER FIVE: CONCLUSIONS

Overview

This research design adds to the limited body of existing studies specifically focused on the problem of identifying and reducing barriers to participation in adult online degree completion programs experienced by students currently serving on active duty. The significance of this study is substantiated by Cross (1981), whose work establishes the framework for evaluating barriers to adult participation in the formal learning environment. Furthermore, Deggs (2001) and Saar, That, and Roosalu (2014) highlight the need for more flexible and accessible non-traditional adult learning opportunities. Barriers to participation relevant to military student populations, specifically programmatic issues that may impact undergraduates currently serving on active duty, appear in more recent studies (Evans, Pellegrino, & Hoggan, 2015; Machuca, Torres, Morris, & Whitley, 2014; Starr-Glass, 2013). This chapter discusses the conclusions and implications, to include the current study's limitations and recommendations for further research.

Discussion

The purpose of this study was to examine whether active duty undergraduate students differ significantly regarding their attitudes toward distance learning and their perceptions of the online distance learning environment compared to service veterans and other non-traditional adults as measured by the Distance Education Learning Environment Survey, or DELES (Walker, 2004; Walker & Fraser, 2005). The problem is the lack of an overarching framework to guide program administrators and university officials in developing learning environments that effectively support the military student population (Evans et al., 2015), particularly those still serving on active duty (Machuca et al., 2014; Starr-Glass, 2013). This study involved

analysis of variance and multi-variate analysis of variance to examine differences in students'

overall enjoyment regarding distance education, as well as students' perceptions of the online

learning environment related to: a) instructor support, b) personal relevance, and c) student

autonomy using the DELES (Walker, 2004) in order to better inform the needed framework.

The present study incorporated two research questions discussed independently in this

chapter. The first research question examined differences in attitudes regarding enjoyment of

online undergraduate education among non-traditional students based on military affiliation. The

second question looked at differences in perceptions of instructor support, personal relevance,

and student autonomy regarding online undergraduate education among non-traditional students

based on military affiliation. Participants for the study were recruited to complete the survey

from six 200-level general education courses offered online during the spring 2017 semester at a

private four-year institution of higher education. This quantitative research design using the

DELES instrument differs from Star-Glass's qualitative approach to exploring issues impacting

active duty undergraduates, and from Machuca et al.'s study involving only military students.

Such prior work, however, does serve to inform the development of a new instrument to

supplement existing distance learning surveys.

Null Hypothesis 1

The first null hypothesis contends there is no statistically significant difference in

attitudes regarding enjoyment of online undergraduate education among non-traditional students

based on military affiliation. Due to the small sample size for the active duty service member

(ADSM) group compared to services veteran no longer on active duty (SV) and other non-

traditional adults (NTA), the researcher gave greater consideration to the more robust Welch

statistic, which was insignificant, over the significant ANOVA, and therefore failed to reject the

null hypothesis. Furthermore, additional analysis addressed in the previous chapter indicated that, while active duty students were different regarding enjoyment from non-traditional adults [$F(2, 200) = 3.67$, $p = 0.027$], they were not as expectedly different based on recent studies (Machuca et al., 2014; Starr-Glass, 2013) from their service veteran counterparts, thus failing to definitively separate them as a unique and discrete sample population at this institution. As a result, there is not adequate evidence to conclude a significant difference was present for the active duty group compared to service veterans no longer on active duty and other non-traditional adult undergraduates.

One reason for the lack of a significant finding may be because the enjoyment scale asks students to respond to broad questions based on their experience with distance education overall. Students can potentially respond to such items based on their most recent experiences without considering the full range of barriers they may have faced earlier in the admissions process, such as complex admissions procedures and program/course availability online (Haugtvedt & Wegener, 1994). Likewise, students who had already been dissuaded from participating by such barriers, non-enrollers, were not included in the current research design. Furthermore, this study was conducted at an institution already known for offering flexible learning opportunities for military and other working adult students where significant barriers are already being addressed.

The lack of significant differences among the three non-traditional groups is generally in keeping with Knowles (1984) and current literature indicating all adult learners are typically self-directed, experienced, eager to learn and succeed, interested, and self-motivated (Chen, 2014; Deggs, 2011; McCann, Graves, & Dillon, 2012; Tainsh, 2016). Given these general traits are present in most adult learners who choose to engage in formal higher education (Deggs, 2011; Khiat, 2015), it is understandable how participants in each of the three groups surveyed

displayed relatively high levels of overall enjoyment when responding to the items on the enjoyment scale. There is also the tendency to self-report personal experiences higher than actually perceived when participants feel doing so reflects themselves more positively or is otherwise beneficial (McDonald, 2008; Ross, McDougall, Hogaboam-Gray, & LeSage, 2003).

Although analysis of variance did not substantially differentiate active duty students from the other two groups overall for enjoyment, independent *t*-tests for the eight enjoyment scale items showed significant differences were present among the active duty and non-military groups means on six of the eight items on the attitudinal scale as displayed in Table 4.5 in the previous chapter. This indicates active duty students indeed appear to distinguish themselves from the non-military student group, whereas there were no significant differences regarding any items among active duty and service veterans. Service veterans differed significantly from non-military adults on two of the enjoyment scale items as shown in Table 4.6. As a result, additional research that includes a broader population of military students, to include those in a deployable status versus those who are not, would lend itself to better defining factors of enjoyment that distinguish service veterans no longer on active duty from those still serving.

Null Hypothesis 2

The second null hypothesis for this study contends there is no statistically significant difference in perceptions of instructor support, personal relevance, and student autonomy regarding online undergraduate education among non-traditional students based on military affiliation. Neither was there present a statistically significant difference among participants on any of the six DELES subscales, or the summed total for these subscales. As the MANOVA was not significant, the findings presented in the previous chapter indicate current military status did not have a significant effect on student perceptions for the selected subscales: a) instructor

support, b) personal relevance, and c) student autonomy, or for the DELES psychosocial scales overall.

Furthermore, analysis of individual items substantiated no significant differences between groups for an expectedly pertinent DELES item such as "I work during times that I find convenient" (Walker, 2004). Quite unexpectedly, the active duty group reported the highest mean for this particular item ($m = 4.29$, $SD = 0.92$, $n = 14$), while the service veteran group reported the lowest mean ($m = 4.18$, $SD = 0.93$, $n = 51$) compared to the non-military adult learners ($m = 4.24$, $SD = 0.88$, $n = 138$). The low mean for service veterans may be a response to the unsettling demands of transitioning to the civilian workforce and evolving family dynamics as they return from serving their country, whereas active duty personnel have no option for engaging in online education other than when it is convenient. This finding is inconsistent with the work of Machuca et al. (2014) and Starr-Glass (2013) that indicate active duty service members reporting feeling uniquely impacted by rigid requirements for pacing, communicating, and assignment submission given their unpredictable operational schedules.

While multivariate analysis of variance overall was insignificant, results for one item, "I am in control of my learning" (Walker, 2004), appear inconsistent with anticipated military perceptions of responding well to structured environments (Bonura & Lovald, 2015). Active duty students ($m = 3.86$, $SD = 0.92$, $n = 14$) displayed a significantly lower mean for this item [$F(2, 200) = 4.68$, $p = 0.01$] compared to service veterans ($m = 4.39$, $SD = 0.69$, $n = 51$) and other non-traditional adults ($m = 4.46$, $SD = 0.72$, $n = 138$), indicating active duty students in particular may have felt more controlled by their learning environment than in control of it (Machuca et al., 2014; Starr-Glass, 2013). Kopit (2018) specifically suggests how online programs need to minimize requirements for being online to access course materials, as well as

offer flexible opportunities to fulfill class-time requirements for the active duty student if they wish to attract this highly mobile population to their institutions. However, despite the need for greater flexibility, Kopit opines military students may benefit from supporting structures similar to what they experience in their military workplace.

Implications

This study contributes to the body of research regarding military students participating in online higher education, and specifically highlights the need to further explore and mitigate those issues unique to service members still on active duty as evidenced in current literature (Machuca et al., 2014; Starr-Glass, 2013). Although the results for this sample population were not defensibly significant, this study does validate the need for more targeted discussions regarding how to systematically identify and quantify the impact of barriers to participation, both real and perceived, in higher education for active duty service members as non-traditional adult students.

Implications for Research

Current enrollment patterns among military students in non-traditional undergraduate degree completion programs indicate convenience continues to be a prime factor compared to the reputation of the learning institution itself (Callahan & Jarrat, 2014), and this current study indicates potentially greater active duty student concerns regarding control of their learning environment. If left unchecked, traditional academic institutions with rigid enrollment, pacing, and other course requirements will continue to be challenged when it comes to recruiting and serving active duty and other non-traditional student populations. Likewise, considering its significant findings related to technology issues impacting access to online learning environments among military students, there is a need to expand the research design used by Machuca et al. (2014) surveying military undergraduate students, originally conducted at an

institution known for catering to the online military population. Such a comparison, one that includes defining multiple sub-groups of military student groups (e.g., those currently in deployment cycles or assigned to remote locations) with non-military student groups to better define the impact of the issues documented by that study.

Additionally, the body of literature indicates active duty students indeed report issues regarding appropriate faculty support as well as flexibility in completing course assignments without penalty (Machuca et al., 2014; Starr-Glass, 2013), and these concerns are reflected more recently in the purported opinions of Kopit (2018). The phenomenological approach to investigating issues affecting active duty undergraduates initiated by Starr-Glass (2013) should be foundational to the development and validation of a new instrument specifically tailored to quantify and better inform the education community regarding technology and other programmatic issues that may be currently impacting this growing segment of non-traditional students, such as restricted/limited internet access, secure computing requirements blocking access to needed websites while deployed, inflexible pacing and course requirements, and difficulty communicating with faculty when unforeseen circumstances limit connectivity.

Implications for Practice

Existing literature indicates institutions of higher education do not need to wait for either state or federal governance to self-examine their internal structures, staff and faculty perceptions, and organizational practices as they regard military learners affected by mobility issues. Nor do individual faculty members need to wait for institutional direction to explore best practices for engaging and retaining active duty undergraduate students. Documented local initiatives (Brown & Gross, 2011; Evans et al., 2015; Kopit, 2018; Machuca et al., 2014; Wilson, Smith, Lee, & Stevenson, 2013) have proven to have a substantial impact to ensure the successful participation

and growth of military student populations on their respective campuses. Such local initiatives

focused specifically on their military community of students have revealed the positive impact of

implementing staff training regarding issues faced by military students, inviting collaboration

and cooperation among faculty and staff in investigating alternative methodologies to

demonstrate course objectives for non-traditional students, creatively balancing flexibility and

accountability when military students are faced with unexpected operational commitments, and

responding appropriated when academic issues (such as connectivity required to access course

resources or upload assignments) temporarily impact remote learners.

<div align="center">**Limitations**</div>

Survey data acquired through self-reporting is convenient and commonly used in the

social sciences. Despite the convenience advantage of using online surveys, response rates to

web surveys are still typically 11% lower than other types of survey methods (Fan & Yan, 2010).

The accuracy of subjective surveys based on self-reporting versus more objective methods of

data collection can be compromised, as human participants are subject to the effects of primacy

and recency bias (Haugtvedt & Wegener, 1994). Extreme ratings, both high and low, on scaled

surveys such as the DELES can make results less valid (McDonald, 2008). Participants may not

have the same understanding of survey items intended by the researcher, or simply lack any

strong attitude about what the item is asking (Bertrand & Mullainathan, 2001). Additionally,

participants can be motivated to rate their online learning experience higher than actually

perceived when doing so is considered desirable (McDonald, 2008; Ross et al., 2003). Results of

self-reported survey data can be improved however by ensuring students of their anonymity, the

positive intent of the study, and by informing students of the importance of the study and how

the data will be used (Gall, Gall & Borg, 2007).

As with any research study or inquiry, the finding of this study and their generalizations can only be applied to a population represented by the sample population. For this study, the sample population represents part-time adult undergraduate students (age 24 and older) enrolled in 200-level online general education courses at the participating institution and employed at least part-time. Furthermore, the participating institution is well respected for providing all students a flexible learning environment and for the services it provides specifically to military and veteran students. Although it is reasonable other sample populations may report similar findings, caution is warranted when attempting to apply the findings and conclusions of this study to populations not represented by the sample population.

A significant limitation of the present study is the small sample size for the active duty subgroup ($n = 14$) compared to service veteran ($n = 51$) and other non-traditional adults ($n = 138$). Although these subgroups are reasonably representative of the institution's overall population, unequal sample sizes can affect data analysis, and the smallest subgroup (in this case, $n = 14$) is too small for adequate power given a medium effect size (Warner, 2013).

An additional limitation also relates to participants in the active duty subgroup, in that ADSMs were not asked to identify if they were currently in a deployable status or remotely assigned. This key oversite should be rectified in any future study, as collecting this information would allow for the disaggregation of results for deployed/remote ADSMs compared to other active duty service members (those on shore rotation or stateside). Given the resources to solicit a larger sample size for the active duty military subgroup, and with the ability to compare deployed versus shore-based service members, a significant ANOVA result could be better substantiated, with greater implications should they differentiate themselves as a group from service veterans and other non-traditional adults (Machuca et al., 2014; Starr-Glass, 2013).

Another limitation is that this study did not incorporate two other important groups of potential adult learners relevant to the body of research – those designated as either non-enrollers (those who decide not to participate) or non-completers (those who initially participate but later decided to discontinue with online higher education) at the participating institution (Ozga & Sukhnandan, 2002). The feasibility of identifying and communicating with this population was beyond the scope of this inquiry, however interaction with this population could potentially yield significant insight for improved accessibility of distance learning. Rather that involving the full range of potential students, this study only engaged non-traditional students who committed to enrolling in the online course of instruction, having made the decision their current circumstances would permit their successful participation.

Finally, this study's findings were limited by the elements of students' experience that could be reasonably captured using the DELES (Walker, 2004) instrument. The DELES was identified by the researcher as the best valid and reliable instrument among several existing instruments for exploring student perceptions of online and other distance education learning environments. The DELES is likely, however, not able to fully capture the range of students' perceptions regarding programmatic issues related to their online participation most significant to active duty students, such as potentially unreliable access to the internet and pacing flexibility (Machuca et al., 2014; Starr-Glass, 2013), flexible enrollment, availability of accelerated semesters, and options for assessment of prior learning (Ross-Gordon, 2011; Saar et al., 2014).

Recommendations for Future Research

This study should not only be repeated but should also be expanded to incorporate a larger and more generalizable sample population. There is the need for: a) recruiting participants at both military-friendly institutions and those not readily identified as being military-friendly, b)

incorporating more balanced between-group sample populations, c) examining non-traditional education opportunities based on a variety of modes (delivered fully online vs. other distance media, self-paced versus structured asynchronous, d) comparing student populations enrolled in accelerated (i.e. eight week versus 16 week) semesters, and e) evaluating upper-division (300 and 400-level course requirements) distance learning opportunities that facilitate baccalaureate degrees degree completion, thus enabling any significant findings to be generalized to a broader target population of online adult students. This study engaged only undergraduate students taking lower level (200-level) credit bearing courses that meet introductory general education requirements. Resultantly, the findings are not necessarily generalizable to graduate level or upper-level undergraduate students engaged in more advanced coursework.

Furthermore, due to the limitations of existing survey instruments, there is a need to develop a survey instrument focused specifically on evaluating institutional and programmatic barriers as defined by the expanding body of literature related to affording students, specifically active duty military students, greater access to flexible and affordable learning opportunities to support degree completion (Cross, 1981; Machuca et al., 2014; Ross-Gordon, 2011; Saar et al., 2014; Starr-Glass, 2013). A mixed-methods approach that would build on existing literature regarding issues faced by active duty military students (Machuca et al., 2014; Starr-Glass, 2013) could result in the development of such an instrument.

A particularly engaging recommendation for further research involves the recruitment of study participants identified as either non-enrollers or non-completers at participating institutions. As cited in the literature, understanding factors that discourage adult participation in formal education are as relevant to defining the problem as identifying enabling conditions that promote participation (Cross, 1981; McCann et al., 2012; Saar et al., 2014).

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APPENDICES

Appendix A: Authorization for use of DELES Instrument

Scott L. Walker, ScEdD
397 S. Willow Ave.
New Braunfels, TX 78130
USA
walkstx@gmail.com

DELES Permission Letter

Sherry Crissman has been granted permission to use the Distance Education Learning Environments Survey (DELES) for the purpose of the proposed doctoral study:

COMPARING ACTIVE DUTY AND TRANSITIONAL MILITARY VETERAN STUDENTS' EVALUATION OF ONLINE DISTANCE HIGHER EDUCATION LEARNING ENVIRONMENTS

through Liberty University, with the following usage rights being granted.

- One time U.S. rights for e-mail distribution of the Preferred, Actual, and Instructor forms of the DELES.

- One time U.S. rights for Web posting of the Preferred, Actual, and Instructor forms of the DELES to be removed from the Web no later than May 31, 2018.

The DELES and its versions and derivatives are copyright protected. When the DELES is published or presented in non-commercial use, you must mention Scott L. Walker as the copyright holder of the instrument in this format:

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April 5, 2017

Scott L. Walker, ScEdD

Appendix B: IRB Approval Letter

LIBERTY UNIVERSITY.
INSTITUTIONAL REVIEW BOARD

July 12, 2017

Sherry Djo Crissman
IRB Exemption 2913.071217: Comparing Active Duty and Transitional Military Veteran
Students' Evaluation of Online Distance Higher Education Learning Environments

Dear Sherry Djo Crissman,

The Liberty University Institutional Review Board has reviewed your application in accordance
with the Office for Human Research Protections (OHRP) and Food and Drug Administration
(FDA) regulations and finds your study to be exempt from further IRB review. This means you
may begin your research with the data safeguarding methods mentioned in your approved
application, and no further IRB oversight is required.

Your study falls under exemption category 46.101(b)(2), which identifies specific situations in
which human participants research is exempt from the policy set forth in 45 CFR 46:101(b):

> (2) Research involving the use of educational tests (cognitive, diagnostic, aptitude, achievement), survey
> procedures, interview procedures or observation of public behavior, unless:
> (i) information obtained is recorded in such a manner that human subjects can be identified, directly or
> through identifiers linked to the subjects; and (ii) any disclosure of the human subjects' responses outside
> the research could reasonably place the subjects at risk of criminal or civil liability or be damaging to the
> subjects' financial standing, employability, or reputation.

Please note that this exemption only applies to your current research application, and any
changes to your protocol must be reported to the Liberty IRB for verification of continued
exemption status. You may report these changes by submitting a change in protocol form or a
new application to the IRB and referencing the above IRB Exemption number.

If you have any questions about this exemption or need assistance in determining whether
possible changes to your protocol would change your exemption status, please email us at
irb@liberty.edu.

Sincerely,

G. Michele Baker, MA, CIP
Administrative Chair of Institutional Research
The Graduate School

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Appendix C: Participant Recruitment Email

Dear Liberty University Online Student:

As a graduate student in the School of Education at Liberty University, I am conducting research as part of the requirements for a doctoral degree, and I would truly value your assistance.

The purpose of my research is to examine whether active duty military undergraduate students differ significantly regarding their attitudes toward the distance learning environment compared to returning service veterans and other adult students. *No military affiliation is required to participate.*

You are receiving this email because you were enrolled in a 200-level general education course online during a Summer 2017 semester, and I gladly invite you to participate in my study.

Are you:
- an online student over 18 years old, and
- a part time student, and
- willing to participate?

If so, first, let me thank you! Participating will be easy:
- You will be asked to respond to a brief survey regarding your recent participation in online education, and attitudes about online learning in general.
- It should take approximately ten to fifteen minutes for you to complete the survey.
- Your participation will be completely anonymous. No personal, identifying information will be collected.
- You may exit the survey at any time if you wish to end your participation.

Let me assure you no one will try to contact you due to your participation, however please feel free to contact me at scrissman3@liberty.edu, or my faculty advisor, Dr. Lisa Foster, at lafoster@liberty.edu if you have any questions.

To participate in the survey, and I so hope you do, please click on the link provided below. A statement of informed consent is available at the survey link itself. The consent document contains additional information about my research, however no signature is required. Please respond "yes" to item one on the survey's landing page to indicate that you have read the consent information and would like to take part in the survey, and click "next" to enter the survey.

Sincerely,
Sherry D. Crissman
Sherry Crissman, Ed.S.
Doctoral Candidate, Liberty University

scrissman3@liberty.edu

Appendix D: Electronic Informed Consent

ELECTRONIC CONSENT FORM
(SIGNATURE NOT REQUIRED)

COMPARING ACTIVE DUTY AND TRANSITIONAL MILITARY VETERAN STUDENTS'
EVALUATION OF
ONLINE DISTANCE HIGHER EDUCATION LEARNING ENVIRONMENTS

Sherry D. Crissman, Ed.S.
Liberty University
School of Education

You are invited to take part in a valuable research study comparing adult student attitudes toward online learning. You were selected as a possible participant because you were enrolled in a 200-level general education course through Liberty University Online during the Spring 2017 semester. Sherry Crissman, a doctoral candidate in the School of Education at Liberty University, is conducting this study. Please feel free to ask any questions you may have before responding to the linked survey.

Background Information: The purpose of this study is to examine whether active duty military undergraduate students differ significantly regarding their attitudes toward distance learning and their perceptions of the distance learning environment compared to returning service veterans and other nontraditional adult students.

Procedures: If you agree to participate, I ask that you respond to the Distance Education Learning Environment Survey (DELES) (Walker, 2004). Your responses are completely anonymous, and you may exit the survey at any time. You can expect the survey to take approximately 10 to 15 minutes to complete. Upon entering the survey, you will be asked to provide your military affiliation: active duty, veteran, or non-military, and other demographics. Participants from each group are needed!

Risks and Benefits of Participation: Your email will not be linked to your survey responses, and no one will attempt to contact you based on your participation. Therefore, there is minimal risk associated with your participation, and you will be actively supporting research that seeks to improve distance/online learning environments for active military and all nontraditional adult students. Participants should not expect to receive a direct benefit from taking part in this study.

Compensation: Participants will not be compensated for participating in this study.

Confidentiality: Your survey responses will be anonymous, and any published reports, journals, etc. will not include any information that will make it possible to identify a subject. Research records will be stored securely until destroyed, and only the researcher will have access to the records. Data will be stored on a password locked computer and may be used in future presentations. After seven years, all electronic records will be deleted.

Voluntary Nature of the Study: Participation in this study is voluntary. Your decision whether or not to participate will not affect your current or future relations with Liberty University. If

you decide to participate, you are free to not answer any question or withdraw at any time prior to submitting the survey.

How to Withdraw from the Study: If you choose to withdraw from the study, please exit the survey and close your internet browser. Your responses will not be recorded or included in the study.

Contacts and Questions: The researcher conducting this study is Sherry D. Crissman, EdS. If you have questions now or in the future, **you are encouraged** to contact her at scrissman3@liberty.edu. You may also contact the researcher's faculty advisor, Dr. Lisa Foster, at lafoster@liberty.edu.

If you have any questions or concerns regarding this study and would like to talk to someone other than the researcher, **you are encouraged** to contact the Institutional Review Board, 1971 University Blvd., Green Hall Ste. 1887, Lynchburg, VA 24515 or email at irb@liberty.edu.

Please notify the researcher if you would like a copy of this information for your records.

The DELES and its versions and derivatives are copyright protected. © 2004-2017 Scott L. Walker Used with permission.

Statement of Consent: "I have read and understood the above information. I have asked questions and have received answers as needed. I consent to participate in the study."

(NOTE: DO NOT AGREE TO PARTICIPATE UNLESS IRB APPROVAL INFORMATION WITH CURRENT DATES HAS BEEN ADDED TO THIS DOCUMENT.)