

NO VET LEFT BEHIND: CAREER READINESS FOR VETERANS IN COLLEGE
COURSES AND THE IMPACT OF 1:1 PROGRAMMING ON RETENTION AND
EMPLOYMENT STATISTICS

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May, 2025

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ABSTRACT

This dissertation examines the perceived career readiness of transitioning veterans attending a federally funded certification program as non-degree seeking students. All students are currently enrolled in the Cybersecurity Workforce Certification Program, funded by the National Security Agency's National Centers of Academic Excellence in Cybersecurity. Currently, cybersecurity is a growing field, both in the private sector, public area, and within the defense industry. The need for more qualified cybersecurity professionals is continuing to grow, and though veterans often make suitable candidates, there is a need for more research on newer programming, such as non-degree, virtual certification programs.

Incorporating evidence from the literature, this study sought to collect data on participants' perceived career readiness, in addition to their experience in a peer mentoring program that was developed as an intervention. This study demonstrates that there are potential benefits from incorporating similar career readiness programming into non-degree, virtual programs. It also argues that there will continue to be an increase in availability of similar programs, and more research may be needed in this area to further prepare those entering the cybersecurity workforce, especially regarding non-traditional students.

NO VET LEFT BEHIND: CAREER READINESS FOR VETERANS IN COLLEGE
COURSES AND THE IMPACT OF 1:1 PROGRAMMING ON CAREER READINESS

A Dissertation
Presented to the Faculty of the Department of Educational Leadership
East Carolina University

In Partial Fulfillment of the Requirements for the Degree
Doctor of Education in Educational Leadership

By
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May, 2025

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DEDICATION

This study is dedicated to the memory of Captain (ret.) Daniel Samples, my grandfather. He was a proud military veteran, husband, father, and an overall great man. He passed away peacefully at the age of 92 during this study in September 2023. He is survived by my loving grandmother, Barbara Samples, who means the world to me, and has always been a strong supporter of my studies and career.

ACKNOWLEDGEMENTS

I would like to thank Dr. David Siegel for his tireless work as my dissertation chair, as well as all the faculty within East Carolina University's College of Education.

TABLE OF CONTENTS

	Page
TITLE.....	i
COPYRIGHT.....	ii
DEDICATION.....	iii
ACKNOWLEDGEMENTS.....	iv
LIST OF TABLES.....	x
LIST OF FIGURES.....	xi
CHAPTER 1: INTRODUCTION.....	1
Background of Focus of Practice (FoP).....	2
The Cybersecurity Workforce Certification Training Program (CWCT).....	3
Context of Study.....	5
FoP Guiding Question(s).....	7
Statement of Research Problem/FoP.....	8
Purpose of this Study/Overview of Inquiry.....	8
Inquiry Partners.....	9
Theoretical Framework.....	10
Rationale.....	10
Definition of Key Terms.....	11
Delimitations.....	12
Limitations.....	13
Assumptions.....	13
Significance of this Inquiry.....	13

Advancing Equity and Social Justice.....	14
Summary.....	15
CHAPTER 2: LITERATURE REVIEW.....	17
Veteran Transition and Cybersecurity.....	19
Military to Civilian Transition.....	20
Identity of a Student Veteran.....	20
Peer Community.....	24
Cybersecurity Workforce Gaps and Educational Programs.....	24
Online Offerings.....	25
Certifications and Curricula Framework.....	26
Career Readiness and Educational Programs.....	28
K-12.....	29
Pipeline Development Programs.....	30
What is Career Readiness?.....	31
Networking and Adult Learners.....	32
Adapting to the Times.....	35
Certificate Programs.....	36
Other Support Resources.....	37
Peer Support.....	38
Non-Profit Programs.....	39
Career Services.....	40
Mental Health and Support.....	40
Unique Mental Health Variables for Veterans.....	41

Autonomy and Support.....	42
Battle Buddies.....	43
Schlossberg’s Transition Theory.....	44
Theory Overview and Definition.....	44
Transition and College Students.....	45
Application to Student Veterans.....	46
Conclusion.....	47
CHAPTER 3: METHODS OF INQUIRY.....	49
FoP Guiding Questions.....	49
Inquiry Design and Rationale.....	50
Context of Study.....	50
Inquiry Partners.....	50
Ethical Considerations.....	52
Inquiry Procedures.....	52
Pre-Study.....	52
Baseline Data Collection.....	53
Phase 1.....	54
Phase 2 Introduction and Inquiry Partner Involvement.....	55
Phase 2 – Option 1 – Battle Buddies.....	56
Phase 2 – Option 2.....	56
Phase 2 – Inquiry Partner Engagement.....	57
Summary of Phase 2.....	57
Phase 3.....	57

Instrumentation.....	57
Data Analysis.....	58
Inquiry Design Rigor.....	62
Delimitations, Limitations, and Assumptions.....	63
Role as a Scholarly Practitioner.....	64
Summary.....	65
CHAPTER 4: QUALITATIVE AND QUANTITATIVE RESULTS.....	67
Demographics of the Study.....	67
Pseudonyms and Anonymity.....	68
Data Collection.....	70
Phase 1 Data Analysis.....	75
Research Question 1.....	77
Research Question 2.....	86
Phase 2 Intervention & Data.....	89
Phase 3 Data Analysis.....	92
Research Question 3.....	92
Summary and Notes.....	102
CHAPTER 5: SUMMARY, CONCLUSIONS, AND RECCOMENDATIONS.....	104
Interpretations of Research Question 1.....	105
Interpretations of Research Question 2.....	107
Interpretations of Research Question 3.....	108
Implications.....	111

Recommendations for Practice.....	113
Recommendations for Future Research.....	115
Summary and Conclusions.....	116
REFERENCES.....	119
APPENDIX A IRB APPROVAL.....	137
APPENDIX B IRB CONSENT FORM.....	138
APPENDIX C PHASE 1 INTERVIEW GUIDE.....	142
APPENDIX D PHASE 3 INTERVIEW GUIDE.....	144
APPENDIX E RESEARCH STUDY ANNOUNCEMENT.....	145

LIST OF TABLES

1. Stakeholders and Inquiry Partners.....	51
2. Phases of Inquiry.....	60
3. Focus of Practice.....	61
4. Demographics.....	69
5. Perceived Career Readiness Data, Phase 1.....	76
6. Perceived Career Readiness Data, Phase 3.....	95

LIST OF FIGURES

1. CWCT program statistics and demographics.....	6
2. Integrative Framework.....	23

CHAPTER 1: INTRODUCTION

The University of North Carolina - Charlotte offers a variety of undergraduate and graduate programs, in addition to certificate-based programs that span a myriad of subjects. There are several programs that exist to extend assistance to student veterans, including a veteran's services office, career services center, peer-to-peer mentor programs, and more. However, the focus of much of this support is in addressing difficulties in transition to college life, and this can often lack purposeful one-on-one career readiness support. The need to connect these students to university resources is important but is not something all student veterans take advantage of and is barely available in online learning opportunities. The purpose of this mixed methods case study is to assess the current state of resources offered to veterans in online learning opportunities and design a career readiness pilot program to address the gap in career services offered to online learners. A National Security Agency program, funded through the National Centers of Academic Excellence, exists to try to bridge the gap between traditional undergraduate programs and fast-paced, hard-skills training.

The purpose of this study was to identify variables that impact the career readiness of student veterans who are enrolled in non-degree cybersecurity programs, and to introduce an intervention that is designed to aid in the progress of this population. There is little research that has been conducted on non-degree certificate programs, including the additional variables of veteran learners and cybersecurity. This study included a mixed method approach as it relates to the career readiness of student veterans, with the goal of improving the fundamental situation for reaching individuals. The non-degree program in question is being offered online via a grant from the National Security Agency's Centers of Academic Excellence Program, offered via a consortium of universities through Purdue University-Northwest. Research has been completed

on a variety of topics that are related to why student veterans may struggle with their transition to different educational pathways, specifically within the information technology industry. Though several variables relate to how ready a student veteran feels to enter the cybersecurity/IT workforce, more studies need to be completed to address the remaining unanswered queries related to this investigation.

Background of Focus of Practice (FoP)

Approximately 5% of all undergraduate students, and 7% of graduate students, identify as military veterans, currently on active duty, in the Reserves, or in the National Guard (National Center for Education Statistics [NCES], 2020). Of all military students, about 43% utilize veterans' education benefits, averaging about \$15,000 in financial aid per year. Sixty percent (60%) of those veteran students are white (NCES, 2020). Unemployment rates are lower for both White and Black veterans overall, as compared to their non-veteran counterparts (Bureau of Labor Statistics, 2021). However, even though veterans only make up a small portion (around 7%) of the United States population, nearly 36% of the technology industry is made up of military veterans and active-duty service members (BLS, 2021). The Information and technology workforces are largely dominated by men, and despite the rise in women's collegiate education, these statistics remain generally unchanged, with women only holding 26% of IT jobs (BLS, 2021).

There are several factors that may impact whether a veteran is the right fit for the information technology sector, but three primary reasons include the ability to continue serving their country, working within an industry that is friendly to many disabilities, and the ease of extending a security clearance (Clearance Jobs, 2022). Though veterans can sometimes have difficulty finding jobs, there is research that veterans with disabilities often turn to the

information technology space due to the ability to work remotely, and often on a computer (Trauth et al., 2015). There have been some programs designed to help veterans enter fields such as cyber security, with mixed reviews on the ability to place veterans in certain areas; though, of the ones placed, it is worth noting the salaries are high (Armitage et al., 2016). Veterans often struggle to determine how to best translate their military skills into the civilian workforce and within higher education (Shulker, 2017).

Non-degree programs are of interest to many veterans, as they offer an educational pathway capable of providing credentials and skills to become more competitive in the workforce. Non-degree programs have increased in availability, and research is currently attempting to understand their efficacy and contributions to the current labor market (Xu & Trimble, 2016). Some non-degree programs from community colleges and undergraduate institutions can assist in obtaining employment, often for less financial investment and a shorter turn-around (Xu & Trimble, 2016). Though theoretical frameworks exist surrounding non-degree programs, there is some work that has been done to determine the quality of these certificates, as they often fall outside of generalized institutional regulations (Van Noy et al., 2019). Overall, there is a lack of substantial research regarding the efficacy of non-degree programs, especially with this given research population.

The Cybersecurity Workforce Certification Training Program (CWCT)

The mission of the Cybersecurity Workforce Certification Program (CWCT), as funded by the National Centers of Academic Excellence in Cybersecurity (NCAE-C), is to recruit and train the next generation of cybersecurity professionals. This is in part to address the large workforce gap in cybersecurity and to assist veterans in obtaining certification in this field. As of September 2023, there exist nearly 700,000 open jobs in cybersecurity (Cyberseek, 2023).

Cybersecurity attacks can be defined as the deployment of malicious software with the intent of stealing critical information, passwords, infrastructure, and occasionally with the goal of obtaining a ransom (Cains et al., 2022). The field of cybersecurity is expected to grow by 18% through 2024, and there is a shortage of qualified professionals to meet this need (Finch et al., 2020). The CWCT program is offered both synchronously and asynchronously to allow for a variety of student populations to participate. Lectures are held over Zoom, and virtual learning labs are utilized to assist with hands-on skills. As the principal investigator of this study, I have worked both full-time and part-time on this grant project for the last three years, and I am responsible for marketing, recruitment, career readiness programming, CRM management, and general outreach with employer partners and other non-profits. Applicants to this program are offered the following pipelines/pathways: Artificial intelligence, Digital Forensics, and Systems Administration.

There are six non-credit, college level courses present within each learning path, and these are offered via live virtual lectures, consisting of approximately 6 hours per week. Recordings are available for students who cannot attend live, which is critical given the demographics of the student population. Sessions run for 10 weeks at a time, including eight weeks of instruction followed by a two-week study period to prepare students for their certification exams. The following certifications were included based on industry needs, and chosen by the principal investigator of the CWCT Program, Dr. Michael Tu: CompTIA A+, CompTIA Sec+, Cisco CyberOps, Python Essentials, EC-Council CEH, EC-Council CHFI, Simbachain/AWS, Linux Essentials.

Further discussed in Chapter 3 regarding the initial data collection prior to Phase 1 of the study, the following information was obtained between June 2023 and September 2023 regarding

the CWCT Program (see Figure 1). These data were gathered via the customer relationship management software utilized by staff members of the CWCT program and offers some important background information on the program and other statistics.

There are little to no data currently on career outcomes or career readiness within this student population, prompting further investigation. Students are given vouchers that cover the cost of their certificate exam, valued between \$250 and \$1,250, but require that the participant scores a 70% or above on their final exam in the class. To clarify, students are required to complete the 8-week preparatory course, including a final exam administered by the instructor, prior to taking the third-party certificate exam elsewhere.

To date, students within the CWCT program who elect to take the third-party certificate exams have an average of an 80% pass rate (Cybersecurity Workforce Certification Training [CWCT], 2023). However, though data are limited on placement rates for students given the newness of the program, there currently is only a 19% job placement rate into cybersecurity roles for graduates of the program within the first year (CWCT, 2023). This problem, though important to note the lack of data surrounding job placement for graduates, initiates the prompt to delve deeper into this program within a space that already has little data available to reference directly.

Context of Study

Even though veterans and military involved people are likely to hold jobs, they may not be career ready, though this can be difficult to define as a measurable construct (Camara, 2013). To best understand the variety of challenges related to veterans obtaining a sense of career readiness, especially regarding virtual programs, we must define what career readiness is.



This project is supported by NCAE-C Grant # #H98230-20-1-0351, which is managed by the National Security Agency.

Note. The data was extracted from current admissions data in the CWCT Program.

Figure 1. CWCT program statistics and demographics.

We must also look at all the factors that impact whether a student veteran is able to successfully transition out of the military, attend college, and enter the workforce. Using theory, I seek to improve veteran and military involved people's readiness for careers in cyber security.

Schlossberg's transition theory helps to create these guiding questions surrounding the focus of practice by focusing on the elements that are most important to an individual's transition.

Statement of the Focus of Practice

Educators must learn how we can increase the career readiness of veteran students enrolled in IT and cybersecurity programs. Research shows that veterans can often have difficulty finding meaning behind what they are studying, and this can even lead to thoughts of depression and negative feelings towards their careers (Buzzetta et al., 2020). However, when transition and career readiness is studied further, findings indicate veterans hold significantly more positive feelings toward their lives and careers (Ghosh et al., 2019). Coupled with significant need in the workforce for more talented cybersecurity and IT professionals, there is evidence that more exploratory research on this subject can assist with veterans' feelings toward their lives and careers while also filling job needs in an ever-growing sector.

Veterans have unique challenges that come with transitioning to the civilian workplace, though many challenges can be overcome via outlook, structure, belonging, and more (Shepherd et al., 2021). Student veterans in general are presented with unique challenges, including academic satisfaction and adaptability with civilian roles in the workplace (Ghosh et al., 2019). Some of this academic satisfaction variable relates to the transferability of military skillsets, in addition to the struggle to see the value in certain academic subjects (Kirchner, 2015). The findings from studies indicate that not only is there a massive labor need for non-degree

certificate programs, but there is also the fundamental need for adaptability by educational institutions given the ever-changing workforce landscape (Xu & Trimble, 2016).

Focus of Practice Guiding Questions

To assess the impact and the efficacy of additional career readiness workshops and programming, three research questions serve to direct this study:

1. How do non-degree student veterans gauge their preparedness to enter the workforce as they are studying cybersecurity and transitioning out of the military?
2. What resources do non-degree student veterans need to support their career preparedness?
3. How do veterans experience an initiative designed to enhance their career readiness?

Overview of Inquiry

The purpose of this mixed methods study was to learn more about the specific elements that help a veteran student become career ready and to begin to establish a model to assist non-degree virtual programs with these variables. The study includes veteran students who are virtual learners obtaining non-degree certificates specific to their field of interest within cybersecurity. This study uses a mixed-method approach, including structured interviews and programming interventions with veterans in cybersecurity programs. I conducted the interviews to provide insight into how veterans gauge their career readiness and to ascertain whether resource-sharing and programming assist in transition to a career. There are two proposed interventions that have been identified, including a structured advising program or a peer mentor program as part of Phase 2. This will be conducted over the course of eight weeks, though selection of this intervention was based off of data collected in Phase 1, along with inquiry partner feedback.

This study was undertaken to better understand not only how veterans perceive their own career readiness, but also to ascertain the resources currently available to non-degree students studying certificate programs. There are low placement rates within the field (only 17% post-program completion), though certification exam pass rates are above 80% (CWCT, 2023). Additionally, there are few data on post-program completion, and this study can potentially address these data gaps.

Inquiry Partners

Inquiry partners are crucial to any study, and this research was conducted in coordination with partners across multiple campuses and within the public and private sector. These partners included academic advisors at UNC Charlotte, Purdue, and the University of Tennessee-Chattanooga. Professors of Cybersecurity and Principal Investigators of the National Center of Cybersecurity grant for the CWCT program were also included. Additionally, non-profit organizations that work with veterans assisted in research, including Hire Heroes USA, Act Now Education, Four Block foundation, ClearanceJobs.com, and others. Lastly, members of both veteran services and the career and professional services offices at UNC Charlotte, Purdue, East Carolina University, and Ivy Tech Community College were consulted.

Dr. Michael Tu is the director of the CWCT Program and serves as faculty at Purdue University-Northwest. His duties include overseeing the program, and in direct relation to this study, providing ideas regarding data collection and assisting with the formulation of interview questions. Jai Salters, founder and CEO of Act Now Education, is a Cryptologic Warfare officer with the United States Navy and runs a non-profit that assists veterans in transitioning into the civilian workforce. He assisted in the generation of research questions and offered advice related to this population. Roger Roley, Southeast Director of FourBlock Inc., is a retired Command

Sergeant Major with the United States Army and currently manages the Southeast region's transition course for veterans. He assisted in the development of general research guidelines and the formulation of interview questions, and he provided context on how veterans often react regarding an interview or research study. Chrissy Duncan and Amber Schuler (who is also a military spouse) are career and academic advisors who offered guidance on career readiness and academic programs.

Theoretical Framework

Schlossberg's transition theory attempts to describe the framework for understanding how a person can transition from one aspect of life to another. It helps to explain some of the most important aspects that affect how successful someone's transition ultimately is; in this case, the theoretical framework guides this study by aiming inquiry questions around the four variables discussed here. The transitions in question can include changed roles, jobs, routines, relationships, and more (Evans et al., 1998). The four major factors that influence an individual's ability to transition from one life event to another are situation, self, support, and strategies (Griffin & Gilbert, 2015). This framework has been studied, and there is evidence that its application can, at the very least, highlight the difficulties facing student veterans during their transition to the civilian world (Ryan et al., 2011). Schlossberg references that adult development does not end post-adolescence and continues well into one's later years (Schlossberg, 1987).

Schlossberg (1987) also references that this theory is well suited to explain "situations of extreme hardship," which could be used to describe not only the military experience but the horrors of war. This transition theory guides the research questions and methodologies of this study by incorporating the ideas of the four main components of transition, specifically the anticipated major life event of leaving the military and going into both civilian academia and the

workforce. This theory will be applied throughout this study and is further described in detail in Chapter 2.

Transition theory has been utilized in studies to address ways in which employees and staff members at higher education institutions can implement policies to best influence the ability of a veteran to transition to college. Institutional structures have been implemented to assist students in navigating these often-complex strategies (DiRamio et al., 2008). This includes veteran organizations and veteran-specific resource centers, as well as academic advisors trained to converse with this population (Diramio & Jarvis, 2011). To further address the support variable referenced by Schlossberg, training faculty to be supportive of student veterans can also assist in the transition (Schnoebelen, 2013).

A person's ability to cope with a transition, as outlined previously by the four factors inherent to this theory, can help us understand the problems posed earlier in Chapter 1. For example, given this theoretical framework, it is important to look at what caused the transition, what the student's role is in that transition, the concurrent stresses that are present, and the overall behavior of the study participants as part of the overall research questions. Schlossberg presents different coping mechanisms related to what can be a difficult transition, although it is worth noting that there may not be a one-size-fits all approach. These include modification of situations, control of the problem, and how to aid the stress involved (Schlossberg, 1987).

Definition of Key Terms

Although many terms are likely known, the following terms are defined to ensure the reader is able to peer into the lens of this study with the same fundamental understanding of how we are defining these important terms that directly relate to this research population.

Career readiness – Career Readiness describes the variables required to support the attainment of gainful employment, including the various challenges one may encounter (Camara, 2013).

Distance learning – Distance Education is the learning and evaluation of educational criteria in a non-traditional classroom setting, primarily online (Moore et al., 2011).

E-learning – E-learning is the use of electronic, mobile, and digital learning in formal or non-formal educational settings (Basak et al., 2018).

Networking – Networking is a goal-oriented behavior within an organization or individual that cultivates personal relationships. For purposes of this present study, networking refers to an individual's attempt to access information, social capital, and relationships with employers (Gibson et al., 2014).

Non-degree student- A non-degree student is a student who is enrolling in a single course, certificate program, or other offering from an institution, but is not seeking a degree (Pascarella & Terenzini, 1998).

Transition – Transition is defined as going or moving across one area to another (Kralik, 2006).

Traditional student – A traditional student is a student who is attending a university on campus and is seeking a degree (Pascarella & Terenzini, 1998).

Student Veteran – A student veteran is defined as a student who formerly or actively served in the military (Pascarella & Terenzini, 1998).

Delimitations

The chief delimitation of this study is that it will include only student veterans participating in cybersecurity programs. Race will not be considered as a delimitation but will be

considered in some aspects of research from a holistic and empirical standpoint, but not on the research population.

My scope of interest is in whether students who are taking non-degree cybersecurity programs, as veterans, feel career ready. I chose this study because I am a veteran working in IT but have seen tremendous variability on the career readiness of student veterans based on many variables.

Limitations

By including students from both on-campus traditional programs and non-degree seeking students, there may be a significant number of variables that can impact the results. Students attend different universities, so it is difficult to compare the career services offered by one institution to another.

Assumptions

It can be assumed that, although student veterans are often excellent employees, with data indicating that they are often successful in their careers (Batka & Hall, 2016), there is a gap between transitioning out of the military and obtaining gainful employment. There is also an assumption of honesty and truthful responses from the participants who participate in this study. I believe that we should take care of our veterans, and part of that commitment of care is an attempt to discover the variables at play, including mental health, academic excellence, and job placement.

Significance of Inquiry

There are currently approximately 700,000 job openings in cybersecurity as of February 4, 2023, in the United States (CyberSeek, 2023). These talent gaps, which will be later defined in Chapter 2, exist nationwide (CyberSeek, 2023). In addition, there has been an increase in the

volume of cyber warfare across the globe (Valuch & Hamuljak, 2017). Beyond warfare, there is also a need for more trained cybersecurity professionals to protect critical infrastructure within the United States and abroad (Johnson, 2015). There are studies that also highlight the various challenges that higher education faces in attempting to address this skills shortage (Nurse et al., 2021).

There is a gap in the accessibility and availability of support services for veterans and military involved people by academic programming. Most support services are provided on campus in person. This works well for veterans in degree seeking programs on campus. For online degree seeking students, there are few support services available online. Non-degree students, by contrast, do not have access to campus support services at major four-year universities.

Several stakeholder groups may find the results of this study to be beneficial, including higher education professionals, nonprofits that assist with veteran transition and integration, students pursuing cybersecurity programs, and for-profit entities that offer cybersecurity credentials. Using the results of this mixed-methods study, professionals can not only learn best practices but can also leverage the comparison between program models to best benefit their own organization's policies. Specifically, they can learn how various policies are implemented to best assist veterans who are trying to acquire education and skills in information technology and cybersecurity.

Advancing Equity and Social Justice

As of 2008, the military was made up of 19.8% Black service members, whereas Black Americans comprise 13.0% of the general population. American Indian and Alaskan service members are also greatly overrepresented in the military as compared to their proportion of the

United States population. However, White soldiers make up a proportionate amount in comparison. Hispanic service members are underrepresented, making up 16.5% of the United States population but only 7.9% of the United States military (Lutz, 2008). Recruits come disproportionately from lower-income families, although the post 9/11 era has slowly shifted toward the enlistment of more middle-income and upper-middle-class family members (Asoni et al., 2020). It is important to note that much of the income-level diversity of service members that came about in the last fifteen years can be attributed to the 2008-2009 recession (Asoni et al., 2020).

Historically, there have been numerous challenges facing members of the LGBTQ+ community as part of their service in the United States military, although there have been progressive moves in the direction of equity. Gay service personnel have served in every major war in U.S. history and historically had to lie about their sexual orientation until the repeal of the infamous “Don’t ask, don’t tell” policy in 2010 (Estrada, 2013). There is evidence that members of this community serving in the military struggle to cope with their mental health as it relates to military communities, and that may affect their transition to the civilian workforce (Estrada, 2013).

Summary

Student veterans are presented with unique challenges when transitioning into academia, and this population of students within the CWCT cybersecurity program presents an opportunity to learn more about the perception of career readiness by student veterans. This study will give researchers and academia administrators more insight into the resources currently available to student veterans and will possibly create opportunities to invest additional resources. Overall, this study looks to better understand programming for student veterans as it relates to their

perceived career readiness and their ability to obtain gainful employment upon completion of the program.

The next four chapters will dive deeper into the literature that is relevant to this study, followed by a comprehensive look at the methodology, instrumentation, and phases of this mixed-methods study within Chapter 3. Following a discussion of the research design, results will be presented prior to discussing the implications and conclusions of this dissertation study.

CHAPTER 2: LITERATURE REVIEW

Chapter 2 provides an extensive review of the literature, spanning career readiness, IT workforce gaps, veteran transition and integration, and online learning, as follows:

1. Veteran Transition and Cybersecurity
2. Career Readiness and Educational Programs
3. Other Support Resources
4. Mental Health
5. Schlossberg's Transition Theory

All studies highlighted in this chapter correlate the variety of experiences of student veterans pursuing information technology, intertwining the aspects of career preparation among a host of other challenges that veterans face as they transition out of the United States Military (Kirchner, 2015). This chapter begins with an overview of current cybersecurity workforce needs, followed by the programs offered to attempt to remedy this situation. This sets the context of this study, followed by a deeper analysis of veteran transition to the classroom and career readiness resources that currently exist for these non-traditional students. The career readiness of veterans who are transitioning to the civilian workforce and to institutions of higher education has been studied in various formats, but there has been little research on the impact of non-degree, online programs. These programs are often offered in both synchronous and asynchronous formats and have evolved out of the COVID-19 area to be widely distributed among public and private institutions of higher learning. The research points to four main themes to consider when considering veteran success in college programs: mental health, academic and career development, other support, and identity (Ghosh et al., 2019).

Before diving into the unique challenges presented to the veteran community, it is vital to briefly discuss the support resources that are currently available. The literature helps to guide us through a series of these subjects as they relate to the focus of practice, beginning with a section on veteran transition. It is important to understand the unique variables at play as it relates to veterans as they pursue careers in cybersecurity, followed by an overview of career readiness and the variety of resources that are currently offered to student populations. Programs that focus primarily on cybersecurity exist, in addition to veteran groups that assist with career transition and will be covered as well.

However, many of the resources that will be discussed are only available to traditional college students, and a non-degree seeking student may not have access to them. Mental health and identity are then discussed, as student veterans often have unique variables and challenges related to these subjects and have direct correlation with the academic programs in question. Lastly, a review of the literature that pertains to Schlossberg's transition theory, the theoretical framework that is being primarily used to guide this study, will be presented. Through understanding veteran transition, looking at existing cybersecurity and online programs, investigating the accessibility of other support programs, and by reviewing mental health and identity, this literature review attempts to provide background information as it pertains to the problem of practice: what resources are currently available to non-degree seeking student veterans, and what variables are missing? This holistic approach is critical regarding a population that not only is unique, but within this context, little research exists surrounding non-degree seeking veteran students studying cybersecurity.

Veteran Transition and Cybersecurity

Due to the massive need for qualified individuals to enter the workforce following the conclusion of World War II, the United States enacted the G.I. Bill to cover tuition costs, a monthly housing stipend, and money for books and materials to encourage service members to attend college. The passage of the 2008 Post 9/11 G.I. Bill further provided incentives for another two million service members who had served in the Iraq and Afghanistan Wars, of whom nearly three hundred thousand used these benefits by 2011 (O'Herrin, 2011). The Department of Defense has created additional programs to recruit more experienced veterans into the cybersecurity and information technology field (Armitage et al., 2016). The Department of Veterans Affairs offers a variety of programs for combat veterans as they integrate back into the civilian workforce and into education; however, it is also known that that department itself has inadequacies in its own workforce development for its information technology staff members (Harris, 2020).

This section will address the process a military member goes through when transitioning out of the military, followed by the identity of student veterans. The purpose of this section is to utilize relevant literature to provide context surrounding the unique population and demographic in this study. This includes an overview of the impact of peer community, minority populations within the United States military, and how cybersecurity is inherently intertwined with this population. Further, this section blends the variables regarding veteran transition with current cybersecurity program offerings and provides an in-depth discussion surrounding current offerings, certifications, curricula, and more as it relates to student veterans.

Military to Civilian Transition

The transition to civilian life can often be quite difficult for a veteran. The culture of service in the United States Military is quite different than what may be seen in many workplaces and on the campuses of our nation's universities. Though not necessarily unique to the veteran population, many students in these populations have special psychological needs, and their civilian-student colleagues often do not understand the basic needs and challenges of these veterans (Shepherd et al., 2021). Interviews from these degree-seeking students often show that the overall transition to civilian life, attitudes of their civilian peers and faculty, and their own medical issues can often interfere with the attempt to increase retention rates in this population (Alschuler & Yarab, 2016).

It is inadvisable to measure the success of student veterans (or any student group, for that matter) by looking strictly at employment statistics, graduation rates, and learning outcomes. Living conditions, psychological challenges, and other life-related difficulties can often have an adverse impact on the student overall (Keeling, 2018). The role of a veteran's identity also comes to play as an important piece of the narrative, which is often a fundamental need for the student to feel valued in the classroom (Keeling, 2018). Some colleges have created programs to try to create a positive atmosphere, defined as one where individuals feel comfortable taking advantage of resources dedicated to student veterans, attempting to make veterans feel less isolated on campus, and training faculty on core competencies related to assisting this demographic with their own journey in higher education (Dillard & Yu, 2018).

Identity of a Student Veteran

The idea of a student veteran's identity being critical to their success rolls into the concept of a sense of belonging. Though the definition of belonging can take various forms, it

has been defined in studies as the idea that someone feels like they fit in (Gopalan & Brady, 2019). When students have shown they have that sense of belonging, they often are more engaged in campus resources, have more positive mental health, and even show more persistence in their studies (Gopalan & Brady, 2019). All humans have a fundamental desire to feel like they belong, and there have been studies that measure these levels in research participants (Walton & Cohen, 2007). There exists an integrative framework for further defining belonging, encompassing an individual's competencies, opportunities, motivations, and perceptions (see Figure 2; Allen et al., 2021).

Researchers have found that civilian faculty and students often don't understand why a veteran would not feel a sense of belonging, given that military personnel are often associated with punctuality, initiative, and overall mission focus (Blackwell-Starnes, 2018). Though student veterans are less likely to seek help for their psychiatric and psychological needs than their civilian counterparts, often due to stigma, there is evidence that they have feelings of inadequacy and low self-confidence (Eagle et al., 2022). These "invisible injuries," as they have been called, can cause broader implications for the success of veteran students as they try to compartmentalize their educational goals and separate their studies from the variety of issues already discussed in this section (Rattray et al., 2019). To further complicate the research on the efficacy of veteran transition programs is the low likelihood that service members from minority populations and lower enlisted grades will take advantage of federal or educational programs, including career readiness programs, counseling, resume help, and more (Aronson et al., 2019).

Though not the core population being studied as a whole, it is important to note that while studying the success and career readiness of veterans, we are also looking at the integration challenges of minority veterans. As of today, 43% of the United States Military is made up of

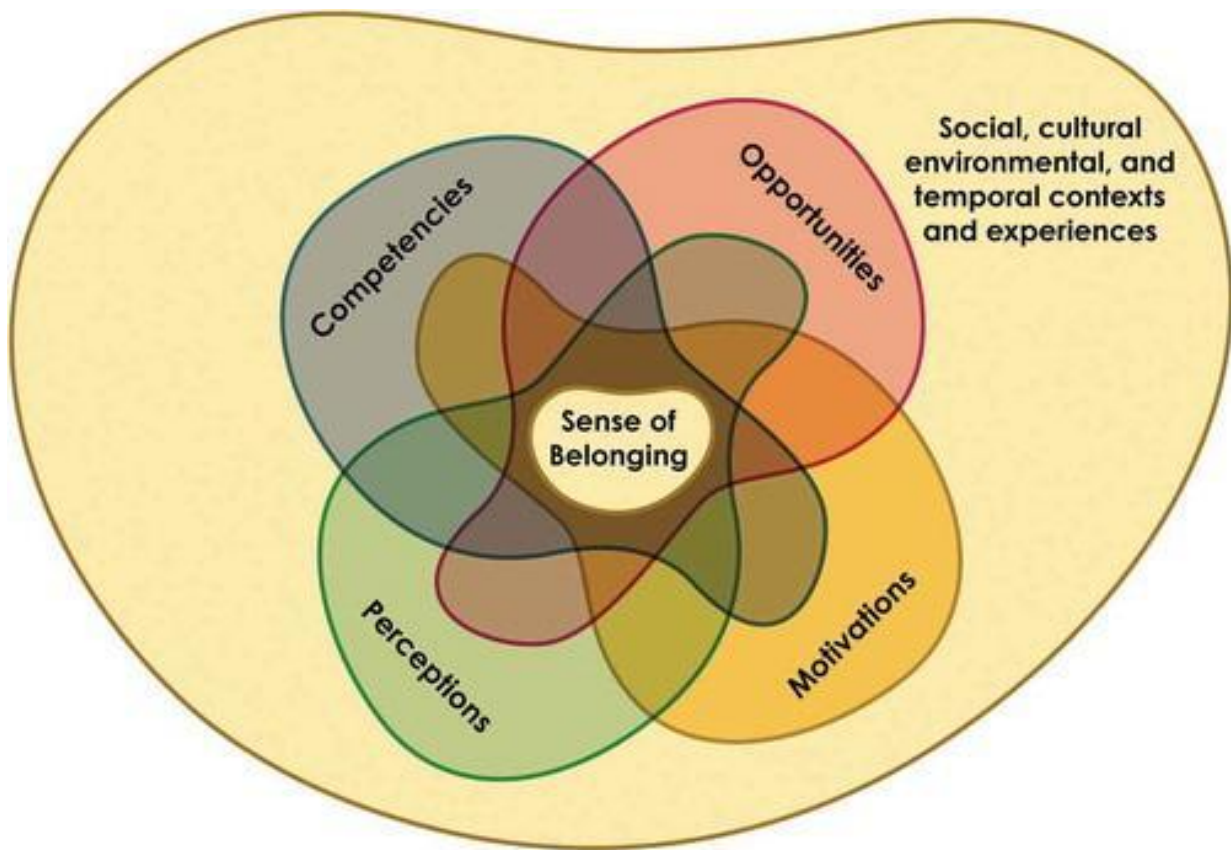


Figure 2. Integrative Framework regarding competencies surrounding one's self of belonging, based on these four major categories and how they interact with one another.

minorities, which is 7% more than in 2004. Black active-duty service members make up 39% of those minorities, including 36% Hispanic, 10% Asian, and 15% other (Pew Research, 2023). By addressing the needs of veterans as they integrate into the classroom, we are inherently addressing the needs of multiple populations of underserved and underrepresented groups.

Peer Community

Because student veterans are often presented with unique challenges when transitioning to the classroom as a college student, some research has been done on the efficacy and impact of peer community on this transition. The difficulty in transitioning can even be mitigated with an efficient and established veteran peer community on campus and has been shown to be an integral part of the higher education experience (Brandy, 2019). Peer support programs for this population can also assist with normalizing the unique challenges veterans face, including social anxiety, the stigma behind asking for assistance or help, and being able to find and connect with important resources, both on and off campus (Kees et al., 2017). For a student veteran to be successful, they need to feel as though they are progressing, giving back, and preparing to integrate into the civilian workforce (Jenner, 2019). These students can also be less likely to engage in other programs on campus, and ultimately feel less engaged than their traditional student counterparts; this can lead to a plethora of adverse impacts on the success of the individual student, including on their career readiness preparation (Kim & Cole, 2013).

Cybersecurity Workforce Gaps and Educational Programs

Cybersecurity is widely considered to be one of the greatest challenges facing our nation and the entire world, spanning problems within virtually all economic industries (Clark & Berson, 2014). Each year, larger and more unique cybersecurity breaches are introduced and reported, and it is no longer seen as a security risk reserved for the largest businesses but for all

citizens in the modern world (Bell, 2018). According to the BLS (2021), the cybersecurity industry is expected to grow by nearly 35% by 2030, and this includes roles in penetration testing, analysis, systems administration, and artificial intelligence. This large increase in the need for talented professionals has led numerous universities to offer more cybersecurity dedicated degree programs, as opposed to the traditional option to study information technology or computer science, coupled with a minor in cybersecurity or related field. These programs include undergraduate, graduate, doctoral, and non-degree certificates, spanning both the online classroom and labs to in-person experiences. According to the National Initiative for Cybersecurity Careers and Studies (NICCS, 2023), only 3% of undergraduate students graduate with a degree in cybersecurity, and over five hundred thousand vacancies are currently unfilled in the United States alone, with another 3 million including the rest of the world.

Online Offerings

There are a multitude of online offerings for cybersecurity programs, and a variety of models are currently in existence. The National Institute of Standards and Technology, a U.S. government agency, lists standards for how cybersecurity programs should be structured. These standards are often studied to verify coherence with these guidelines. Standards include governance models regarding educational concepts that are important in an ever-changing workspace, including those directly related to national security and economic matters (González-Manzano & Fuentez, 2019). For example, the CWCT program has governance standards that require students to understand implications related to national security, such as operational security when working as a contractor for a defense company on a United States government contract. Further, economic matters include governance procedures on how business and individuals should behave in conjunction with federal authorities in cases of malware or

ransomware attacks. Unlike many industries, cybersecurity professionals are often valued by not only their traditional degrees, but also by their ability to pass industry-specific certifications and keep them active.

Much of this shift in value to third-party certifications comes from the rapid advancement of technology within the industry, and the certification model helps to assist students and professionals in keeping up with the growth and changes of the industry (James & Callen, 2018). Providers of these third-party certificates that are widely recognized in the industry include Amazon Web Services, Cisco Network Academy, EC-Council, and CompTIA. These certifications have grown in popularity and recognition and are purposefully designed to keep skilled individuals up to date on core competencies. For instance, it could be difficult for a computer science student to keep up with modern trends at a traditional university studying computer science, whereas a student who completes a 6-month cybersecurity bootcamp, followed by industry-specific certifications over the course of a year or two, may have more closely aligned competencies related to a rapidly changing industry.

Certifications and Curricula Framework

While these certifications, such as Security+, A+, and Python essentials, are increasingly valuable to jobseekers, there is also a correlation between higher salaries and obtaining third-party certifications through properly sourced vendors such as EC-Council, CompTIA, RedHat, RedCanary, Linux, and Amazon Web Services (Certification Magazine, 2015). There is great demand by a variety of industries to hire individuals with certain skillsets, often directly linked to individual certifications. For example, a mid-sized organization may be interested in both ethical hacking, digital forensics, systems administration, penetration testing, and the administration of their servers. Most recognized online programs in cybersecurity, especially those designated as

National Centers of Academic Excellence in Cybersecurity, the National Security Agency's highest recognition, are governed by the National Institute of Standards and Technology's (NIST) cybersecurity framework. This framework transcends just educational programs and serves as a foundation for private organizations and government agencies to identify and mitigate cyber risks. Included in these frameworks is training that involves digital forensics, artificial intelligence, ethical hacking, cybersecurity law, and general operation systems and programming languages (Shen, 2014).

When educational programs, and generally online certificate programs, create their curriculum surrounding these guidelines, it helps to address the real need for certain skillsets and certifications. As part of the need to address not only the workforce gap in cybersecurity but also national defense, the federal government has funded pilot programs to train veterans in cybersecurity in a 6 month – 1 year timeframe to potentially make a positive impact on the more than 500,000 vacancies that currently exist in the United States within this sector (NICCS, 2023). This program includes the National Security Agency funded NCAE-C program through Purdue University Northwest, made up of a consortium of partner universities, including the University of Tennessee-Chattanooga, UNC Charlotte, and Ivy Tech Community College. That program has trained 1,200 student veterans in their 6-month cybersecurity program, which prepares students to take industry-specific certifications. The educational and employment outcomes of this program will be addressed later in this study, including the comparison of the career readiness services offered in this program and others versus those at traditional baccalaureate institutions.

Various gaps currently exist within the literature on cybersecurity programs, many of which can be attributed to the newness of the field of synchronous and asynchronous online learning. These gaps include the lack of studies about non-degree cybersecurity students, and

when veteran populations are included, it makes finding relevant literature even more difficult. In addition to the rapid development of non-degree programs, there exist varying feelings of caution by students, including doubt regarding efficacy, about these newer learning models (Shahzad et al., 2021). Information Technology has shifted more toward online learning over the past few years. This section serves to lay the foundation for discussing career readiness in programs and the unique aspects of veteran learners. It must be understood that there is a large workforce gap within cybersecurity, and there is some research regarding the implementation of online, non-degree programs to bridge the large gap.

Career Readiness and Educational Programs

To expand on the previous discussion surrounding the unique variables related to student veterans, it is important to gain a general understanding of how cybersecurity and online programs interact with this population, beginning with existing infrastructure and efforts to include science, math, and technology programs within the kindergarten through secondary school space. Before moving from these preliminary programs, we'll define career readiness and discuss the nuances of this subject matter. To expand on career readiness, this section will also dive into the concept of networking as it relates to employment search, in addition to a general overview of adult learners in this space. Through the COVID-19 pandemic, and with the ever-changing technological landscape in education, we discuss institutions and organizations' attempts to adapt to these times. Lastly, certificate programs will be covered, primarily looking at the increase in offerings of non-degree programs such as these, in addition to the current certification pathways relevant to cybersecurity and veteran populations.

K-12 Education

Of great interest to individuals who work within the private and public sectors is the ability of various cybersecurity programs to develop talent in an increasingly difficult workforce; this includes different industries, government agencies, global militaries, and aspects of academia. Some studies have investigated the impact of K-12 education's focus on computer science and cybersecurity, which is one pipeline that the state of New York attempted to remedy (Ortiz, et al., 2013). They were able to successfully intertwine the use of cybersecurity hands-on training with existing state standards and curriculum, helping more students to get invested and involved in this emerging field. This included incorporating virtual labs to address state standards such as computer proficiency but expanding them utilizing third party resources like Cisco's Network Academy. Specifically, K-12 programs have introduced science, technology, engineering, and math (STEM) subjects programming as an attempt to address this workforce and educational gap starting at an early age. Some school districts and universities have created programs that introduce middle school students to cybersecurity concepts and career paths, in addition to identifying specific challenges to diversify this workforce (Buchanan et al., 2021). At the university level, there has been increased research within the last five to ten years around competency-based learning models and the attempt to bring professional organizations into the traditional undergraduate and graduate programs. This includes seminars from those within the industry and research partnerships between private sector organizations and classroom-based projects (Pailen, 2017). Regardless of age group, educational level, and income, there is a common trend in K-12, higher education, and industry to try and address not only the workforce gap within cybersecurity but also the career readiness of current students. These efforts, in

addition to commonly referenced STEM initiatives, are all parts of educational systems adapting to an ever-changing workforce landscape.

Due to overall downward trends globally in students enrolling in computer science and information technology fields, several ideas have been identified to attempt to prepare students for these career fields. The Cisco Networking Academy has been offered to local high school students since 1978, but it has drastically increased in size, financials, teaching capacity, and outreach as it provides comprehensive learning that is specific to these fields (Dennis et al., 2010). One school even utilized a game-based program to encourage students to learn cybersecurity in a model that was more engaging, leading to higher levels of student success on the subject (Jin et al., 2018). Though programs like these seem like an effective way to get students interested in the field, there is still a larger need to train a variety of diverse learners in cybersecurity and not only focus through traditional academic pipelines. There are various factors that affect an adult learner's ability to achieve in higher education, but it has also been found that adult learners who work full-time jobs perform better in certificate programs than their non-working counterparts, due in part to the transferability of learning to their current occupation (Delialioglu et al., 2010). This suggests that information technology certificate programs may be a suitable path for addressing workforce gaps in cybersecurity and ensuring that students are successful. Networking basics may need to be included in these programs, as they have been shown to be an integral part of this cybersecurity puzzle (Ansmann et al., 2014).

Pipeline Development Programs

Institutions have also designed pipeline development programs to address the ever-increasing workforce demands, in addition to encouraging students to develop interest in fields that have labor shortages. STEM pathways currently exist, where middle and high schoolers

could experience hands-on learning in and out of the classroom, as well as exposure to individuals working the field (Lyon et al., 2012). The increasing need for more health science professionals has led to the formation of pipeline programs for them as well, including one that utilized outside funds from local hospitals to immerse underrepresented minority students in the medical profession. This also led to a larger pool of qualified applicants to medical schools in the area (Fincher et al., 2002). More recently, engineering programs have also been utilized to strengthen the ties between younger students and universities, as well as providing more enrichment to these students as it relates to their field (Youngblood et al., 2018). To continue along the thread of discussing STEM related fields, manufacturing programs also offer opportunities for early college and high school students to learn about areas such as 3D printing, design, and research (Megri et al., 2021). Overall, pipeline programs offer an additional avenue for institutional leaders to work collaboratively with universities, industry, and within their schools to increase not only the interest in much needed fields, but also to offer enrichment to current students that is more holistic.

What is Career Readiness?

Career readiness is the idea that a student can enter a workforce and describe not only what students know how to do but also what they are *able* to do (Conley, 2012). It has been a challenge for higher education and vocational schools for years to keep up with the ever-changing labor market shifts, spurring calls for change at different academic levels. Overall, the end-goal is generally well agreed upon – students need to be able to enter the workforce, be critical thinkers, collaborate with others, solve problems, and truly understand the academic subject they are preparing for (Mishkind, 2014).

Career readiness can take on different definitions based on the institution in question (Mishkind, 2014). Though, there is an increasing push to link the hard work that educators are doing from K-12 systems all the way up to universities. This merges with an ongoing debate as to the general purpose of education; although many would argue that the purpose of education is to teach students how to think, how to perform research, and how to critically examine arguments and evidence, it can also be said that it is increasingly related to changing economic demands (Dougherty & Lombardi, 2016). Academic advising, as it relates to the role of institutions of learning, is also relevant to success in preparing career readiness within students. Research has demonstrated a positive correlation between students who participated in career guidance activities and career readiness (Dodd et al., 2022). It is important to note that non-degree students often do not have access to career guidance programs, academic advisors, or career counselors. During the development of this literature review, most studies that test career readiness with a quantitative measure utilized traditional, full-time undergraduate students and secondary school (high school) pupils.

Networking and Adult Learners

An increasingly important element of securing gainful employment in a role that suits one's skills is the concept of networking. Though networking can assume a different definition in the world of information technology, networking opportunities related to career readiness are a way for students to explore new career areas, understand the importance of computer science in different industries, and meet professionals in career paths that line up with their interests (Sutton, 2020). Researchers even consider networking to be a social network reality of the current day and inherent to the job search for many, beyond just information technology (Van Hoye, 2010). Personal connections are not only important for a job search but also serve to

ensure that candidates in cybersecurity and other fields find roles they may be a good fit for, both from a technical and social perspective (Krauth, 2004).

One of the main resources utilized is LinkedIn, which is a social media platform that is more organization/business related, allowing users to create a profile highlighting their skillsets, educational background, and work experience. There is a positive correlation between utilizing LinkedIn as a networking tool for a variety of career benefits and gaining employment; further, as the frequency of usage of this site increases, so does the receipt of said benefits (Davis et al., 2020). These variables are important to note; in the military, service members often have a clear and defined progression as they go through their career. This can be as simple as an enlisted soldier at the rank of E-4, or enlisted fourth rank, knowing that to obtain the next rank of E-5, they need to pass their physical fitness test and successfully complete the Warrior Leadership course prior to putting in a request for promotion. In stark contrast, according to HubSpot, 85% of jobs are found via networking (Hubspot, 2023). On the surface, this is a much different avenue for career progression and development than what exists in the military.

Career readiness is not simply the ability of a student to graduate, network with industry professionals, and attend classes on their subject. Unique to the field of information technology, it is extremely important for an individual to have the technical skills required to be successful. A peer-reviewed study published through work with the Federal Bureau of Investigation and InfraGard, a public-private partnership, sees the following as the most important skills for someone to know if they are entering cybersecurity (Levy & Carlton, 2015); preventing the leaking of confidential information to unauthorized individuals, malware, personally identifiable information, e-mail phishing, credit card information theft, systems compromise, and unauthorized systems access.

Several of these common skills are well known, such as information and credit card theft, as well as password exploitation (Levy & Carlton, 2015). However, for the purpose of getting a broad overview of the technical skills required to enter this workspace, it is important to define a few of the lesser-known subjects. Phishing attacks are those that target specific vulnerabilities based on human factors; this can be as simple as an email that looks like it is from a proper source but is masked to trick the end user into giving out financial or identity information (Khonji et al., 2020). Malware is software that has been designed to specifically target systems and is generally considered to be a blanket term for trojans, viruses, and other infectious programs that attempt to gain critical information from the user. Malware can take a variety of forms but is an integral piece to understand if entering the cybersecurity workspace (Kramer & Bradfield, 2010). These skills are critical to understand as they directly relate to the career readiness of students who are wishing to enter the cybersecurity field.

It has been shown that certain non-technical skills are often lacking in students who have graduated from traditional university-led programs in information technology (Stevens & Norman, 2016). These can include lacking competencies based in teamwork, communication, collaboration, and problem-solving (Crumpler & Lewis, 2019). Employers increasingly expect to employ students who not only have the technical skills required to be successful in cyber, but also the non-technical skills such as presentation and communication – skills considered harder to find in graduates of these areas (Peslak, 2019).

During the new millennium, there was a growing interest in the idea of online learning, including the use of different forms of technology to address a changing world. The concept of learning management systems, learning content systems, and the overall administration of online learning was new, and it came with a set of challenges as students and faculty alike were learning

these new technologies (Carliner, 2004). There was research that started to surface around this time, exploring different models to address adult learners, computer-based resources for those who struggle with digital literacy, and the idea of addressing mastery of common subjects in an online format (Twigg, 2003). Further research has pointed toward more advanced models of successful online learning, including more structured developmental processes such as active participation in online learning communities, scaffolded e-learning programs, teaching faculty to create high quality programming online, and developing online learning communities (Salmon, 2013).

Many of these concepts are found in the formation of modern online learning. Research began to arise regarding student interest and perspectives of online learning nearly twenty years ago (Sit et al., 2005). Often, students were skeptical that this would be as transformative or productive as the physical classroom experience. Unbeknownst to them at the time, it would become the future of higher education. Since then, a considerable amount of investment has been made in helping to make undergraduate and graduate online programs successful amid an ever-evolving digital world, and in the shadow of the COVID-19 virus that enveloped the world in 2020, universities are likely finding it essential to adapt (García-Morales, 2021).

Adapting to the Times

Undergraduate programs are starting to not only invest in online learning but also to increase the amount of research on its efficacy. In some programs, research points that a hybrid model is required for the most successful learner outcomes (MacRae et al., 2021). In this case, the hybrid model allowed for important experiences like collaboration in person, while also allowing for the flexibility of those with families, jobs, etc. During the COVID-19 pandemic, certain programs had an easier transition to online learning, such as those in information

technology or history. However, programs that inherently require in-person learning struggled and were often forced to make rapid adjustments to their educational programs. Nursing, for example, is something where traditional online learning was inadequate, and virtual simulations were adopted to attempt to respond to learner needs (MacRae et al., 2021). Biological sciences have also been studied as they add essential skills development to their online curriculum through virtual simulations (Bassindale et al., 2021). Humanities had to adapt to online learning models that blended a form of simulation as well, including the social sciences. Social work programs began using remote and virtual modalities to not only help interns to learn their field, but also to simulate what would normally be a clinical interaction between the learner and patient (Mitchell et al., 2021).

Certificate Programs

Certificate programs are also a newer concept, not only regarding online learning, but also in on-campus programs, starting primarily in the early 1990s (Smith, 1994). Certificate programs have been introduced over the years to address core competencies that are otherwise not covered in undergraduate programs, are more niche and not always offered in degree programs or are invented to address workforce gaps that otherwise cannot be remedied through traditional college. Studies, in general, show that students perform worse on exams when they have studied online versus in person (Cellini, 2021). It is also generally agreed that even though there has been a tremendous increase in online learning worldwide, there are still challenges that exist in teaching faculty how to best interact with their students, while still considering their pedagogical context, including understanding verbiage of this population, specific mental health concerns, and one's perception of identity (Johnson et al., 2023).

One term in the world of online learning is a MOOC (massive open online course). These types of learning platforms have few to no entrance requirements, a larger amount of allowable participants, and are generally at no cost (Kiselev & Yakutenko, 2020). MOOCs are a way to address both professional and certificate programs in emerging fields that require a larger number of graduates to enter the workforce (Littenberg-Tobias, 2020). In one study, it was found that students with undergraduate and master's degrees were more successful in online courses, and those with a hybrid program did better than those with a traditional on-campus program (Littenberg-Tobias, 2020). This can partially be attributed to an academic background that historically included organization, attention to detail, and time management. Regarding hybrid programs promoting higher academic achievement, this can be attributed to similar content but more flexibility for variables outside of the classroom (Littenburg-Tobias, 2020). Still, more studies show that students perform better in a traditional class setting in terms of grading, as opposed to online courses (Hurlbut, 2018).

Other Support Resources

We have discussed how unique variables impact the transition of a student veteran, and we have taken a broad look at existing certification programs, educational pathways, and how career readiness fits into this problem of practice. This section will attempt to provide context as to what other support resources may be available to this population and make note of programming that is not available to non-degree students such as the veterans in this study. Peer support programs are one aspect of veteran services and academic programs and will be discussed first. Further, a plethora of non-profit programs exist in this space as well, serving specific populations such as veterans and often funded by private sector organizations. Lastly, we will go into more detail as to how career services are offered to students and why they are

important, and we will identify a lack of availability of these services to non-degree seeking individuals.

Peer Support

Though peer support was briefly discussed earlier in this literature review, there have been studies that have shown the efficacy of implementing support programs. Peer Advisors for Veteran Education (PAVE) is a support program that connects incoming student veterans with someone who has been trained as a peer advisor (Kees et al., 2017). These peer advisors are well trained and connect with their assigned mentee on a variety of subjects, including communication skills, building a network of other resources, handling any emergencies that may arise, creating self-care strategies, and ultimately recruiting more advisors to take their place. This program currently exists at over forty universities in the United States and exists to try to facilitate the transition of student veterans to normalize their academic pursuits (Kees et al., 2017).

Student veteran organizations also exist as a resource for this population to be able to interact with peers who have similar lived experiences (Summerlot et al., 2009). Studies have shown that student veterans feel much less isolated and more comfortable when they have an opportunity to be around peers who also served in uniform (Rumann et al., 2011). Student Veterans of America (SVA) is a large, nationwide organization that has chapters at many universities and helps to ensure these student organizations are readily available as a resource for transitioning veterans.

Though not necessarily available at all institutions, some universities have taken it upon themselves to create orientation sessions specific to transitioning veterans. Veterans have unique

financial, academic, health, educational, and mental coping concerns, and stand-alone orientation sessions can serve as a first experience for those attending a university (Ryan et al., 2011).

Academic advisors are also a critical secondary resource for student veterans, as this role is essential to providing the unique support they have, including credit transfer from military service, clarification of often convoluted federal educational benefits, and other variables directly related to student success (DiRamio et al., 2008). As of 2013, 75% of universities in the United States have at least one staff member specifically devoted to meeting the needs of transitioning veterans on campus (National Association of Student Personnel Administrators [NASPA], 2013). Advisors and/or dedicated personnel to this population can assist the large number of veterans who have served in overseas conflicts and who often face significant challenges related to their disabilities, many of which go undiagnosed or unacknowledged (Kelley et al., 2013). However, non-degree seeking students do not have access to these resources, and if they do, such resources are generally limited.

Non-Profit Programs

There are thousands of organizations that have been created to address veteran transition. but in one study, only two-thirds of research participants utilized a program of any kind, and only one-third used multiple resource programs as part of their transition (Aronson et al., 2019). These programs can include ones such as FourBlock Foundation, which is a 501© (3) non-profit organization that serves to equip transitioning veterans with the skills needed to enter the workforce through a tailored workforce development program that is offered free of charge. Veterans will attend either virtually or in person for eight weeks, networking with professionals in the private sector, in addition to learning valuable skills related to interview preparation, resumes, and networking (FourBlock Foundation, 2023). Resources like Act Now Education are

also non-profits that provide additional support and resources to transitioning veterans, while fostering a community not dissimilar to that in the Armed Forces (ActNow, 2023). In one study, data showed that veterans primarily need assistance with accessing veteran health benefits, mental health services, assistance with Veterans Affairs process, and employment (Van Slyke & Armstrong, 2019). Non-profits can serve as an additional resource available to transitioning veterans, often at no cost; however, as a disclaimer, all non-profit organizations are not created equally, and there are thousands available to assist this population.

Career Services

Many universities across the United States utilize one form of career services. Often, this comes as a dedicated career services center at larger institutions, where eligible students can receive assistance in writing a resume or cover letters, searching for jobs, practicing mock interviews, networking, and, in some cases, accessing a closet with free business attire to prepare for an interview. Career advice at this stage for undergraduates is extremely critical and serves as a valuable tool for gaining employment (Donald et al., 2017). However, non-degree students often do not have access to these on-campus resources, which further prompts the question of whether this population's lack of career readiness resources may have an impact on their ability to find gainful employment.

Mental Health and Support

Though mental health is likely a term that is often coincident with discussion surrounding veterans, it is important to review the literature relevant to this population for the purpose of understanding the population we are looking at. Not only do veterans struggle with mental health issues like the rest of the population, they can also often react differently based on this population's lived experiences. In this section, the uniqueness will be covered first, followed by

an overview of how autonomy and support structures, often starting with an instructor or facilitator, can impact one's mental health and feelings of identity and safety. Lastly, the concept of battle buddies will be referenced as an important factor that is relevant to the veteran population, but also to link the previous concept of peer support with why this tactic could be a viable intervention with this study's research subjects (Ramsberger et al., 2002).

Unique Mental Health Variables for Veterans

Veterans experience mental health issues, including post-traumatic stress disorder, depression, suicidal ideations, substance abuse, interpersonal violence, and other concerns (Inoue et al., 2021). It has been reported that out of all United States service members who deployed to the Middle East during Operation Iraqi Freedom and Operation Enduring Freedom, 15% have post-traumatic stress disorder (Inoue et al., 2021). Post traumatic stress disorder (PTSD) can often have adverse effects on student veterans, manifesting in a variety of ways, including a lack of academic achievement, missed classes, inability to communicate with their peers, and other difficulties related to their condition (Morissette et al., 2020). In addition, student veterans may also face issues unrelated to PTSD, or coupled with it, in the form of disability-related stressors (Umucu et al., 2022), although PTSD is the most common psychiatric disability for this population within the university setting (Umucu et al., 2022).

Of the resources available, we have previously mentioned that veterans generally have access to health care via the Department of Veteran Affairs, but they also have access to on-campus resources related to mental health and counseling. Most of these programs offer mental health counselors and therapists to students free of charge, but non-degree seeking students are often unable to access these resources and services (Seehuus & Peisch, 2021). This could have adverse effects for the non-degree seeking veteran students, especially considering the previous

research on the need for more non-degree certificate programs to fill the workforce gaps currently present within the United States, specifically within cybersecurity.

One unique study was conducted to attempt to address PTSD with the veteran population; of note, one included a mindfulness smart-phone app as an intervention for college students with PTSD. Though the results were mixed, it did serve to increase the chances of student success considering the high incidence rates of PTSD in this population (Reyes et al., 2020). Research has shown that student veterans are at a higher risk for mental health problems compared to their civilian peers, and addressing their mental health needs is essential to ensure their overall well-being and academic success (Hoge et al., 2006; Thompson et al., 2017).

Effective support systems and mental health services are crucial to addressing the mental health needs of student veterans in college. Understanding the unique cultural and military-related factors influencing veterans' mental health is essential for providing targeted and effective interventions (Pedersen et al., 2017). By integrating evidence-based mental health support strategies tailored to the specific needs of student veterans, educational institutions can significantly contribute to improving the mental health outcomes and overall well-being of this important demographic. However, non-degree students often do not have the same access to these support systems and mental health services.

Autonomy and Support

Autonomy is defined as the degree to which an individual feels as though they have control over their own choices and is something that can buffer veterans in the face of psychological distresses (Tsai et al., 2017). The notion that autonomy is something most people prefer is generally recognized but can also be promoted by instructors and staff members at a university. This can come in the form of asking questions about the student veteran's

perspectives, acknowledging their personal feelings, and helping to provide them opportunities where they can feel as though they have autonomy (Eakman et al., 2019). In one study, there were several reported cases of faculty openly insulting military members and even forcing them to share war stories (DiRamio et al., 2008). Overall, the ability to further foster a sense of autonomy for a student veteran is critical not only for their mental health but for their overall success.

Battle Buddies

The term “battle buddy” is attributed to an official Army pilot program in 2000 called the Buddy Team Assignment Program. The idea of this program was to provide mutual support and assistance to soldiers and to increase safety (Ramsberger et al., 2002). However, it was also due in part to the rising cases of sexual harassment, misconduct, and suicide attempts; overall, the idea behind the program was to positively impact the attrition, as well as addressing serious concerns. Service members in other branches are known to have their own system, calling each other ‘wingmen,’ ‘shipmates,’ and so on (Ramsberger et al., 2002).

The use of a battle buddy is much more than just historic programs and overall goals from the perspective of the military as it relates to readiness. It has been demonstrated that battle buddies feel responsible for each other’s success and form a relationship that can last a lifetime (Keenan et al., 2014). Often, leadership within the service branches will try to pair battle buddies with those showing warning signs of suicidal ideation. By restricting one’s movement to being only with their assigned buddy, this can help to manage the ideation and ultimate attempt(s). In one study, student veterans felt more comfortable approaching their battle buddies about personal problems (DeVilbiss et al., 2010). The incorporation of the battle-buddy system has also

been shown to help veterans overcome mental health crisis, as related to the previous section on PTSD and veteran mental health (Vierthaler & Elliot, 2022).

Operational stress injuries (OSIs) are mental injuries that can exacerbate existing mental health issues and lead to moral distress. In one study, researchers noted that these can be broken into two categories: *lionizing*, referring to the transition to the civilian world, and *fractured* identities, where the veteran feels as though they don't understand themselves anymore (Smith-MacDonald et al., 2020).

Veterans struggle with unique challenges, and though there are a variety of resources available to them, it is important to note that there is not one tried and trusted method for a veteran to successfully overcome all these obstacles. Often, veterans deal with these challenges for their entire lives; however, the purpose of this study is to discuss these variables and identify possible interventions and solutions related to career readiness. To be career ready, as noted in this literature review, requires a lot of tertiary needs to be met.

Schlossberg's Transition Theory

Multiple theoretical frameworks exist for qualitative or mixed methods studies such as this, but after careful review, the following theory was utilized to guide the formulation of the interview guide and to provide an outline for this study. After building upon the general concepts of this theory, this section will dive into its relevance to veteran populations through the lens of transition.

Theory Overview and Definition

Transition Theory, developed by Nancy Schlossberg (1987), focuses on understanding how individuals cope with and adapt to significant life changes. This theory is highly applicable to student veterans, who undergo a unique and often challenging transition from military service

to higher education. As previously discussed, student veterans face several stressors, such as adjusting to a different academic environment, relating to their sometimes much younger peers, and dealing with the aftermath of military experiences. Schlossberg's framework helps in understanding these challenges by emphasizing the importance of four S's: situation, self, support, and strategies.

In the context of student veterans, the "situation" refers to their move from a highly structured military environment to the relatively unstructured world of academia (Schlossberg, 1987). This shift can be disorienting, as veterans must navigate new norms, expectations, and academic demands. The "self" aspect of Schlossberg's theory recognizes that each veteran has a unique background, skills, and experiences that influence their ability to adapt. One's ability to understand their self-identity, strengths, and areas of growth is crucial in helping them integrate into the academic community (Schlossberg, 1987). This can also include their ability to interact with academic resources that are available in the community. As previously discussed, this can include advisors, student veteran organizations.

The "support" component highlights the significance of social and institutional networks. Student veterans often benefit from peer support groups, counseling services, and understanding faculty members who acknowledge their military backgrounds. Establishing a strong support system helps veterans feel valued and understood, enabling a smoother transition. Schlossberg's theory emphasizes the importance of coping with "strategies." Student veterans can develop effective coping mechanisms, such as time management skills, seeking mentorship, and utilizing campus resources to manage the challenges they encounter during their academic journey (Schlossberg, 1987).

Transition and College Students

Students attending institutions of higher education are also part of this transition. The four S's can impact anyone, including those making what many would call a significant change as they go from living at home with their parents to being introduced to the environment of an institution of higher learning. Students can be challenged by transition-related events, can have a multitude of stresses, and can feel as though they are out of control, often resulting in pessimistic mindsets (Schreiner & Longman, 2012). One hypothetical example that Schlossberg herself included involves two students struggling with course content within a science course, specifically biology. If the instructor modifies her instructional approaches for one of the students, there is potential for new learning (Schlossberg, 1987). However, the other student may choose to start skipping class i.e., doing nothing or assuming deliberate inaction.

This can also be applied to programming related to new students as they transition from their high school world to a college space, often including moving into a residence hall on campus. In this regard, it is possible to apply this theory to the design of the curricula surrounding new student orientation. Though many institutions format their orientation differently, by including components that address the four S's, it can lead to a more holistic approach. This can help students to explore their own person, in addition to identifying additional psychological resources that can help their transition. This theory can extend beyond just traditional students to nontraditional students and student veterans.

Application to Student Veterans

Schlossberg's Transition Theory provides a comprehensive framework to understanding the multifaceted transition experiences of student veterans. Through recognizing the unique aspects of their situation, self, support systems, and coping strategies, educational institutions can create targeted and effective programs to assist student veterans in successfully transitioning

from military service to higher education, ultimately enhancing their overall well-being and academic success.

It's also important to note that this theory requires social support in a variety of ways, but in this case, is centered mainly around having a network of peers and the institution's role in providing that support. This theory assists in helping one to understand the role that a student veteran's military background fits into developing their own identity. Veterans bring unique skills such as discipline, leadership, and problem-solving, which can be valuable in cybersecurity roles. Secondly, recognizing the significance of social support is vital. Non-degree seeking students, especially veterans, may benefit from a strong support network that understands their military experiences and helps them navigate the challenges of both academia and the cybersecurity industry. Additionally, acknowledging the impact of past traumas and ensuring access to mental health resources is essential, as many veterans may struggle with PTSD or other mental health issues. By applying Schlossberg's transition theory in this specific context, educational institutions and support organizations can tailor their services to address the unique needs of non-degree seeking cybersecurity students who are veterans, fostering a successful transition into the cybersecurity workforce.

Conclusion

This literature has taken an in-depth look at the role of online learning, career readiness and development, cybersecurity education, certificate programs, and the unique challenges experienced by veterans as they transition to the civilian workforce and classroom. Though it is impossible to generate a fully comprehensive program at the collegiate level to address the myriad of challenges and issues within this workspace, there is beginning to be more research regarding the efficacy of online learning and certificate programs, in particular. Much of the

evidence provided in this literature review will be used later in this study as it relates to several of the National Security Agency's cybersecurity programs for veterans that have been funded through the National Center of Academic Excellence in cybersecurity.

It is imperative that we consider all aspects of the issues related to career readiness of our student veterans. This term encompasses nearly all the other factors, including learning outcomes, home life, success in the classroom and on campus, mental health, and more. For the purposes of the scope of this study, I will focus on career readiness programs directly related to veterans who are actively transitioning out of the military and are attempting to enter the cybersecurity workforce via non-degree certificate programs. It will be extremely helpful to consider the previous literature review as it pertains to all aspects of these online programs. The next chapter will discuss the research study in more detail, including the methodology and design

.

CHAPTER 3: METHODS OF INQUIRY

Veteran students studying in non-degree programs that focus on preparing them to enter the cybersecurity field may not have the same resources available as traditional students in an on-campus format. With a changing workforce environment and an increased need for talented cybersecurity professionals, non-degree certificate preparation programs have been implemented to address this shift. The CWCT Program, funded through the National Centers of Academic Excellence in Cybersecurity (NCAE-C), is a consortium of four universities that created a program called the Cybersecurity Workforce Certification Program (CWCT, 2023) that assists transitioning veterans with gaining the skillsets and certifications that are industry recognized. To date, 1,800 student veterans have participated in the program, with a retention rate of approximately 73% (CWCT, 2023). The intervention introduced in this chapter was designed to offer a set of resources, based on previous literature and the guiding theoretical framework, to enhance participants' perceptions of their career readiness.

FoP Guiding Questions

This study was guided by the following questions:

1. How do non-degree student veterans gauge their preparedness to enter the workforce as they are studying cybersecurity and transitioning out of the military?
2. What resources do non-degree student veterans need to support their career preparedness?
3. How do veterans experience an initiative designed to enhance their career readiness?

Inquiry Design and Rationale

In this inquiry, I focused on how student veterans perceive their career readiness in non-degree programs. The following sections detail the context of the study, the inquiry partners who collaborated in the execution of the study, and the ethical considerations that guided me in the conduct of this work.

Context of Study

This study took place virtually and focused on student veterans at four different institutions taking part in a federal grant. These students were at Purdue University-Northwest, the University of Tennessee-Chattanooga, UNC Charlotte, and Ivy Tech Community College. Research participants from this group were all virtual, non-degree seeking students.

The mission of the Cybersecurity Workforce Certification Program (CWCT), as funded by the National Centers of Academic Excellence in Cybersecurity (NCAE-C), is to recruit and train the next generation of cybersecurity professionals. This is in part to address the large workforce gap in cybersecurity and to assist veterans in obtaining certification in this field. The program is offered synchronously and asynchronously, to allow a variety of student populations the ability to participate. Lectures are held over Zoom, and virtual learning labs are utilized to assist with hands-on skills. All courses feature live instructors hired through the grant and supervised by the Principal Investigators of this pilot program.

Inquiry Partners

This study relied on several stakeholders, or inquiry partners, who proved essential to providing background information, methodological design, and professional expertise. These inquiry partners participated in baseline data interpretation, interpreting results, and constructing the intervention. Inquiry partners are shown in Table 1.

Table 1

Stakeholders and Inquiry Partners

Name and Title	Position/Employment
Dr. Manghui Tu	Professor of Computer Science and Principal Investigator, Purdue University – Northwest.
Dr. Fareena Saqib	Professor of Electrical Engineering and Artificial Intelligence, University of North Carolina Charlotte
Amber Schuler	Career and Academic Advisor, Purdue University – Northwest
Chrissy Duncan	Academic Advisor, Ivy Tech Community College
Jai Salters	Act Now Education 501© Owner and Naval Officer
Roger Roley	Southeast Director of FourBlock Foundation, Army Command Sergeant Major (ret.)
Dr. Nicole Dhanraj	Clinical Psychologist and Army Veteran
Brandon DeLeeuw	Executive Director of OneIT, UNC Charlotte
Dr. David C. Joyce	President Emeritus, Brevard College

Note. These inquiry partners played significant roles in the aforementioned formulation of interview questions, determining research population, and providing feedback on what would be allowed to be used in regard to data collection and integrity.

Ethical Considerations

Access to participants required access to two different customer relationship management platforms: one managed by Purdue University-Northwest and the other by UNC Charlotte. Participants were asked to participate in the study via email, and consultations were set up on a one-on-one basis with those interested.

Upon receipt and reply to the initial research study announcement email, participants were asked to sign an informed consent document that outlined their role in the study, guaranteed their confidentiality, and detailed how their privacy and information would be protected and stored. Pseudonyms were assigned to all study participants. Additionally, data were stored and protected on a secure server at UNC Charlotte that was saved on a shared network drive accessible only to me via specialized permissions in Active Directory.

Inquiry Procedures

This study utilized a three-part design that included gathering feedback from inquiry partners, designing and conducting preliminary interviews, assigning peer mentor partners, and following up interviews of students to compare the perceptions of career readiness at two different points in time. The following three phases outline the research design, methodology, and stakeholders who participated in this study. Phase 1 gives context to the synopsis of a pilot project and details the data collection and analytical methods. Phase 2 involved a peer mentor intervention program that included weekly prompts and took place over eight weeks. Phase 3 included a follow-up interview with the participant to assess the efficacy of the intervention.

Pre-Study

The first portion of this study mainly included gathering feedback from a wide variety of inquiry partners related to this research. Given the consortium-based structure of the current

CWCT program, it was important to involve a diverse group of stakeholders to assist in the formulation of research questions and overall design. Prompts included asking:

1. Whether the questions were appropriate for this study, including institutional research board related concerns.
2. Whether these questions accurately reflected the theoretical framework in question
3. Whether these questions provided insight into the problem of practice

Each inquiry partner was given a draft of the proposed interview questions that were to be used, in addition to possible subsequent interview questions to be used in Phase 3. Interview questions were derived from theory and edited based on suggestions from these stakeholders. These edits included considering the population's likelihood of providing conspicuously brief responses to interview questions, in addition to trying to make the interview questions flow from theoretical framework. In this pre-study phase, I also completed all mandatory administrative functions pertaining to permissions; this included seeking approval from the IRB to gain access to participants for this study.

Baseline Data Collection

Subsequent phases of this study were designed to acquire a better understanding of where student veterans were in their transition. Since the overall population of students came from a diverse group of academic, financial, racial, and employment backgrounds, it was critical to gain a fundamental understanding of not only the career readiness of these students but also how they defined that transition.

Other baseline data collection included portions of my job as a Program Manager for the CWCT Program. My current position is focused on recruitment of new students and hosting career readiness workshops and career fairs, as well as assisting in the administration of our

CRM. Like my position as a systems administrator, this includes the creation of reports for faculty, campus partners, and conferences as they relate to the CWCT program participants. This often includes conducting data analysis by retrieving information from our customer relationship management system and analyzing and consolidating the data. Racial and academic demographics, graduation and certification completion rates, academic background, and service history data were collected via our customer relationship management system.

Phase 1

Phase 1 included gathering feedback from inquiry partners and making modifications to the proposed research questions, in addition to planning a recruitment and outreach strategy to gather participants. I provided inquiry partners with relevant information as it related to Schlossberg's transition theory and how the four "S's" were guiding my research questions. Specifically, inquiry partners were given the proposed research questions, a generalized abstract of the proposed study, and statistics revolving around the CWCT program that were allowed to be shared. I asked my inquiry partners the following questions:

1. Do these research questions address the Focus of Practice? I.e., Non-degree student veterans don't have access to as many career readiness resources as other college students, and we'd like to gauge where they currently perceive their readiness?
2. Do these questions line up with the theoretical framework in question?
3. What modifications would you make to the following questions as it relates to this study?

Description of Participants and Recruitment Strategies

To gather research volunteers for this study, participants were recruited via an email sent to 1,850 current students in the CWCT program. A multimodal approach was used consisting of

email campaigns, LinkedIn advertisements via internal pages, and some purposive sampling. It was important to gather a diverse group of individuals for this study, including those from different military branches, educational backgrounds, and races. It was beneficial to use a multimodal research approach to gather participants to ensure diversity (Webber-Ritchey, 2021). The goal of this study was to gather 5-10 research participants, with an even split between those who held an undergraduate degree or higher and those who had not completed an undergraduate degree.

There are some ethical considerations for utilizing social media to recruit research participants, but the attempt to only use platforms that were already used by the target student population was a method to minimize that risk. These considerations were also relevant to assisting institutional research boards with understanding how the study navigated the recruitment strategies (Gelinas, 2017). Multiple challenges are faced when attempting to recruit the target population adequately, including retention of the participants, which must be taken into consideration (Patel et al., 2018).

Upon revision, the following questions were utilized in the interview portion of Phase 1. These interviews were conducted via Zoom, and are shown in Appendix C.

Phase 2 Introduction and Inquiry Partner Involvement

To provide context at this stage, Phase 2 of this study was pursued based on feedback gathered from Phase 1. This was due, in part, to the desire to gather additional data to determine the most appropriate methodology for an intervention based on the literature and the feedback from research participants. Phase 1 was to be completed by the end of March 2023, reserving the month of April 2023 to engage with inquiry partners to determine the most appropriate format for Phase 2. Inquiry partners were presented the data collected from Phase 1 in individual virtual

meetings in the first week of April 2023, followed by the distribution of a short Google form that was sent out to provide additional feedback. Inquiry partners were engaged monthly during this study.

Phase 2 – Option 1 – Battle Buddies

Phase 2 of this study was designed to connect veterans with a peer within the CWCT program to study the impact of the peer community on the veteran's educational and career prospects, in addition to gaining a better understanding of how impactful peer support is within an online, non-degree program. It has been shown that peer support can offer a positive impact on student veterans as they transition to a traditional undergraduate program (Brandy, 2019).

Research participants were paired with a peer who was assigned to meet with them once per week over the course of the 6-week study. Peers were given guiding questions to touch base with one another based on Schlossberg's transition theory and the guidance of previous literature related to successful transition and career readiness. The peers, or "battle buddies," were paired based on the length of time they had currently attended the program, with an attempt to pair one participant who had recently started with one who was farther along. For example, a research participant and student veteran who had completed one course in the program was paired with one who was on their sixth course and was near graduation.

The battle buddies were required to conduct a once-per-week check-in where they would cover guiding questions. Participants were also asked to record journal entries weekly to provide qualitative data on how they utilized the intervention.

Phase 2 – Option 2

The second option for Phase 2 of this study (if the "battle buddies" option had been deemed unworkable or not fit for purpose) was to incorporate the use of structured advising

sessions with academic advisors who are a part of the CWCT program. Though generally not a part of a non-degree program such as this, this could have been an opportunity to address the impact of incorporating advising into the program as it relates to career readiness.

Phase 2 – Inquiry Partner Engagement

Findings that emerged from Phase 1 of this study were consolidated and provided to inquiry partners via the Google form that was distributed monthly. This form, in addition to including consolidated answers from Phase 1's research questions, provided feedback questions for inquiry partners to respond to, as well as relevant literature and best practices related to the selection of Phase 2's intervention. The purpose of this inquiry partner engagement was to determine the design and deployment of the intervention. This diverse group of stakeholders, made up of individuals in the private, public, and nonprofit sectors, was convened to provide diverse feedback from those actively working with student veterans in varying capacities.

Phase 3

The third phase of this research incorporated the use of an exit interview to identify whether the intervention aided the research participants in their career exploration and how they perceive their career readiness. This phase was conducted between August 2024 and September 2024 via Zoom, with scheduling done via Calendly. The interview in this phase was similar to the interview in Phase 1, encompassing between thirty minutes and one hour.

Instrumentation

This research study utilized a form of a case-control design, where veteran students in non-degree programs have the environment in question. It is important to mitigate sampling bias and develop accurate measurements of data (Patel et al., 2018). Interviews were the primary

instrument in Phase 1 of this study and can be defined as the collection of information from the sample of individuals who have indicated interest in participation (Check & Schutt, 2012).

Though it is possible that in some research students may not have adequate access to a computer, it was assumed that since this population was enrolled in an online program that required a computer, all eligible participants could participate in an online interview. Coverage error, as defined by the lack of sample coverage, was not an issue here based on this assumption (Dillman, & Smythe. 2014).

Permissions were granted via the Principal Investigators of this Grant study for the CWCT student population. Permissions were granted for the traditional student population by the Dean of the College of Computing and Informatics at UNC Charlotte.

Data Analysis

Descriptive statistics were used to describe sample participants. I compared sample demographics to Bureau of Labor Statistics data on veterans in the workforce to analyze for representativeness. Interview items were analyzed using descriptive statistics (means and standard deviations, frequencies as appropriate).

Coding was utilized and followed via a process code based upon Schlossberg's Transition theory, coupled with Saldaña's coding schema. Essentially, this coding schema incorporates the theoretical framework that guides the interview guide. This coding is based upon patterns recommended to ensure participants' questions can be analyzed via patterns and observation of the meaning behind their responses (Saldaña, 2016). The coding is based upon Schlossberg's "Four S's," with coding 1 through 4 to identify the situation, self, social support, and strategies. These codes were used on both the interview in Phase 1 and in Phase 2.

Given that most of the data were qualitative in nature, narrative analysis was utilized for the open-ended questions asked in the interview guide. Most of the analysis was based on the deductive coding framework using Saldaña's schema, coupled with a focus on the "Four S's."

Microsoft Excel was utilized to input data into a spreadsheet where qualitative data were stored with appropriate code cells next to them. Zoom meetings were recorded, including a copy of the transcription, to allow for a full capture of the data, in addition to a record to be utilized to review the coding schema.

Table 2

Phases of Inquiry

Phase	Details and Instrument
Phase 1	This phase included the initial 18 question interview and was conducted with each participant over the course of 30 min – 1 hour via Zoom.
Phase 2	This phase included the intervention, consisting of a peer mentor program with weekly check-ins.
Phase 3	This phase included similar 18 questions as the initial interview guide in Phase 1, with additional concluding questions at the end via Zoom.

Note. Phases of inquiry are shown, including details on the methodology utilized.

Table 3

Focus of Practice Questions

FoP Questions	Interview Questions
How do non-degree student veterans gauge their preparedness to enter the workforce as they are studying cybersecurity and transitioning out of the military?	1. What aspects of your own career readiness and employment search do you think you can improve on? 2. What parts of securing a job in the cybersecurity field are you finding difficult? 3. How did you plan your transition from the military to cybersecurity/civilian workforce? At what stage of your transition are you in? 4. On a scale of 1-5, how would you rate your current ability to network with other professionals in the field? 5. On a scale of 1-5, how confident are you in your interview skills? 6. On a scale of 1-5, how confident are you in your current resume?
What resources do non-degree student veterans need to support their career preparedness?	1. What type of career readiness or professional services have you utilized historically? If so, where? 2. Have you attended any Career events as part of the CWCT program? If so, which ones? 3. What strategies do you have in place to cope with the challenges related to this transition? 4. Do you have a support structure in place to assist you with this transition?
How do veterans experience an initiative designed to enhance their career readiness?	1. Would you be open to participating in a peer mentor program or peer community? 2. Application of Intervention via Battle Buddy/Peer Mentor Program or Structured Advising Sessions

Note. Focus of Practice Questions are shown, with their corresponding interview questions and interventions, followed by the instrumentation utilized and the Phase in which they will be addressed.

Inquiry Design Rigor

I took systematic steps to ensure rigor throughout the study, including in the study design, choice of methodology, and within Phase 1 through 3 as data were collected. These steps to ensure inquiry design rigor included engaging with the inquiry partners mentioned previously during data collection. I also made sure to utilize multiple sources to create an analysis of the perceived and real career readiness of the student veterans to ensure that the study had strong internal validity. A carefully chosen theoretical base and strong methodological design were critical to ensuring this study, overall, had purpose and rigor.

All students who were surveyed were non-degree seeking cybersecurity students, of whom all identified as military veterans of the United States. These students were attending the consortium based CWCT program and were distance learners during this study. I sought to design and assess the availability of career readiness resources currently available to this population and analyze whether the currently allocated resources were efficient for transition from the military to the civilian cybersecurity workforce. I also wanted to assess the value that the currently offered program-sponsored events provided for this student population. The results of this study cannot be generalized to most academic programs, but it is possible that there is correlation with other non-degree certificate programs. This program is provided at no cost to the students, which would also lead to possible difficulties in translating these findings to traditional students.

An inquiry chart was also developed to assist in the formulation of research questions, data analysis methodology, and overall conduct of this study. This included incorporating tenets focused on workforce, social, and academic integration. Member checking was utilized to a certain degree to increase the validity of this research, based upon the return of certain data back

to the participants to check for accuracy. Peer debriefing was utilized by working with staff members of various backgrounds who had impartial views of this study focus. There are many reasons to utilize these methods, but they increase the validity and accuracy of a study (Janesick & Peer, 2015).

Delimitations, Limitations, and Assumptions

The present study is bound within the context of the participating universities, including Purdue University-Northwest, University of Tennessee-Chattanooga, UNC Charlotte, and Ivy Tech Community College. PNW, UTC, and UNCC are large, public, four-year institutions, with Ivy Tech being a two-year community college. The study sought to design and assess the career readiness of students who take part in the CWCT program, a consortium of universities made up of the former. My intentions included utilizing the results of this study to modify existing practices within the context of the CWCT program to better provide career readiness training to participants as they learn more about cybersecurity and gain valuable, industry-recognized credentials. While this study investigates the current status of these variables, in addition to introducing an intervention program, it does not investigate whether this experience provides any advantage to their curriculum, certification exam passing rates, or translate to success in other program. This study does, however, seek to investigate the correlation between interventions and job outcomes and perceptions of career readiness, in addition to retention in the program.

Furthermore, all students who participated in this study were willingly selected to not only assume the role of a research participant, but also willingly applied to the CWCT program as an online, non-degree seeking student. Given this unique program, these results are not likely to generalize to other traditional academic programs at two and four-year institutions. Prior to the selection of an intervention in Phase 2, and although the interview guide was carefully selected

and developed within the context of literature, I wanted to gather feedback from the research participants as to what they deemed to be the most appropriate intervention. I offered transparency to the research participants in each phase, including letting them know in Phase 1 that the intervention had not been fully decided. Lastly, I assured all participants that their participation in the study would not have any impact on their status as a CWCT student.

Role as Scholarly Practitioner

I have been a practitioner at UNC Charlotte for six years, and within the context of the CWCT program as a member of the consortium for three years. Since the inception of the CWCT program, I have played an important role in the recruitment of individuals, the formation of partnerships with private and public organizations, the generation of monthly newsletters, and organizing and hosting career fairs and other career readiness programming virtually. I currently work as a practitioner at UNC Charlotte as the Systems Administrator in the Office of OneIT as part of the Academic Affairs Support Division. My main responsibility includes administering all systems related to undergraduate admissions, scholarship and honors program, and student information. My roles have allowed me to collect anecdotal and empirical data, and they have given me the ability to interact with students as it relates to career readiness practices.

The CWCT program started as a pilot program, along with two other NCAE-C sponsored projects and, inherent to any new program, required a lot of groundwork regarding hiring faculty and staff, generating curriculum, recruiting students, and forming relationships. Once we started to hit our desired metrics regarding recruiting the demographic of veteran students and members of the law enforcement and first responder community, we began to discuss the challenges that our students brought to our attention. Given the unique diversity of educational and career backgrounds of our students, many were frustrated by their lack of career readiness skills that

seemed to be required to obtain employment within the field of cybersecurity. Though our program strives to provide an excellent curriculum to prepare students to enter the field and to obtain important credentials, we did not have dedicated career readiness programs at the onset. As part of my job, and in collaboration with my teammates, we began to host career fairs that brought 15 to 20 partners to self-hosted Zoom sessions, where our CWCT students could interact with military recruiters, managers in the industry, and third-party non-profit organizations that provide additional resources to veteran students.

I found the large amount of research on student veterans very interesting but started to quickly realize that non-degree cybersecurity programs are not only new, but students seem to not have the same resources that traditional student veterans at a four-year institution, or even a two-year institution, may have. I then set out to speak with members of the faculty who oversee the program about my thoughts on a dissertation study that could investigate these variables and design an intervention to determine efficacy. I find it important to mention that I am also a veteran of the United States Army and Army Reserve, and working with veterans holds a special place both in my heart and in my professional goals as an educational professional and administrator.

Summary

The focus of this study was to design, implement, and assess the impact of an applied intervention on students' career readiness and ability to obtain employment in cybersecurity. Additionally, this study sought to recognize and investigate the perceptions of career readiness by students within this program and to gather data in Phase 3 on the impact of the intervention on these perceptions. I conducted this study over three phases, with Phase 1 consisting of a 1:1

interview via Zoom to gather baseline data. Phase 2 incorporated an intervention of a peer mentoring program.

In Phase 3, I conducted follow-up 1:1 interviews with participants to collect further qualitative data on the intervention's impact on career readiness perception and their ability to obtain employment in their field. The subsequent analysis in Phase 3, and both prior phases, addressed the three main research questions of the study experience. This section also discussed the assumptions, limitations, and delimitations and the steps I took to carefully mitigate any issues related to validity and rigor.

Lastly, this chapter discusses the role of the scholarly practitioner as part of UNC Charlotte and as a Program Manager for the Cybersecurity Workforce Certification Training program (CWCT). The results presented in the following sections of this study may produce the opportunity to learn how to incorporate career readiness programming into non-degree certificate programs and may help to determine whether the addition of these can impact employability of student veterans and non-degree seeking students. In Chapter 4, I go through the results of this study following the implementation of Phases 1 – 3.

CHAPTER 4: RESULTS

The purpose of this mixed methods case study was to design, implement, and assess a peer mentoring program for students participating in the Cybersecurity Workforce Certification Program (CWCT). Assessing the effectiveness of this intervention and the impact it theoretically could have on various aspects of participants' career readiness was paramount. I have used a mixed methodology approach to collect qualitative and quantitative data. To collect baseline data on the participants in Phase 1 of this study, I administered an interview via Zoom that was largely based on literature and Schlossberg's theoretical framework on transition. This same instrument was utilized in Phase 3 as a post-interview to gather data on the effectiveness and impact of the peer mentoring program on participants' perceived career readiness. The following research questions guided the study.

1. How do non-degree student veterans gauge their preparedness to enter the workforce as they are studying cybersecurity and transitioning out of the military?
2. What resources do non-degree student veterans need to support their career preparedness?
3. How do veterans experience an initiative designed to enhance their career readiness?

Throughout this study, I conducted semi-structured interviews to gather information from the students, all of whom are in a different stage of their transition from the United States Military. This fourth chapter presents findings related to these interviews and their subsequent analysis.

Demographics of the Study

The eight participants who both enrolled in the CWCT program and consented to participate in the present study were non-degree seeking students, all of whom were members or

previous members of the United States military. All elected to participate in the study, and all were at different levels of progression through this certification program. Participants ranged in educational background, including two PhD's, one master's degree, four bachelor's degrees, and two high school diplomas as the highest level of education attained. The rank upon discharge out of the military for each participant, or if currently serving, their rank at the given time of the study, was also collected as data points. Two participants were officers, and the other six were enlisted members of the Armed Forces.

Pseudonyms and Anonymity

To protect the confidentiality of research participants and noted in Chapter 3's description of methodology, pseudonyms were utilized. For ease of the reader, and to reference as I explain the data collection and analysis in this chapter, I reference participants by the pseudonyms in Table 4.

Table 4

Phase 1 Demographic Information

Alias	Rank	Ethnicity/Race	Gender
Jesse Bryant	E-8	White	Male
Arnulfo Holden	O-2	White	Male
Nicole Lynn	E-6	Asian	Female
Harvey Buck	E-5	White	Male
Albert Mcgee	E-5	Asian	Male
Adalberto Noble	E-7	White	Male
Alyson Fitzgerald	E-4	Hispanic	Female
Vilma Neal	O-2	White	Female

Note. In the United States Military, ranks such as E (1-9) and O (1-9) notate enlisted versus officer ranks, respectively.

Data Collection

On April 21, 2024, I received IRB approval to begin the study and access participants. By late May of 2024, I identified the target population based on the study's requirements of being a current or former military veteran, enrolled full time in the CWCT program, and currently a United States Citizen or Permanent Resident. I sent an email correspondence to those who matched these criteria announcing the research study per the IRB guidelines and was able to communicate with the participants who ultimately signed their consent form that notated their participation in an interview in Phase 1, participation in a peer mentor program intervention in Phase 2, and a post-intervention interview in Phase 3. The emails with participants outlined the purpose of the research study and the data collection procedures that would be used. Email invitations defined the efforts that I would take to ensure that the confidentiality of participants remains intact, and though recordings of interviews would be used for coding purposes, their names, likeness, and recordings would not be published or shared. IRB-approved consent forms were attached to these emails, signed, and shared back with me.

Using an additional email communication, research participants utilized Calendly to schedule meetings with me at their convenience to conduct Phase 1 of the study via Zoom. Though several cancellations and reschedules were needed, I was able to meet with all 8 participants within the months of June and July of 2024 to conduct the initial interview per the interview guide. Participants were told at the onset of the interview that although recording would take place, their confidentiality would be maintained. The main barrier present here was the varying schedules of the participant population; many were working full-time jobs, had families, and had other obligations and commitments that made it difficult to find time, albeit only an hour, to ensure successful delivery of Phase 1 of the study via a Zoom interview.

During the consent process, I assured all students that the decision to participate or not participate in the study would in no way influence their grades within the CWCT Program. The study was conducted via the following timeline:

- Phase 1 - June 2, 2024 - July 3, 2024
- Phase 2 - August 14, 2024 - September 22, 2024
- Phase 3 - October 9, 2024, - October 31, 2024

Phase 2 included participation in a peer mentor program, in which all students were asked via the consent form and within the Phase 1 interview if they would elect to participate in it. Out of all 8 initial participants, all 8 agreed to participate in the intervention. The Phase 2 intervention included partial randomization pairing of the participants into groups of 2, called peer mentors for this study, but also colloquially as “battle buddies” in a military friendly sense. Though several scenarios were drafted to address how to pair mentors, the most reasonable assumption was that pairing one participant who was farther along in the academic program with another who was just starting could provide the most effective data. Additionally, I met with each participant prior to having them engage with their partners where I set expectations regarding ensuring they meet once per week, that it preferably be over zoom or phone unless not available, and to let me know if they were unable to meet that week for any reason.

As stated previously in Chapters 2 and 3 of this study, “battle buddies” is a military term for someone assigned to an individual – in initial training and beyond – who is responsible for another individual’s physical (and, to a degree, mental) health and safety. This methodology was selected for three main reasons.

First, each participant indicated an interest in the peer mentor program in their Phase 1 interviews, and without encouragement noted the potential benefits of implementing such a

program. Second, inquiry partners suggested that pairing participants would be beneficial to increasing career readiness. Third, two inquiry partners recommended that peer mentors have a predetermined prompt each week to encourage conversation. The literature review pointed toward potential benefits of implementing a peer mentor program and highlighted the program's association with positive benefits on career development and readiness, especially for the veteran population.

Participants were emailed weekly prompts that were based on Schlossberg's Transition Theory's four guiding principles, in addition to career readiness variables that are relevant based on the literature review in Chapter 2. These themes were as follows, including suggested prompts that could be utilized by the participants:

1. Week 1 - Transition and the Situation (Introductions)
 - a. General introductions
 - b. Explain your current situation.
 - c. Go over your military and educational backgrounds and goals.
2. Week 2 - Transition and Self
 - a. What kind of things are important to you? What's important to you that you'd like to see in the work you do?
 - b. What kind of values do you have in relation to what you're trying to accomplish?
 - c. How do you think your age, gender, stage of life, health, or things of this nature impact what you're trying to do as you transition into cyber/IT?
3. Week 3 - Networking
 - a. How has networking in the field of cybersecurity been going?
 - b. What does networking mean to you?

- c. What parts of networking do you find challenging?
 - d. Are there success stories or tips you could share with each other about your own experience networking?
- 4. Week 4 - Interviewing
 - a. What have your interview experiences been like?
 - b. What about being a veteran do you think makes interviews unique or different?
 - c. What do you want to improve on?
 - d. What tips/tricks can you share with your peers that have worked for you?
- 5. Week 5 - External Resources / Non-Profit Organizations
 - a. What was your experience with the military's transition program?
 - b. Did you use any other resources to help with finding jobs? Resume, interview, networking help?
 - c. If so, which ones were helpful? How so?
- 6. Week 6 - Resume
 - a. Where does your resume currently stand?
 - b. Did anyone help you with it?
 - c. Have you gotten feedback on it?
- 7. Week 7 - Transition - Strategies
 - a. How did you modify situations as you transitioned?
 - b. Means of controlling problems you encountered.
 - c. What strategies do you have regarding managing stress?
- 8. Week 8 - Wrap - Up / Survey / Q&A

Mentor pairs were asked to meet once per week on their own time, whether by Zoom, email, or phone call, to discuss the weekly prompt and connect with one another. Participants were given an explanation during Phase 1 interviews that each weekly meeting in Phase 2 would be approximately a half hour each and would have a prompt or theme each week to encourage discussion. Possible prompts and questions were shared with participants to encourage conversation and engagement. They were also sent weekly reminders. Participants were also given suggested prompts associated with each theme, shown above; many of these prompts were generated via engagement and discussion with inquiry partners when presented with the Phase 1 data.

Upon completion of the intervention, students were again asked to utilize Calendly to schedule the Phase 3 Zoom interview to collect post-intervention data on the impact of the peer mentor program. This portion of the data collection involved an interview guide that mirrored the original interview, following up on the common trends and subjects the study was looking to investigate. However, further questions were asked involving the potential impact of participation in the peer mentoring program on various aspects of their career readiness and transition. These interviews took place between October 12th, 2024, and October 30th, 2024. Data were collected in Phase 3 in a similar fashion to Phase 1; participant conversations were recorded, as well as note taking and coding of responses by the principal investigator as it was being conducted. Some questions involved additional probing, depending on the quality and quantity of responses per research question.

Phase 1 Data Analysis

As part of Phase 1 data collection, and in addition to demographic information, participants offered insight into their perceived career readiness in relation to several key variables, including how confident they were in their interview, networking, and resume skills. These data were collected via asking participants to rate how they initially feel regarding their perceived career readiness and are notated in Table 5.

Table 5

Phase 1 Numerical Data - Perceived Career Readiness (Scale of 1-5)

Alias	Interview Skills	Resume	Networking
Jesse Bryant	2	2	2
Arnulfo Holden	2	4	3
Nicole Lynn	2	3	2
Harvey Buck	5	5	4.5
Albert Mcgee	3	4	4
Adalberto Noble	2	3	2
Alyson Fitzgerald	4	4	3.5
Vilma Neal	3	4	3
Average	2.876	3.625	3.111

Note. These data were collected by asking participants to rank their perceived career readiness on these variables at the given moment, with a “5” being the highest.

Participants were also asked questions regarding their transition from the United States Military into the civilian world, if applicable, or where they currently were regarding their transition. Stages of transition were broken down into five categories of potential responses, though the question was left open-ended to elaborate on how they planned to transition or currently are. These categories are as follows:

- a. Stage 1 – Currently in Service – Active Duty
- b. Stage 2 – Currently in Service – Reserve/National Guard
- c. Stage 3 – Separated from Service < 6 months
- d. Stage 4 – Separated from Service < 2 years
- e. Stage 5 – Separated for longer than 2 years

Responses were mixed, with four having self-identified as being out of the military for more than 2 years, one still in the reserves, one on active duty, one separated less than two years ago, and one who separated in the last six months or less. Overall, only 2 participants are still in the military, though one noted they are currently employed as a military contractor.

Research Question 1

How do non-degree student veterans gauge their preparedness to enter the workforce as they are studying cybersecurity and transitioning out of the military? Response to this first question was apparent in Phase 1 of data collection.

In my first step of collecting the data, I reviewed all the qualitative and quantitative data from a single participant to break down the data into smaller points, primarily utilizing the “four S’s” of Schlossberg’s Transition theory. As noted previously in Chapter 3, this included breaking the qualitative data down to identify it as either related to self, support, structure, or strategies.

Coding began with four main categories and began to evolve into themes as the interviews and phases went on.

This began with coding answers as being related to self (blue), support (green), situation (red), and strategies (yellow). Some responses were coded as being related to one more variable. As Phase 1 progressed, additional codes were added to assist in analyzing the raw data. These included codes being built out for responses related to experiences in the program in particular (orange), analysis or feedback regarding hard skills related to cybersecurity or IT (gray), and general discussion surrounding mental health (pink). These three additional codes were brought to light based on participant responses to further analyze the data, especially in Phase 3. However, the coding related to mental health was collapsed later in data analysis to be included with responses related to self (blue) to yield a superior coordinate for analyzing their views of themselves as they transition. This was mainly due to similarity in the responses as themes emerged and the interviews offered more insight into the participants. An example excerpt from one participant's initial interview has been provided below to highlight an example of the coding utilized in the analysis of the interviews.

A lot of things were being organized and was about ensuring that things were executed the right way when I transitioned. I started applying for certain positions right away, which helped to reduce stress. This went on where I was putting in about 5 applications a day to nearly twenty by the time I was about 12 months away from (leaving the military). I had to make sure all my certifications were up to date and paid for the (branch of service) or DoD before I got out. Six months out from separation, I started doing more research and started working on new certifications. I started researching the requirements, advanced requirements, did some cost analysis on what makes the most sense, etcetera.

Also, I started on a master's degree. I also had a really good mentor that told him that the (military) won't help you a lot post-retirement, and you have to do a lot on your own.... I feel like I've transitioned, but just more focused on upskill right now... I've had a great experience in the CWCT program so far, but wish there more like it. Though, it would be nice for a Skillbridge like program to be incorporated that also could help veterans get into the corporate pipeline.

Some responses from participants touched on several variables, but these codes were created to further analyze probing questions and their respective responses, as well as open-ended responses towards the end of interviews. There were responses that did not fit into the initial schema of Schlossberg's Four "S's", and these were either coded into the three added categories or were further analyzed and coded as multiple colors.

Following the open coding that took place here, I analyzed specific clusters or groupings of responses to gain a better understanding of how participants perceive their own career readiness. I began to identify the perspective that each participant brings to the study. In a manner consistent with Saldaña, these began to emerge as patterns, which ultimately comprised the themes seen next in this chapter. I present excerpts here that were collected in Phase 1, and all forms of these raw qualitative data have been edited minimally.

Some grammatical errors and verbal fillers were removed for the ease of reading. In no way was this editorial methodology put into practice to alter the meaning of the research participants' messages; in certain cases where editing responses in any way would modify the meaning, these excerpts were left intact. Specific branches of the military in which research participants served have also been redacted and replaced with a simple reference to "the armed forces" or "the military" in order to further protect the anonymity and privacy of the participants.

Themes

Theme 1: Participants view themselves as military members first regarding their career prospects.

One of the recurring themes that emerged from the conversations during Phase 1 of the study was the overall feeling of how participants see themselves regarding their career readiness, and also where they see themselves on a personal level. As noted previously, research participants varied in the physical timing of their transition out of the military, with several still actively serving while they begin their career search. For example, Jesse, one of the research participants, described their self-view regarding their transition as such:

I feel like I've mostly transitioned, but I'm really trying to focus on being upskilled right now. I tried to plan out my transition, couldn't do certain programs like Skill bridge, COVID was going out, and I wasn't able to plan my transition as much as I had tried. I tell other veterans to (start) planning two years out.

Another research participant, Harvey, went on to discuss how he viewed himself as part of his transition:

As a special staff officer in the military, that helped me to guide my transition as it allowed me to talk directly with my commander. This led to me participating in AWS skill bridge programs for cloud career preparation, and on to other opportunities... It was a great experience, and it really helped me transition.

Adalberto similarly went on to discuss their current view of self as follows:

I feel as though my current view of myself as a military officer really helps with becoming a more resilient person, especially regarding rejection. I have a good outlook on where my transition will take me, and that really helps me cope.

Three other participants discussed similar views of themselves as military members first, prior to mentioning their unique characteristics, such as their personality, ethnicity, or gender. It was common for participants to view themselves as transitioning service members, and the many challenges related to their transition often came back to their grouping of themselves into a “pot,” as one participant put it, of prior service members looking for a job in the private sector. In other words, it is likely that participants felt labeled as a veteran looking into this job market and felt that such a designation grouped them both socially and categorically when searching for employment.

One of these participants, Nicole, repeatedly referenced her view of self as being highly qualified and skilled but was unsure how to translate those military skills into something that would make sense to an employer or hiring manager who may have never served in the military. She noted having technical skills from her job in the military, but it was still difficult to make those relevant to civilian jobs in IT unless the military occupational specialty was directly in information technology or cybersecurity. Some examples included trying to translate loosely related military skills to those that are shown in the job posting, as the vernacular and verbiage is often quite different when comparing civilian and military job descriptions. Vilma went on to describe feeling like her prior self-view was in a state of perpetual drowning, stating:

There are so many resources available, it’s easy to feel like you’re overwhelmed or drowning in them. You try to eat all these resources up, but it’s like drinking from a firehose. Certain programs help to learn resources on what you’re doing, but it’s tough to focus on those soft skills; in fact, it’s hard to decipher what you even want to do or what you see yourself as.

Overall, participants seem to view themselves as transitioning service members at one stage or another, and it was rather difficult to probe participants to discuss individual views, their socioeconomic status, or other psychological resources like ego development or values. However, outlook was commonly discussed as it relates to their view of self.

Theme 2: Participants have varied support structures, if any are present.

Support structure was a prominent theme that was revealed during the Phase 1 interviews, with all 8 participants discussing it in one form or another. Responses touched on the importance of family and friends, certain institutions and organizations, and members of their military community. Part of the theoretical framework guiding this study, Schlossberg's Transition theory, stresses the importance of having a support structure in place while dealing with a transition of any kind. For this research, all participants were at some point in their transition from the military to the cybersecurity/IT workspace. However, the role of this support varied. Albert, for example, shared:

(I don't have any) family connections really, and not a lot of friends. I have some co-workers that I rely on, which makes up the (majority) of my support structure.

Probing questions revealed that much of this support structure involved talking through challenges that came about through the transition, in addition to having a place to share successes. Others, such as Jesse, mentioned that part of the support structure was having a large team of friends and battle buddies who can check in on each other:

I have a team of 20 on a thread [likely a social networking group or chat] that checks on each other regularly, on top of having a family that supports me. I have friends that push each other too.

Jesse went on to explain that this thread served as a place not only to discuss where they are at in their life and career, but also to provide accountability to ensure that each other's mental health and resolve are in a good place. Arnulfo summarized his view of their support structure quite eloquently. When asked the question of whether he has a support structure in place to assist them with their transition, he responded firstly with a mention of his wife. He explained that having a single person who was supportive of the service member who was transitioning, pushed that person to do more, and stick with that individual's commitments was critical in his success.

Overall, participants seemed mixed on whether they had a support structure in place, with those who said they did have structure referencing family and friends. Little to no mention was made within this stage of the research of any support structures that exist outside of friends, family, and co-workers, with notably little mention of any non-profit organizations that specialize in assisting in the transition of service members out of the United States Military.

Theme 3: Though strategies vary, participants have unique ways to control problems, modify situations, and manage stress.

Many different strategies were discussed by research participants as part of Phase 1, ranging from discussions of planning to networking with others. Some research participants, when asked about the strategies they have in place to cope with their challenge, laid out their carefully crafted planning to ameliorate these challenges. Jesse, for example, offered:

A lot was being organized, and I needed to ensure that things were executed. I started to apply for positions right away, which helped to reduce stress. I went from five applications a week to almost 20 by the time I was about 12 months away from (leaving the military). I also ensured that (certifications) were up to date and paid for before I got out. Six months until I separated, I started researching requirements, advanced

requirements of jobs, and even did a cost analysis... I had a good mentor that told me everything that they don't help you with post-retirement, you must do that one on your own.

Though this response focused on the role of careful planning, it also included the mention of a mentor, noting how helpful that was. Arnulfo's responses were related to planning to assist with the transition:

It was overwhelming and intimidating to start a new career or job. Main two things that I did was write down my plan on paper and continue with the proper planning. Often, I would over-prepare for job interviews to reduce the possibility of problems. I also would ask others about their work in a certain field, like what worked and what didn't.

Alyson went on to note that one strategy to cope with the transition and get ahead was to recognize that cybersecurity, much like the military, was a male-dominated industry:

There aren't a lot of female IT vets out there, which made me must be a lot more assertive. It had to be better than the next one. This included reading everything I could, taking classes...

It was interesting to see, though, that certain participants didn't have a strategy in place to support them in regard to these challenges. Nicole responded simply with:

(I don't really have strategies put into place) yet, but I am thinking about looking for specific LinkedIn groups, Facebook groups, or something like that where I can connect with others.

Adalberto mentioned that being in the military inherently was a strategy, going on to note:

I think I developed a certain amount of resilience from being an officer (in the military), which helps a lot to cope with being rejected or denied when trying to enter this (job market).

Theme 4: Participants view their situations differently as it relates to transition, but all share the commonality of trying to break into the civilian IT workforce.

One of the most important pieces of information when examining a transition through the lens of Schlossberg's transition theory is the situation itself. By asking questions of the participants about their transition, one inherently gathers information on the situation itself, including what triggered it, the timing, how much control they had over it, its duration, and more. Apart from the commonality of participants being at some stage in their transition in or out of the military, responses varied greatly depending on how they described and identified the situation they were in. As noted previously, respondents were asked to identify what stage of transition they considered themselves to be in, with the option of selecting one of five stages, citing whether they were still in the service, separated recently, or separated a longer time than that.

Further, there was a mix of responses that included being in slightly different situations regarding exactly where they were in their career. Some were brand new to exploring the field of IT and cybersecurity, whereas others felt like they were in a more comfortable situation already working in the industry. Vilma, for example, was in a situation where she was rather new to the industry, saying:

No, I didn't have a background in IT at all prior to the military or within regarding that education. I tried another industry that didn't work out, and then IT came of interest based on interest in computers. I moved, did some vocational training, and got a job finally in IT.

Others, such as Jesse, were more interested at this point in their career and transition to just upskill. He was also already highly educated, having completed a master's and PhD. He noted:

I feel as though I've already transitioned, I'm more focused on upskill. I tried to plan my transition but couldn't do a skill bridge program. COVID was going on, and I couldn't plan that much for my transition at the time; however, I now tell other veterans to start planning two years in advance for your current transition situation.

Research Question 2

What resources do non-degree student veterans need to support their career preparedness? To gather data on what resources research participants needed to support their career, I began by asking them what resources they have utilized historically, if any. The following is a list of different resources that participants identified as being something that they used at some point during their transition out of the military or at some point afterwards.

Participants mentioned utilizing Coursera, which provides free courses to veterans, in addition to various USO programs. TAPS was mentioned and is required to be used in part by all transitioning service members; it is a federally sponsored transition program that is mandatory for all service members who are on active duty. Skill bridge programs are Department of Defense sponsored programs that connect transitioning service members with private companies, including training, internships, and more. The non-profit organizations Hiring our Heroes and Hire Heroes USA were also mentioned as being utilized by two participants; both offer job placement assistance, fellowships, 1:1 career counseling, resume workshops, and more. Lastly, various coursework, classes, and exams were provided at little to no cost by other mentioned programs.

To fully answer this research question, however, I also asked participants two additional questions to gather more information on what resources they have used and to try to identify the actual needs present. These data were partially gathered by asking participants what aspects of their own career readiness and employment search they can improve on, as well as what parts of securing a job in cybersecurity they are finding most difficult. Harvey, for example, noted how difficult it can be to try to secure one of these jobs:

Experience is the most difficult. A lot of job postings require a lot of experience in the field already. A lot of these jobs also require certifications, but they still want expertise. I have managerial experience regarding this stuff, and I try to parlay that into the right role, but it's still difficult.

Others mentioned that just landing an interview was a difficult part of the process. Some, such as Adalberto, noted some of the aspects of their career readiness they could improve on to try to secure additional interviews in the future:

Resume and networking could use some help. I'm trying to improve my networking skills but haven't gotten a lot of interviews. I'm working on translating my military skill set technically into what makes sense for technical skills.

Multiple participants mentioned the need to improve their interview skills and their resume, but the overwhelming consensus was that networking was a struggle. Examples included reaching out to recruiters on LinkedIn and never hearing back or hearing that jobs may have been acquired by those who personally knew someone in the company. Out of the 8 participants, 7 noted that networking was one of the major skills that they wanted to improve on, with 4 out of 8 noting that they could use assistance with either interview preparation or resume writing.

Another observation that emerged from the analysis of these Phase 1 questions included the inherently confusing industry that cybersecurity professionals must navigate. Unlike many career fields where there is a rather straightforward academic path to success and employment, respondents seemed to view cybersecurity as quite different. Reasons offered by participants in their responses to what may have caused this confusion mainly focused on attempting to understand the industry-recognized certifications that are offered by multiple third-party vendors, making it quite difficult to know which ones to focus on. The CWCT program that these research participants are enrolled in completed a market research study that helped to formulate which certifications the program would prepare students for, but it barely scratches the surface of what is heavily sought after versus what is required versus what is not useful at all. Vilma went on to say:

It's nearly impossible to figure out which certifications are the most important right now. Different job postings show different required certifications, but sometimes they're just preferred qualifications. Plus, some of these tests are very expensive to take, and though we get vouchers as part of (the CWCT program), there are still a lot more that aren't covered or may be required later.

To further complicate this point, participants also noted that the field is ever-changing, and the importance of certain certifications versus others can be fluid. This point is summarized well by Jesse, who said:

It's hard to know which certs to focus on as they're constantly changing, and that's before you even look at jobs based on family and relocation requirements.

Jesse went on to say that he did take advantage of numerous resources prior to and right around the time of transition. There was a large variety of responses regarding resources that have been used historically, and those that were more beneficial than others.

Overall, it was apparent that interviewing this population revealed a unique combination of dedicated, practical experience from the military and, above all, a strong desire for skill expansion. Though this variable could be common to someone who wishes to enroll in a non-degree cybersecurity program, this is still worth noting as a common theme.

Phase 2 Intervention & Data

Upon completion of Phase 1, I engaged inquiry partners with preliminary data and general thoughts regarding the data collected during Phase 1. Chapter 2 provides a review of the literature on the potential benefits of a peer mentor program on career readiness and development in the higher education space, but it was important to engage inquiry partners to determine whether that was the most appropriate intervention based on preliminary results.

Prior to engaging these partners, however, I found it quite interesting that participants went out of their way (without being prompted) to express their interest in participating in some sort of peer mentor program. All participants agreed that a peer mentoring program would be beneficial, but 6 out of 8 went on to explain why they were interested. Their responses included references to not having an effective way to connect with peers in a virtual, online environment, and extended to the concept of just having a constructive way to engage with peers who are in a similar situation.

Some of the most helpful feedback from my inquiry partners came while discussing two of my primary challenges while conducting this research: the need to probe often to receive meaningful responses, and the tendency for participants to elaborate on their technical skills and

experience in their non-degree program. To elaborate on this point, I shared with inquiry partners that participants would often respond with technical comments and feedback, even if the question was more about something more qualitative. Several inquiry partners noted that this tendency could be due to their military service, given that short, to-the-point answers are often ideal in a military environment. Further, the hesitation to discuss personal feelings regarding their transition may be further exacerbated by this point, and this reluctance often led to discussing technical cybersecurity skill sets when probed in lieu of a response more related to their mental health or feelings. Inquiry partners recommended that a peer mentor program was appropriate, but it should include a weekly theme to encourage discussion. This was a tactic to keep the participants on track with the intervention in terms of assessing the impact of it on their career readiness, and it was also meant to limit the amount of time discussing technical skillsets in information technology.

Admittedly, it was difficult to engage with all inquiry partners during this stage of the study. This could likely be attributed to Phase 1 and 2 being conducted during the summer months, and vacation schedules and faculty calendars were not always aligned. Inquiry partners did go on to recommend that feedback forms may be too much work for participants to fill out weekly, and that the idea of doing a Phase 3 follow-up interview was most appropriate. One inquiry partner mentioned that it may be helpful to ask probing questions in Phase 3 even if participants had already been asked, especially if the response was still not answering the question. I would recommend having several inquiry partners in a future study, as two or three would have likely been sufficient.

Though the participants were diverse in several categories, each participant was studying cybersecurity in this non-degree program, was a current or former member of the military, is at

some stage of transition, and is looking to further their career in IT/cybersecurity. Based on the literature review, feedback from participants in Phase 1, and positive feedback from inquiry partners, Phase 2 involved the participation in an 8-week peer mentoring program. Although data were not collected directly during Phase 2, data were collected during Phase 3 as part of the follow-up interview to determine effectiveness of the applied intervention. As mentioned previously, themes were sent to participants each week via email to encourage participation around a prompt related to the theoretical framework and research questions.

During the intervention, participants were sent a weekly email from me to guide their conversations with one another as “battle buddies.” These weekly themes included resumes, interviewing, external resources, networking, transition & self-view, and situation. An example email is shown below of what participants would have received during Week 4 of the study.

I hope you had an excellent week and were able to find some time to connect with your peers this week to discuss networking. This week, I'd like you two connect to briefly discuss your experience with interviewing.

Possible prompts:

- 1. What have your interview experiences been like?*
- 2. What about being a veteran do you think makes interviews unique or different?*
- 3. What do you want to improve on?*
- 4. What tips/tricks can you share with your peer that has worked for you?*

Another example of a weekly correspondence email with participants from Week 2 is shown below.

For this week, I would love to see you all take a moment to discuss how transition impacted (or is impacting) each other on a slightly different level.

With the theme of Transition and Self, here's a few prompts that you may want to utilize as y'all connect:

- 1. What kind of things are important to you? What's important to you that you'd like to see in the work you do?*
- 2. What kind of values do you have in relation to what you're trying to accomplish?*
- 3. How do you think your age, gender, stage of life, health, or things of this nature impact what you're trying to do as you transition into cyber/IT?*

Again, these are just suggestions. The most important thing is you all find time to briefly meet once a week to connect as peer mentors / battle buddies.

These emails served not only as prompts for discussion, but also as an attempt to keep the intervention structured enough to parse out data from different topics of interest, while also not trying to create too much structure on a population that identified as being quite busy. When engaging with inquiry partners, I made sure to mention that participation was a concern for me considering the multiple jobs, varying geographic locations, different time zones, and so on. Thus, this structure was recommended based on Phase 1 data, inquiry partner feedback, and the literature. Discussed later in Chapter 5, this intervention could have yielded more data if more structure had been in place, but it is unknown whether that would have had an adverse impact on participation based on the participant population's schedules.

Phase 3 Data Analysis

Research Question 3

How do veterans experience an initiative designed to enhance their career readiness?

Phase 2 was designed to address this question, in addition to being chosen as an intervention based on the feedback from inquiry partners, respondent data from Phase 1, and an

argument from the literature that a semi-structured peer mentor program has theoretical potential to enhance career readiness among other variables. Questions were like those asked in Phase 1, with hopes of following up with participants regarding whether new aspects of their “Four S’s” mentioned previously had been addressed or experienced. In other words, research questions in Phase 3 attempted not only to gather information regarding the peer mentor intervention program, but also to glean information on other aspects of their transition. Given that these participants were all actively engaged in a non-degree certificate program, it was helpful to gather data on how their transition has proceeded in the months since Phase 1 interviews, even looking at variables not directly related to the peer mentor program.

These variables had to do with any new strategies, support structures, or other aspects of participants’ perceived career readiness or job search. Additionally, questions in the Phase 3 interview guide included the same sliding scale questions asked in Phase 1 regarding networking, resume preparation, and interview skills. The purpose of this interview guide was to attempt to gather data on the research questions, the relevant variables as they relate to Schlossberg’s Transition Theory, and quantitative data on common subjects related to career preparation and readiness. Lastly, participants were also asked open-ended questions regarding their experience engaging with their assigned peer mentor, which provided further insight into the possibility of looking at interventions with programs to encourage positive career development, in addition finding out more about how veterans perceive their own readiness.

Unfortunately, one of the participants dropped out of the research study due to personal reasons. Given the demographic of former and current military members making up the entirety of this research population, it was not a surprise that at least one participant was not able to complete all phases of the study due to their military, work, and life balance. For many service

members, and especially for those with families, it can be difficult to engage in college coursework while being employed, often with more than one job. As noted previously, a handful of participants were working full time jobs while studying in this non-degree program and were still actively serving in one form or another in the military. As someone who personally served in the United States Armed Forces, I can attest that scheduling and planning can be important, but it is sometimes irrelevant to what ends up happening with deployment, moves, and other rhythms of military life.

As a follow up to the data collected in Phase 1, I asked follow-up questions to gather quantitative data on whether the intervention, or other variables, had improved three hard skill markers: their perceived confidence in their resume, interview skills, and ability to network within their field. These data are shown in Table 6. The most notable change in the perceived abilities of respondents from Phase 1 to Phase 3 was in networking ability, with an average of nearly half a point improvement, with all participants noting an improvement or the same number. Minor improvements were also seen in how participants rated their resume and interview abilities.

When participants were asked these questions, I raised a probing question of whether the participation in the peer mentor program was relevant, with mixed results on whether it was a direct result of the intervention or was due to gaining more skills organically as they progress through their transition and through the academic program in question.

Table 6

Phase 3 Numerical Data - Perceived Career Readiness (Scale of 1-5)

Alias	Interview Skills	Resume	Networking
Jesse Bryant	3	2	3
Arnulfo Holden	2	4	4
Nicole Lynn	3	4	3
Adalberto Noble	5	5	4.5
Albert Mcgee	3	4	4
Alyson Fitzgerald	4	4	4
Vilma Neal	4	4	4
Average	3.428	3.857	3.785

Note. Participants were asked how they ranked their perceived readiness in the subjects above; these were the same questions asked in Phase 1 but repeated in Phase 3 to assess any changes.

Theme 5: Participants had varied experiences with the intervention, ranging from offering strategies to their peers to simply enjoying connecting with someone in a similar situation.

As part of the Phase 3 interview guide, participants were asked whether they had learned any skills to assist in their transition into the civilian workforce or into cybersecurity. Jesse shared that one of the main themes that was present as part of participating with a peer mentor was discussing networking, noting:

You must start networking early, including reaching out for mentorship, practice interviewing, and more... This was discussed with a peer mentor, which was overall a great experience and nice to connect with someone in a similar situation. Interviewers want to hear about the mentors you have, and what metrics you have used in the past to be successful. Also, they want to know what kind of revenue potential you can bring to any company you work for; these are solid strategies to get you in a good position.

Alyson focused on talking about some of the hard skills learned since the last time we had a chance to discuss strategies in Phase 1, noting things learned related to their time in a Linux course and other variables in the cybersecurity realm. Arnuflo did not feel as though the peer mentor program was helpful in obtaining new strategies, remarking:

Probably haven't learned any new strategies, *per se*; not enough information to say that I formed a new strategy from these new relationships. But I don't (interact) with a lot of cyber folks, so it was nice to engage with someone in a similar situation as I am. I saw some similarities between my own journey and my peers, including getting certifications, knowing someone that did similar things, and ultimately finding success entering the industry.

Similarly, Albert mentioned that new skills were not necessarily obtained via participation, but it was a good chance to discuss what strategies worked and what didn't as they transitioned. This sentiment was further echoed by Nicole, who said:

To some degree, I've found some new strategies, but it was more focused on just talking about what works and what doesn't; this is (particularly) relevant when you're paired with someone who you have similarities with.

Other respondents, such as Vilma and Adalberto, mentioned that they had simply not gathered any new strategies from this intervention.

Theme 6: Support structures included family, friends, spouses, and military groups.

Participants were asked a follow up to a similar question from Phase 1 that sought to determine whether they had gained any new skills related to support structure. Participants had a variety of answers, ranging from little to no new support, learning new ideas on how to gain support from their peer mentor experience, and others that found new support altogether. Alyson, for example, noted:

The main new support I found is a group of people that are currently working in the industry via a partner that helped to shine light on the matter. It's just a new group of IT folks that really helps to connect with them.

Responses like this provide context to the quantitative data. The largest improvement in any one category was perceived to be networking abilities, according to participants who discussed their growth over the course of this study. Albert noted:

I didn't really gather new support structure ideas, but support groups are important, and I continue to see that after connecting with my partner. It's great to have people who aren't wondering why you're studying or pursuing (cybersecurity).

Arnulfo, who had previously, and simply, answered the support question from Phase with a reference to his wife, said:

I once told a story to my wife about a class I was struggling with and remembered her wondering why I was questioning what I was doing at all. She just told me to finish the program, finish the class, and reassess once you've completed it.

Though this didn't note a new strategy *per se*, it was important to see that this theme of a support structure came up again and was still relevant. When I asked Jesse this question, he responded with a message of sorts to anyone in a similar situation regarding support structure:

Find a mentor. Everyone needs to use a networking key to gain a mentor. Asking for mentorship can be hard and isn't something that is easy for everyone to do, but it's extremely important to have that as a support mechanism to get where you want to go.

Nicole, Adalberto, and Vilma noted that no new strategies had been learned, but they did not specify whether that was due to not discussing it in detail with their peer mentor or was just in general.

Theme 7: Participants learned more about each other by participating in the intervention and see resilience as a common necessity when transitioning.

In Phase 1, responses were coded in four colors based on their relevance to the theoretical framework, Schlossberg's Transition Theory, that guides this research. However, I found it difficult to code responses in Phase 3 to differentiate between their situation and themselves. This will be later discussed in Chapter 5, but this is likely due to a combination of the organic nature of what came out of the peer mentor intervention, or not having questions in the Phase 3 interview guide. Thus, this section will combine these themes of situation and self.

Though there are similarities between the situations that each participant is in, it was a new situation for them to be paired with a peer to, ironically, also discuss their situation. Arnulfo began by telling me a bit about this new situation, in addition to providing feedback on the experience:

When in the world, you often choose your own mentors or mentees. This is usually based on who you get along with, who you look up to, etc. In this case, with an assigned mentor/mentee, it was essentially connecting once per week. So, it wasn't like seeing someone in the office or connecting on a personal level. However, all the weekly prompts were hit that the principal investigator encouraged, and it was nice to connect on similar situations regarding stresses at work, peers that cause issues, and more. I think it was a positive experience, and I would do it again.

Jesse went on to say:

I got a lot out of being paired with a peer mentor. It was good practice honestly and was helpful to discuss what it takes to be successful in our own situations. The most important thing was it was a space to do it in an honest and blunt manner; you really need an honest approach to these things. When peers talk about their academic experiences too, and what they're seeing, it really helps to tailor your own plan as you transition.

Though peers had differing experiences with their peer mentor, it was interesting to see the feedback they offered on how it helped them view themselves and their current situation.

Albert mentioned:

It was a limited experience, but I learned a lot about my peer mentor and his life. It was inspirational and humbling to meet someone who (essentially) completed a career in (a

similar field) and is swapping over to cybersecurity. I've worked in a (similar industry) for a while, and was trying multiple avenues to get into IT.

Albert went on to discuss his situation as it related to formal experience and how it relates to entry level fields and how long it takes to truly break into the industry. He also mentioned that seeing someone who had the willingness to make a current change to their situation was inspiring and made him want to do the same sooner rather than later.

Others, such as Vilma, simply stated that the peer mentor program helped them to feel more prepared for their current situation, which was trying to find a job in cybersecurity in general. Alyson, on the other hand, felt like the intervention was helpful but seemed a bit forced. She went on, however, to discuss how it helped to get a better framework around her current situation, in addition to encouraging thoughts surrounding women in the workforce (like herself) who are trying to break into the industry.

The view of self as it relates to participants' situation came up quite commonly towards the end of the interview guide in Phase 3. Responses were mixed on the efficacy of this intervention, which will be later discussed in Chapter 5 as we look to future research studies. One response that stood out regarding more advice to future veterans in transition was demonstrated by an unprompted discussion with Jesse:

Resiliency, resiliency, resiliency. They don't talk to veterans about the situation they're in regarding how they can struggle. You're told that you have all these transferable skills from the military to the civilian workforce, but it (just isn't true). Most vets have gone through two, three, or even four jobs before the right one works out... You must have a strong mind over resilience, and different types of failure hurt differently.

He went on to talk more about the importance of resilience for anyone who is actively transitioning out of the military, and he even went on to indicate a correlation between this and veteran mental health. He discussed how one can go from being used to a career in the military, which includes being a leader, confronting challenges, and so on. This theme was presented by multiple respondents, indicating that there seemed to be quite a difference between their life in the military versus transitioning.

Theme 8: Technical skills, mainly regarding information technology and cybersecurity, were brought up via probing questions as it relates to participants' perceived career readiness.

There was a consistent theme of discussing technical skills related to participants' transition into cybersecurity, regardless of the questions being primarily designed to discuss more of the soft skills, such as self-view and social support. Participants would bring up variables such as how difficult certain certification exams were, the quality of instruction in the CWCT program, and the time it took to study for certain industry-recognized tests that were relevant to the field.

Though not directly related to the research questions being addressed in this study, it was interesting to hear participants mention these variables. An assumption could be made that service members are engaged and taught via their time in uniform to look analytically at certain factors such as efficacy of instruction, material, and numerical labels on effectiveness; this could lead this population to inherently discuss topics unrelated to the interview guide questions that touch on those mentioned previously. Respondents discussed a variety of variables related to their content with the CWCT program in general, and for the sake of this study and given the IRB context at play, will not be discussed in detail; however, it is interesting to see that 6 out of 8 participants included a mention of their overall satisfaction and experience with the program,

aside from the research study, during Phase 3 interviews. This was of particular interest, as none of the questions directly addressed the specifics of their experience in this cybersecurity certification program.

Summary

Overall, it seems participants were most confident in their interview skills, followed by their resume, and comfortability with networking in the end. Much of the confidence in interview skills, in the words of the research participants, came from the fact that the military gave them the confidence to speak clearly in front of superiors. More can be extrapolated from this point, as service members are often given a myriad of difficult tasks, often with life-or-death situations in play, possibly increasing their resilience and comfortability with something like interviewing. However, it was a common theme that participants mentioned difficulty in translating their military skillsets into civilian-friendly verbiage.

Perhaps unique to this demographic, I found it more challenging to encourage participants to elaborate on certain questions. Though veterans are known for their confidence, they are also taught to speak in short, direct format. There could be a familiarity with presentation and communication skills that translates over to something like this interview, which could potentially present problems for them in job interviews.

Another common trend was for participants to mention that they felt confident in an interview itself, but not as confident in networking for a job they are interested in. This will be analyzed in Chapter 5 but may be related to participants' experience in the military; as previously mentioned, service members often have a rather clear path on how to get ahead in their organization. This can include going to a specific school that is required for the next promotion/rank, getting a passing or failing grade on their physical fitness test, and completing required training and schoolwork courses. In the civilian world, the idea of networking is much more complicated and convoluted than that which is

present in the United States Military. Overall, the idea of networking likely could be seen as rather foreign to someone who comes from such a vastly different organization as the United States Army.

Upon the conclusion of Phase 1, I also found it difficult to engage with all inquiry partners in a timely fashion. I believe much of this was due to the number of faculty and staff who work in the higher education space being involved as inquiry partners in a study that required the most feedback from them during the summer months. Nevertheless, inquiry partners were critical to the introduction of the intervention and much of its framework and instrumentation.

Lastly, the ability to schedule Phase 3 interviews was quite difficult. Though some of the participants were quick to schedule the time via Calendly, others took several days, even up to a couple of weeks, in their response. It was noted that military orders, moves, job changes, and a large hurricane were all variables that impacted the study in terms of the length of time it took to communicate with participants, reschedule, and so on. Looking back, researching transitioning veterans presents unique challenges from a logistical perspective, as there are many variables that can change rapidly, ultimately making it difficult to progress. Due to this, it took an additional three weeks to gather all Phase 3 data than originally anticipated, culminating with the last interview at the end of October 2024.

CHAPTER 5: SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

This final chapter explores further interpretations of the data collected in response to each of the main three research questions, including considerations for the theoretical framework that was utilized to design this study. In this discussion, I offer in-depth insights into what the data reveal about a peer mentor program intervention as these students are participating in a non-degree cybersecurity program. I end this chapter with several implications of the study, in addition to some of my own recommendations that could be used toward the direction of future studies or in general within the practice.

Summary of Findings

Non-degree student veterans gauged their preparedness to enter the workforce as being relatively prepared, but there were minor to moderate improvements in their self-assessment of networking, interviewing, and resume skills upon completion of Phase 3. Non-degree student veterans are aware of a variety of resources available to them, but they are often unsure of which ones to utilize, when they should use them, and which ones to prioritize. Consequently, resource utilization varied, as did the support structures that were in place, if any. Veterans had varied experiences in participating in a peer mentor initiative, though most of the feedback was positive, mainly pointing to having an ability to learn about resources, career progression, and often just to have someone to connect with who is going through a similar transition in life.

Limitations

Participants in this study had the flexibility of choosing which time of the week they met with their assigned peer mentors, and although they were encouraged to use Zoom or a phone call to connect, there was no way to verify that they acted on this recommendation. Additionally,

there was not a set amount of time that was required, but participants were encouraged to discuss the weekly prompts at a minimum, though further engagement was not discouraged. Some participants were actively deployed in time zones across the world and had other duties that could have created potential weakness or constraint in the data. Another limitation was that there was no incentive built into the coursework of the program to encourage participation in this study. This could have potentially yielded more research participants, in addition to having the ability to further structure the intervention.

Discussion

Interpretations of Research Question 1

How do non-degree student veterans gauge their preparedness to enter the workforce as they are studying cybersecurity and transitioning out of the military? It was clear from an analysis of the data collected in Phase 1 that the participants gauged their readiness differently, but none seemed to feel as though the military or the federal transition programs were enough to adequately prepare them for the workforce, much less for the field of cybersecurity. The theoretical framework utilized in this study, Schlossberg's Transition theory, categorizes transition by looking at self, situation, support, and strategies. In the review of literature (Chapter 2), we also saw that certain aspects of career readiness were important to gauge, including feelings toward their resume, interview skills, and networking ability. Though responses were mixed regarding preparedness self-rankings on their resume, ability to network, and interview, it did seem that participants perceived improvements on these variables as time went on in the study, in the CWCT program, and as they further transitioned into the civilian workforce. It was also apparent that participants had a view of *self* that focused on their status as a veteran.

This research population was required to be active or prior service members to be eligible for participation in the study, and it was brought up by all 8 participants that their perception of their transition was largely determined by their military life, situation, and skillset. This theme of self also arose from two participants who discussed how being a female impacted their transition, and both saw that this factor made it more difficult to not only land jobs, but to be successful in that environment once employed. Surprisingly, ego development and values were not largely discussed, although they are factors that are considered important in Schlossberg's transition theory. Values were discussed by all 8 participants as something that positively impacted their perceived career readiness, including discipline, resilience, service to country, determination, and discipline.

A theme that emerged as the research study progressed was the idea of technical skills, which encompasses general information technology skill sets. These technical skills could include the ability to program efficiently or to understand complex cybersecurity related matters, as well as participants' overall experience while being actively enrolled in a non-degree cybersecurity certification program. Research questions were not inherently designed to address these, and this study was not designed to critique or analyze the program for efficacy of these skills, but 5 out of 8 participants went on to discuss these variables as answers to how they perceived their career readiness. It can be reasonably assumed by the participants that much of this focus on skills was directly related to their time in uniform, as they made parallels to battle readiness, unit cohesion, and being effective at one's military occupational specialty based primarily on these hard skills.

Overall, participants seemed confident that, although there were aspects of their career readiness that clearly needed improvement, they would eventually be able to effectively navigate

the civilian workforce, including the ever-present, and often convoluted, realities of networking. To expand, and from my personal experience in the United States Military, there is little to no networking inherently present during one's time in service, and it is generally unnecessary to move one's way up through the ranks. As discussed previously, and as was mentioned by research participants themselves, the military often has a straightforward process of career advancement through the ranks, primarily related to time of service, physical fitness, exam scores, and additional schooling programs as requirements. The world of networking in the civilian workforce is quite different, and this was clearly the most common theme discussed by the participants, especially when given the opportunity to expand on open-ended questions. Researchers consider it to be inherent to the job search in the modern world, so it is important that participants be pushed to address their perceptions of their networking capabilities (Van Hoya, 2010).

Interpretations of Research Question 2

What resources do non-degree student veterans need to support their career preparedness? The literature discussed in Chapter 2 included some key requirements that student veterans need to support their career readiness, including support for mental health, an ability to network with peers, assistance with navigating their transition, and other similar variables. One theme that was apparent in breaking down this question had to do with understanding the support structures that were in place for each participant, and how these evolved and changed over time. Though quite subjective, it was apparent in the responses that those who had identified with or worked with a private, non-profit organization that assists veteran transition felt much more prepared to enter the workforce. Four participants participated in programs such as Hire Heroes USA, Hiring our Heroes, FourBlock, Skillbridge, and other similar programs that not only offer

internships and fellowships but also provide resume assistance, interview practice, and the most commonly cited variable discussed in this research: networking.

Another one of Schlossberg's "Four S's" is the idea of strategies that are in place to assist in a transition, including coping response, ways to control the means of a problem, and aiding in managing stress. At least 6 study participants noted mental health and stress from the military making it more difficult to successfully transition into the civilian workforce. It was often brought up by participants that it was much easier to be resilient when one is surrounded by peers who not only understand one's stressors, but who may be experiencing them personally, as well. Furthermore, those who felt successful in their journey offered unprompted advice to me as they were interviewed, including encouraging others to ensure they have not only a support structure but strategies to deal with stress. These include becoming more comfortable with rejection by being resilient when opportunities and jobs do not work out, finding ways to reduce stress when things are challenging, and more.

Interpretations of Research Question 3

How do veterans experience an initiative designed to enhance their career readiness?

As discussed previously in Chapter 2, some studies have shown the efficacy of implementing support programs. These include support programs, student veteran organizations, and traditional avenues of military academic advising. There is also a litany of non-profits that assist with similar career readiness matters, but it was noted in the literature review that many non-degree students may not have access to these programs. Though not as structured as Peer Advisors for Veteran Education (PAVE), previously discussed in Chapter 2, there were some similarities in how peers connected on a variety of subjects, including networking,

communication, and strategies (Kees et al., 2017). This program exists at forty universities and has been shown to improve the ability of student veterans to build a network of resources.

Participants offered varied responses regarding their experience in the peer mentor program intervention, which will be discussed in further detail in this chapter's section on recommendations for future research. Intentional pairings such as "battle buddies" have been utilized in the military to provide mutual support and to increase safety while in uniform (Ramsberger et al., 2002). All of this study's participants expressed in one form or another the fact that they were pleased to have participated in the experience, with five remarking that it would be beneficial to have something like this as part of other non-degree or non-traditional academic programs. I worried that there might be reluctance to participate in this program when I began the study, but it appeared to have been taken graciously and even with some form of excitement during Phase 1 when I discussed their participation in an intervention. According to one study, veterans primarily need assistance with navigating specific health services and employment resources (Van Slyke & Armstrong, 2019). Based on the data presented in Chapter 4, it can be reasonably assumed that participants had not been a part of a peer mentor program like the "battle buddies" intervention, although several had mentors who counseled them on their transition.

Interestingly, the themes of support, self, situation, and structure were illuminated during this part of the study, and it seems as though participants were eager to be able to connect with someone who was in a similar situation – a form of solidarity between fellow service members transitioning or recently transitioned from the military and trying to either obtain a job in cybersecurity or upskill in their current role. Further, it is worth noting that they received a sense of validation from discussing challenges with one another each week. Of significance, two

participants even said that their experience in the peer mentor program gave them confidence to continue their journey with the comforting knowledge that others are facing similar challenges. I don't believe the intervention was detailed or long enough to have formulated a sense of new support structure, but I am hopeful that participants who mentioned they wished to stay in contact with their peers will, indeed, maintain a line of communication. As documented in other research, student veterans often feel less isolated and more comfortable in the company of peers who also served in uniform (Rumann et al., 2011).

In pairs, it was also discussed that there is a relative level of difficulty in studying this specific field, and obtaining certifications that are industry recognized can be very expensive, difficult, and require a large amount of time to study for. Though no specific strategies were mentioned to me when probing them, participants continued to mention that it was beneficial to hear what others' experiences were with specific certifications and exams, and it was good for them to be able to connect with someone with whom they otherwise might not have been able to share their experiences. At the crux of this study's methodological design, I noted that there were few to no opportunities to cross-research similar peer mentor programs in non-degree certification programs.

Of interest, mental health was briefly discussed by participants, although it was not specifically a prompt or part of the thematic structure of the intervention. It has been shown in numerous studies that veterans experience unique mental health issues, so it is not necessarily surprising that this emerged as a topic of conversation.

Although there are few data on how a peer mentor intervention has been utilized in other similar programs, this study may serve as a starting point to see how these programs can evolve. It was even noted by inquiry partners that it may be beneficial to the participants if the process is

not overwhelmed by too many prompts and tasks, especially given the varied schedules, family obligations, and occupational and military duties of the participants in this study. The literature in Chapter 2 shows that peer mentor programs can be beneficial to overall career readiness for students who participate in them (Donald et al., 2017).

Implications for Practice

In the present study, I sought to design, implement, and assess the impact of a peer mentor program intervention on military veterans and service members actively enrolled in the Cybersecurity Workforce Certification Training program, a non-degree cybersecurity program that offers asynchronous and synchronous learning via a consortium of four public universities. This study was also designed through the lens of Schlossberg's Transition Theory and sought to evaluate the perceived career readiness of each participant in each research phase, focused on four main themes of support structure, self, strategies, and their situations. Although other themes emerged over the course of the study, it sought primarily to establish a baseline understanding of where these student veterans are in their transition, including their perceived confidence in certain employability marks like their resume, interview skills, and networking abilities. To quote one of the participants, "it's like drinking out of a firehose" to navigate the complexities of military transition, the machinations of networking, and the challenges of securing employment in the cybersecurity field.

Based on the evidence of the present study, it seems that there are advantages to encouraging participants in these programs to self-assess their perceived readiness and discuss the programs and strategies they have utilized, with an eye toward pairing them with another participant experiencing a similar situation. The end goal of obtaining a good job can often mask or hinder the ability to reflect on areas of opportunity and even find strategies to cope with stress

and mental health. The mission of institutions of higher education is partially to equip students with knowledge and skills to be productive members of society or a chosen field, but it should also be a place to encourage reflection on qualitative aspects of transition, especially in a world where there is a constant push for more virtual learning options and more non-degree programs to meet the needs of a workforce that is slowly changing its perception of the old fashioned “bachelor’s degree required” for many jobs.

Implications for the Workforce/Field

As noted in Chapter 1, the cybersecurity and IT job markets will continue to expand. If veterans are considered desirable candidates for these jobs based on the need for skilled professionals in the defense and contracting sector, coupled with appropriate clearances from the Department of Defense, it makes economic sense to look at the transition-related variables addressed in this study (Bell, 2018). I mentioned earlier in this study that I transitioned from the United States Military, but I also went to a small, liberal arts college that had a dedicated VA representative, a veteran’s service office, and other support services. This included having someone to assist with my resume, conduct practice interviews, obtain a free suit for interviews, and arrange seminar/internship opportunities. In the world of non-degree certification programs, these services are not typically available for students who are considered non-degree seeking. This creates a need to study this demographic, especially given the likelihood that more non-degree seeking students will enter the education pipeline in the coming years. All of the participants in this study, moreover, suggested that they did not have much of an opportunity to engage with their peers in a program such as this, further implying the need to explore the efficacy of additional interventions being inserted into non-degree programs.

Recommendations for Practice

In addition to disseminating findings to better understand the perceived career readiness of non-degree certificate-seeking students, the findings presented herein provide insight into how transition from the military to the civilian workforce has unique challenges, and how that intertwines with ways to analyze transition through the lens of a peer mentor program.

Participants consistently referenced the lack of engagement and connection with their peers when studying in a non-degree program such as this, especially given the virtual nature of the course content. As we discussed previously, degree-seeking students often have access to resources that non-degree-seeking students may not, including, but not limited to, veteran resource centers, career centers, workshops, and peer mentor programs.

By gauging students' perceived career readiness in Phase 1, followed by the peer mentor program intervention in Phase 2, and ultimately studying the effects of that intervention in Phase 3, we have seen a profound impact of connecting students with one another who have similar challenges. The added support of the peer mentor program proved advantageous, even if merely providing insight to some peers on different resources that they can obtain, additional certifications that could be beneficial in their job hunt, and even strategies that can be used to deal with challenges that are presented. Through the lens of Schlossberg's Transition Theory, program directors and managers can encourage student veterans to think about their career readiness, which can lead to higher actual readiness through the pairing of peers and the development of relational trust between them. Future practice can incorporate this concept to foster learning and growth within an academic program and can branch out to begin to understand how to improve skills, such as networking or interviewing.

The present study is one of the first to contribute to the research space of veteran career readiness and transition within the realm of non-degree certificate programs. The study also contributes to the research field of synchronous and asynchronous cybersecurity programs, which have been shown to increase in need given labor market changes and demands (Demeter & Kovari, 2024). This study examined how participants perceived their own career readiness and sought to understand how this can develop over time with and without the experience of a peer mentor program/intervention. This mixed methods case study design allowed for an in-depth look at these factors, while also providing room for additional prompts, probing questions, and open-ended responses.

In the interest of continuous improvement, the peer mentor program could be formatted differently in the future. Partially due to feedback from inquiry partners, the peer mentor program was deliberately under-engineered, allowing participants to engage with their peers in a manner that was suitable for their schedules and life. Given the unique demographics of this population, inquiry partners encouraged a less formal approach to the mentor program; thus, I opted to send weekly prompts to participants to encourage a discussion based largely on the theoretical framework, Schlossberg's Transition Theory, that guided this study. I recommend that in future practice the peer mentor program be more heavily moderated and intentionally designed, possibly with set times for participants to meet, weekly feedback sessions with the principal investigator, or other variables to encourage participation. Although all peers participated with one another, the degree to which this occurred varied. This provided interesting research; however, even two participants mentioned that the program could have been designed more deliberately.

Recommendations for Future Research

For future studies, I would recommend expanding to look at different institutions or at other non-degree programs that are offered. Since this program was rather unique given its status as a consortium-based, federally funded program, it would be beneficial to look at other certification programs that assist veterans in acquiring cyber and IT skills. Possibly the most beneficial recommendation for future research would be to utilize a longitudinal study to see how the effects of a peer mentor program or intervention impact the students. To elaborate, a study that follows students from application to degree or program completion could yield superior data, giving participants more time to connect, grow in their career readiness skills, and progress through their transition. Unique to this population, transition out of the military can often take months, if not years, so a longer study would be beneficial. Lastly, I recommend that future studies consider broadening the scope of certification programs to also look at degree-seeking student veterans who are engaged in virtual/online coursework. Although they would be degree-seeking and thus eligible for more student services, it's possible that the status of being online learners could prove to have an impact on career readiness and transition. Lastly, it could be beneficial to utilize trained mentors who have gone through some sort of programming to be paired with participants of a similar program.

Growth as a Scholarly Practitioner

The largest portion of growth that I experienced as a researcher on this study was understanding not only how important qualitative data can be, but also how difficult it can be to do it. At first glance, a study based on perceptions and experiences, with limited quantitative data, seems rather simple. Although probing questions proved to be an effective way to gather more information from participants, it was often unnerving to go against the interview guide

whilst still maintaining fidelity to the original line of questioning. My ability to navigate a myriad of resources has grown exponentially by writing my dissertation, including my ability to translate minimal research on other subjects into a relevant review in Chapter 2.

I think I grew as a person, too, by going through this study. Not only did the participants have a variety of life experiences, but it was also humbling to hear the sacrifices these veterans made. Further, they were encountering a new challenge altogether as part of their journey attempting to transition into cybersecurity, which helped me to think differently about what my own career has in store as things change once again. Overall, I also learned how to truly enjoy practicing and writing research, although it was a rather long endeavor.

Summary and Conclusions

Student veterans who are actively transitioning out of the military, or who have recently transitioned, are presented with unique challenges. These can include difficulty translating military skill sets to the civilian workforce, relocation, difficulty navigating veteran resources, adjusting to the world of higher education, being successful in virtual courses, and improving career readiness skills. These can include resume building, interview preparation, networking, and more, on top of their already unique challenges when transitioning. Further, non-degree certification programs such as the one in the present study are increasing in terms of opportunities and popularity at institutions, and it is reasonable to expect programs such as these to continue to expand to meet the labor market demands. For fields such as cybersecurity, populations like veterans make suitable candidates for many roles, especially given their ability to work with technology, their discipline, security clearances, and familiarity with security concepts in general.

This study also supports previous literature and research that argue career readiness and development can be improved via certain forms of programming. Additionally, the literature shows us that veterans experience unique challenges in their transition from the military to the civilian workforce, which was further demonstrated in participants' responses. Student veterans need to feel as though they are not only progressing in their studies, but also giving back (Jenner, 2019). They can be less likely to engage in on-campus traditional programs, and that is before one even considers the nature of non-degree programming (Kim & Cole, 2013). Peer support programs can be beneficial, and with proof that transition is already difficult for the veteran community, more can be done (Brandy, 2019).

To meet the needs of this population, institutions of higher education need to take into consideration the unique challenges presented with this population and develop programs that can address these needs in non-degree programs, not just for those in traditional degree-seeking, on-campus programs. For many of the participants, this was one of the first times they had been questioned and challenged on their current state of readiness, and introducing peer mentors continued to encourage them to take a step back and assess their status as it relates to the markers required for success in the civilian workforce.

This dissertation sought to provide insight into the student veteran experience while enrolled in a non-degree, virtual cybersecurity program as they transition out of the military. It captured the skills that veterans uniquely have from their time in service, the skills that they inherently struggle with considering the nature of military service, and the variables they sought to improve on. The motivation of the students in this study, and the motivation of many others with whom I have worked in this space, is inspiring; in addition, their commitment to service, family, and their country is admirable. Nevertheless, universities still need to continue to look to

better prepare this population for transition into the civilian workforce, as opposed to merely looking at ways to quickly train a high-need population for jobs they may not be ready to obtain without proper coaching, resources, and soft skills building.

REFERENCES

- Act Now Education. (2023, September). <https://actnoweducation.org>
- Allen, K. A., Kern, M. L., Rozek, C. S., McInerney, D. M., & Slavich, G. M. (2021). Belonging: A review of conceptual issues, an integrative framework, and directions for future research. *Australian Journal of Psychology*, 73(1), 87-102.
<https://doi.org/10.1080/00049530.2021.1883409>
- Alschuler, M., & Yarab, J. (2016). Preventing student veteran attrition: What more can we do? *Journal of College Student Retention: Research, Theory & Practice*, 20(1).
<https://journals.sagepub.com/doi/abs/10.1177/1521025116646382>
- Asoni, A., Gilli, A., Gilli, M., & Sanandaji, T. (2022). A mercenary army of the poor? Technological change and the demographic composition of the post-9/11 U.S. military. *Journal of Strategic Studies*, 45(4), 568-614. doi:10.1080/01402390.2019.1692660
- Ansmann, L., Flickinger, S., Barelo, S., Kunneman, S., Mantwill, S., Quilligan, S., Zanini, C., & Aelbrecht, K. (2014). Career development for early career academics: Benefits of networking and the role of professional societies. *Patient Education and Counseling*, 97(1), 132-134.
- Armitage, W. D., Gauvin, W., & Sheffield, A. (2016). Design and launch of an intensive cybersecurity program for military veterans. *Proceedings of the 17th Annual Conference on Information Technology Education*, 40-45.
<https://dl.acm.org/doi/abs/10.1145/2978192.2978233>

- Aronson, K. R., Perkins, D. F., Morgan, N. R., Bleser, J. A., Vogt, D., Copeland, L., Finley, E., & Gilman, C. (2019, July). Post 9/11 veteran transitions to civilian life: Predictors of the use of employment programs. *Journal of Veteran Studies*, 5(1), 14-22.
doi:10.21061/jvs.v5i1.127
<https://journal-veterans-studies.org/articles/10.21061/jvs.v5i1.127/>
- Basak, S. K., Wotto, M., & Bélanger, P. (2018, July). E-learning, M-learning, and D-learning: Conceptual definition and comparative analysis. *E-Learning and Digital Media*, 15(4).
<https://journals.sagepub.com/doi/full/10.1177/2042753018785180>
- Bassindale, T., LeSuer, R., & Smith, D. (2021). Perceptions of a program approach to virtual laboratory provision for analytical and bioanalytical sciences. *The Journal of Forensic Science Education*, 3(1). <https://shura.shu.ac.uk/28701/>
- Bell, S. (2018, October). *Cybersecurity is not just a “big business” issue*. Informit; Governance Directions. <https://search.informit.org/doi/abs/10.3316/informit.148981996216030>
- Blackwell-Starnes, K. (2018). At ease: Developing veterans’ sense of belonging in the college classroom. *Journal of Veterans Studies*, 3(1), 18-36.
- Brandy, J. (2019). Student veterans in transition: The impact of peer community. *Journal of the First Year Experience & Students in Transition*, 31(1), 69-83.
<https://www.ingentaconnect.com/content/fyesit/fyesit/2019/00000031/00000001/art00004>
- Buchanan, L., Scarlatos, L., & Telendii, N. (2021). Curriculum to broaden participation in cybersecurity for middle school teachers and students. *2021 IEEE Integrated STEM Education Conference*. doi:10.1109/ISEC52395.2021.9763930
<https://ieeexplore.ieee.org/abstract/document/9763930>

- Bureau of Labor Statistics. (2021). Employment situations of veterans-2021. *U.S. Department of Labor*. Employment Situation of Veterans - 2021 (bls.gov)
- Buzzetta, M. E., Lenz, J. G., Hayden, S. C. W., & Osborn, D. S. (2020). Student veterans: Meaning in life, negative career thoughts, and depression. *The Career Development Quarterly*, 68, 361-373. <https://doi.org/10.1002/cdq.12242>
- Cains, M. G., Flora, L., Taber, D., King, Z., & Henshel, D. S. (2022). Defining cyber security and cyber security risk within a multidisciplinary context using expert elicitation. *Risk Analysis*, 42, 1,643-1,669. <https://doi.org/10.1111/risa.13687>
- Camara, W. (2013). Defining and measure college and career readiness: A validation framework. *Educational Measurement: Issues and Practice*, 32(4), 16-27.
https://onlinelibrary.wiley.com/doi/full/10.1111/emip.12016?saml_referrer
- Carliner, S. (2004). *An overview of online learning*.
https://books.google.com/books?hl=en&lr=&id=cVzE-cy4GxkC&oi=fnd&pg=PR7&dq=carliner+an+overview+of+online+learning&ots=JslZaD_mI3&sig=xTy6b06mSf2NcdU9X7zDpFubtp0#v=onepage&q=carliner%20an%20overview%20of%20online%20learning&f=false
- Cellini, S. (2021). Student learning in online college programs. *AERA Open*.
<https://journals.sagepub.com/doi/full/10.1177/23328584211008105>
- Certification Magazine. (2015, November 18). Salary survey PLUS: Cybersecurity certs = big money. Certification Magazine: <http://certmag.com/salary-survey-plus-cybersecuritycerts-big-money>
- Check, J., & Schutt, R. (2012). *Research methods in education*. Sage Publications.

- Clark, D., & Berson, T. (2014). *Committee on developing a cybersecurity primer: Leveraging two decades of national academic work, Computer Science and Telecommunications Board, & National Research Council. At the nexus of cybersecurity and public policy: Some basic concepts and issues*. National Academies Press.
<https://pubmed.ncbi.nlm.nih.gov/25057698>
- Clearance Jobs. (2022, June). North Carolina Jobs. <https://www.clearancejobs.com/jobs/north-carolina>
- Conley, D. (2012). A complete definition of college and career readiness. *Educational Policy Improvement Center*. <https://eric.ed.gov/?id=ED537876>
- Crumpler, W., & Lewis, J. (2019). The cybersecurity workforce gap. *Center for Strategic and International Studies*. http://csis-website-prod.s3.amazonaws.com/s3fs-public/publication/190129_Crumpler_Cybersecurity_FINAL.pdf
- Cyberseek. (2023, September). <https://cyberseek.org>
- Cybersecurity Workforce Certificate Training (CWCT). (2023, September).
<https://www.pnw.edu/cybersecurity/cwct/>
- Davis, J., Wolff, H. G., Forret, M. L., & Sullivan, S. E. (2020). Networking via LinkedIn: An examination of usage and career benefits. *Journal of Vocational Behavior*, 118, 103-396.
- Delialioglu, O., Cakir, H., Bichelmeyer, B. A., Dennis, A. R., & Duffy, T. M. (2010, April). Factors impacting adult learner achievement in a technology certificate program on computer networks. *Turkish Online Journal of Educational Technology*, 9(2), 97-107.
<https://eric.ed.gov/?id=EJ898007>
- DeVilbiss, C., Rice, V. J., Laws, L., & Alfred, P. (2010). If you want to know why students fail, just ask them. *U.S. Army Medical Department Journal*.

- Dennis, A. R., Duffy, T. M., & Cakir, H. (2010). IT programs in high schools: Lessons from the Cisco Networking Academy program. *Communications of the ACM*, 53(7), 138-141.
<https://dl.acm.org/doi/abs/10.1145/1785414.1785452>
- Dillard, R., & Yu, H. (2018). Best practices in student veteran education: Faculty professional development and student veteran success. *Journal of Continuing Higher Education*, 6(2), 122-128. <https://eric.ed.gov/?id=EJ1188616>
- Dillman, D., & Smyth, J. (2014). *Internet, phone, mail, and mixed-mode surveys: The tailored design method*. John Wiley & Sons, Inc.
- DiRamio, D., Ackerman, R., & Mitchell, R. L. (2008). From combat to campus: Voices of student-veterans. *NASPA Journal*, 45, 73-102.
- DiRamio, D., & Jarvis, K. (2011). Special issue: Veterans in higher education—When Johnny and Jane come marching to campus. *ASHE Higher Education Report*, 37, 1-144.
- Dodd, V., Hanson, J., & Hooley, T. (2022). Increasing students' career readiness through career guidance: Measuring the impact with a validated measure. *British Journal of Guidance & Counselling*, 50(2), 260-272.
- Donald, W., Baruch, Y., & Ashleigh, M. (2017). Boundaryless and protean career orientation: A multitude of pathways to graduate employability. *Graduate Employability in Context: Theory, Research and Debate*, 129-150.
- Dougherty, S. M., & Lombardi, A. R. (2016). From vocational education to career readiness: The ongoing work of linking education and the labor market. *Review of Research in Education*, 40(1), 326-355.

- Eagle, D. R., Iwanaga, K., Kaya, C., Muller, V., Lee, B., Rumrill, S., Chiu, C. Y., Tansey, T. N., & Chan, F. (2022). Assessing self-stigma of help-seeking in student veterans: A psychometric validation study. *Journal of College Student Psychotherapy*, 36(3), 226-240. <https://doi.org/10.1080/87568225.2020.1806163>
- Eakman, A. M., Kinney, A. R., Schierl, M. L., & Henry, K. L. (2019, May). Academic performance in student service members/veterans: Effects of instructor autonomy support, academic self-efficacy and academic problems. *Educational Psychology*, 39(8), 1,005-1,026. <https://www.tandfonline.com/doi/citedby/10.1080/01443410.2019.1605048?scroll=top&needAccess=true>
- Estrada, A. (2013). Gays in the U.S. military: Reviewing research and conceptualizing a way forward. *Journal of Homosexuality*, 60(2-3), 327-355. <https://www.tandfonline.com/doi/full/10.1080/00918369.2013.744676>
- Evans, N. J., Pascarella, E. T., & Terenzini, P. T. (1998). *Student development in college: Theory, research, and practice*. Jossey-Bass.
- Finch, A., Burrell, D. N., Lu, S., Dawson, M., Springs, D., Bilberry, K., Anderson, D. P., & Modeste, R. (2020). Cybersecurity workforce development in minority, low income, and Native American Reservation communities. *International Journal of Smart Education and Urban Society (IJSEUS)*, 11(4), 35-52. <http://doi.org/10.4018/IJSEUS.2020100103>
- Fincher, R. M. E., Sykes-Brown, W., & Allen-Noble, R. (2002). Health science learning academy: a successful “pipeline” educational program for high school students. *Academic Medicine*, 77(7), 737-738.
- FourBlock Foundation. (2023, September). <https://fourblock.org>

- García-Morales, V. J., Garrido-Moreno, A., & Martín-Rojas, R. (2021). The transformation of higher education after the COVID disruption: Emerging challenges in an online learning scenario. *Organizational Psychology*, 12(1).
<https://www.frontiersin.org/articles/10.3389/fpsyg.2021.616059/full>
- Gelinas, L. (2017). Using social media as a research recruitment tool: Ethical issues and recommendations. *The American Journal of Bioethics*, 17(3), 3-14.
<https://www.tandfonline.com/doi/abs/10.1080/15265161.2016.1276644>
- Ghosh, A., Kessler, M., Heyrman, K., Opelt, B., Carbonelli, M., & Fouad, N. A. (2019, December). Student veteran career transition readiness, career adaptability, and academic and life satisfaction. *The Career Development Quarterly*, 67(4), 365-371.
<https://onlinelibrary.wiley.com/doi/abs/10.1002/cdq.12205>
- Ghosh, A., Santana, M. C., & Fox, T. D. (2021). The Role of Military Culture in Therapy and Prevention: Training Recommendations for University and College Counseling Centers. *Journal of College Student Psychotherapy*, 35(4), 393-405.
- Gibson, C., Hardy, III, J. H., & Buckley, M. R. (2014). *Understanding the role of networking in organizations*. Career Development International.
<https://www.emerald.com/insight/content/doi/10.1108/CDI-09-2013-0111/full/html>
- González-Manzano, L., & de Fuentes, J. M. (2019). Design recommendations for online cybersecurity courses. *Computers & Security*, 80, 238–256.
<https://doi.org/10.1016/j.cose.2018.09.009>
- Gopalan, M., & Brady, S. T. (2019). College students' sense of belonging: A national perspective. *Educational Researcher*, 49(2).
<https://journals.sagepub.com/doi/abs/10.3102/0013189X19897622>

- Griffin, A., & Gilbert, K. (2015). Better transitions for troops: An application of Schlossberg's transition framework to analyses of barriers and institutional support structures for student veterans. *The Journal of Higher Education*, 86(1), 71-97.
https://www.tandfonline.com/doi/abs/10.1080/00221546.2015.11777357?casa_token=tdpvjgW4mYwAAAAA:8ikkzPGfWFAdHT0BDJmUMm9VQdBRYUctnOVsNHQwOr3q-EiiQ9jdiKUU8tQqBmKyaTAV5ghcahU3
- Harris, C. C. (2020). *Veterans affairs: VA needs to address persistent IT modernization cybersecurity challenges*. United States Government, Government Accountability Office.
<https://www.hsdl.org/c/abstract/?docid=844336>
- Hoge, C. W., Auchterlonie, J. L., & Milliken, C. S. (2006). Mental health problems, use of mental health services, and attrition from military service after returning from deployment to Iraq or Afghanistan. *Jama*, 295(9), 1,023-1,032.
<https://jamanetwork.com/journals/jama/article-abstract/202463>
- Hubspot. (2023, October). <https://continuingstudies.wisc.edu/blog/networking-key-to-successful-job-search/#:~:text=According%20to%20HubSpot%2C%2085%20percent,mean%20putting%20yourself%20out%20there.>
- Hurlbut, A. (2018). Online vs. traditional learning in teaching education: A comparison of student progress. *American Journal of Distance Education*, 32(4), 246-266.
<https://www.tandfonline.com/doi/abs/10.1080/08923647.2018.1509265>
- Inoue, C., Shawler, E., Jordan, C. H., & Jackson, C. A. (2021). *Veteran and military mental health issues*. <https://europepmc.org/article/NBK/nbk572092>

- James, J. E., & Callen, J. (2018). Cybersecurity certifications matter. *Issues in Information Systems, 19*(3).
- Janesick, V. J., & Peer, D. (2015). *The Blackwell encyclopedia of sociology*.
<https://onlinelibrary.wiley.com/doi/abs/10.1002/9781405165518.wbeosp014.pub2>
- Jenner, B. (2019). Student veterans in transition: The impact of peer community. *Journal of The First-Year Experience & Students in Transition, 31*(1), 69-83.
- Jin, G., Tu, M., Kim, T. H., Heffron, J., & White, J. (2018, February). Game based cybersecurity training for high school students. In *Proceedings of the 49th ACM Technical Symposium on Computer Science Education* (pp. 68-73).
- Johnson, K. (2023). *Faculty development for online teaching. Research anthology on remote teaching and learning and the future of online education*.
https://www.researchgate.net/publication/364145556_Faculty_Development_for_Online_Teaching
- Johnson, C. C., Walton, J. B., Strickler, L., & Elliott, J. B. (2023). Online teaching in K-12 education in the United States: A systematic review. *Review of Educational Research, 93*(3), 353-411. <https://doi.org/10.3102/00346543221105550>
- Keeling, M. (2018). Stories of transition: U.S. veterans' narratives of transition to civilian life and the important role of identity. *Journal of Military, Veteran and Family Health, 4*(2), 28-36.
- Keenan, M. J., Lumley, V. A., & Schneider, R. B. (2014). A group therapy approach to treating combat posttraumatic stress disorder: Interpersonal reconnection through letter writing. *Psychotherapy, 51*(4), 546.

- Kees, M., Risk, B., Meadowbrooke, C., Nellett, T., & Spinner, J. (2017, August). Peer Advisors in Veteran Education (PAVE): Implementing a sustainable peer support program for student veterans on college campuses. *Student Peer Mentoring*, 28(3).
<https://journals.iupui.edu/index.php/muj/article/view/21541>
- Kelley, B. C., Smith, J. M., & Fox, E. L. (2013). *Preparing your campus for veterans' SUCCESS: An integrated approach to facilitating the transition and persistence of our military students*. Taylor & Francis.
- Khonji, M., Iraqui, Y., & Jones, A. (2020). Phishing detection: A literature survey. *IEE Communications Surveys and Tutorials*, 15(4), 2,091-2,121.
<https://ieeexplore.ieee.org/abstract/document/6497928>
- Kim, Y. M., & Cole, J. S. (2013). *Student veterans/service members' engagement in college and university life and education*. National Survey of Student Engagement.
<https://vtechworks.lib.vt.edu/bitstream/handle/10919/97817/StudentVeteransEngagement.pdf?sequence=1>
- Kirchner, M. J. (2015). Supporting student veteran transition to college and academic success. *Adult Learning*, 26(3), 116–123. <https://doi.org/10.1177/1045159515583813>
- Kiselev, B., & Yakutenko, V. (2020). An overview of massive open online course platforms: Personalization and semantic web technologies and standards. *Procedia Computer Science*, 169, 373-379.
<https://www.sciencedirect.com/science/article/pii/S1877050920303550>
- Kralik, D. (2006). Transition: A literature review. *Leading Global Nursing Research*, 55(3), 320-329. <https://onlinelibrary.wiley.com/doi/full/10.1111/j.1365-2648.2006.03899.x>

- Kramer, S., & Bradfield, J. (2010). A general definition of malware. *Journal in Computer Virology*, 6, 105-114. <https://link.springer.com/article/10.1007/s11416-009-0137-1>
- Krauth, B. (2004). A dynamic model of job networking and social influences on employment. *Journal of Economic Dynamics and Control*, 28, 1,185-1,204.
- Levy, Y., & Carlton, M. (2015). Expert assessment of the top platform independent cybersecurity skills for non-IT professionals. *SoutheastCon*, 2015. <https://ieeexplore.ieee.org/abstract/document/7132932>
- Littenberg-Tobias, J. (2020). Evaluating access, quality, and equity in online learning: A case study of a MOOC-based blended professional degree program. *The Internet and Higher Education*, 47. <https://www.sciencedirect.com/science/article/abs/pii/S109675162030035X>
- Lutz, A. (2008). Who joins the military? A look at race, class, and immigration status. *Journal of Political & Military Sociology*, 36(2), 167-188. <https://www.jstor.org/stable/45292868?seq=20>
- Lyon, G. H., Jafri, J., & St Louis, K. (2012). Beyond the pipeline: STEM pathways for youth development. *Afterschool Matters*, 16, 48-57.
- MacRae, D., Jara, M. R., Tyerman, J., & Luctkar-Flude, M. (2021). Investing in engagement: Integrating virtual learning experiences across an undergraduate nursing program. *Clinical Simulation in Nursing*, 52, 17-32. <https://www.sciencedirect.com/science/article/abs/pii/S1876139920301146>
- Megri, A. C., Hamoush, S., Megri, I. Z., & Yu, Y. (2021). Advanced manufacturing online STEM education pipeline for early-college and high school students. *Journal of Online Engineering Education*, 12(2), 01-06.

- Mishkind, A. (2014). *Overview: State definitions of college and career readiness*. College and Career Readiness and Success Center. <https://eric.ed.gov/?id=ED555670>
- Mitchell, B., Sarfati, D., & Stewart, M. (2021, February). COVID-19 and beyond: A prototype for remote/virtual social Work field placement. *Clinical Social Work Journal*, 50, 3-10. <https://link.springer.com/article/10.1007/s10615-021-00788-x>
- Moore, J. L., Dickson-Deane, C., & Gaylen, K. (2011). E-learning, online learning, and distance learning environments: Are they the same? *The Internet and Higher Education*, 14(2), 129-135. <https://www.sciencedirect.com/science/article/abs/pii/S1096751610000886>
- Morissette, S. B., Ryan-Gonzalez, C., Yufik, T., DeBeer, B. B., Kimbrel, N. A., Sorrells, A. M., Holleran-Steiker, L., Penk, W. E., Gulliver, S. B., & Meyer, E. C. (2020). The effects of posttraumatic stress disorder symptoms on educational functioning in student veterans. *Psychological Services*, 18(1), 124-133. <https://psycnet.apa.org/record/2019-32075-001>
- National Center for Education Statistics. (2020). The Condition of Education 2020 (NCES 2020-488rev). <https://nces.ed.gov/pubs2020/2020488rev.pdf>
- National Initiative for Cybersecurity Career and Studies. (2023, July). <https://niccs.cisa.gov/>
- National Association of Student Personnel Administrators. (2013). *Measuring the success of student veterans and active duty military students*. http://www.naspa.org/images/uploads/main/NASPA_vets_13%281%29.pdf
- Nurse, J. R. C., Adamos, Konstantinos, Grammatopoulos, Athanasios, Di Franco, & Fabio (2021). *Addressing the EU cybersecurity skills shortage and gap through higher education*. European Union Agency for Cybersecurity. <https://kar.kent.ac.uk/91977/>

- O'Herrin, E. (2011, Winter). Enhancing veteran success in higher education. *Association of American Colleges and Universities, Peer Review*, 13(1).
<https://go.gale.com/ps/i.do?id=GALE%7CA273081363&sid=googleScholar&v=2.1&it=r&linkaccess=abs&issn=15411389&p=AONE&sw=w&userGroupName=anon%7E8684b802>
- Ortiz, P., Breton, K., Duncan-Poitier, J., Groome, M., Lansing, J., Matias, A., ... & Wortel, S. (2013). Developing a collaboration in New York State to improve the STEM-pipeline.
https://faseb.onlinelibrary.wiley.com/doi/10.1096/fasebj.27.1_supplement.838.10
- Pailen, L. (2017). *The cybersecurity enhanced learning model*. International Conference on e-Learning, e-Business, Enterprise Information Systems, and e-Government.
<https://www.proquest.com/docview/2140023654?pq-origsite=gscholar&fromopenview=true>
- Patel, M. X., Doku, V., & Tennakoon, L. (2018, January). *Challenges in recruitment of research participants*. *Advances in Psychiatric Treatment*. 9(3), 220-238.
<https://www.cambridge.org/core/journals/advances-in-psychiatric-treatment/article/challenges-in-recruitment-of-research-participants/F0F19F5A888AD6382D55797F605B6099>
- Pedersen, E. R., Naranjo, D., & Marshall, G. N. (2017). Recruitment and retention of young adult veteran drinkers using Facebook. *PLoS One*, 12(3), e0172972.
- Peslak, A. (2019). What is cybersecurity and what cybersecurity skills are employers seeking. *Issues in Information Systems*, 20(2), 62-72.
https://iacis.org/iis/2019/2_iis_2019_62-72.pdf
- Pew Research Center. (2023, August). <https://www.pewresearch.org/>

- Ramsberger, P. F., Legree, P., & Mills, L. (2002). Evaluation of the buddy team assignment program. *United States Army Research Institute for the Behavioral and Social Sciences*.
<https://apps.dtic.mil/sti/citations/ADA408486>
- Rattray, N. A., True, G., Natividad, D. M., Salyers, M. P., Frankel, R. M., & Kukla, M. (2019). The long and winding road to postsecondary education for US veterans with invisible injuries. *Psychiatric Rehabilitation Journal*, 42(3), 284.
- Resick, P. A., Wachen, J. S., Dondanville, K. A., Pruiksma, K. E., Yarvis, J. S., Peterson, A. L., ... & Strong Star Consortium. (2017). Effect of group vs individual cognitive processing therapy in active-duty military seeking treatment for posttraumatic stress disorder: A randomized clinical trial. *JAMA Psychiatry*, 74(1), 28-36.
<https://jamanetwork.com/journals/jamapsychiatry/article-abstract/2587076>
- Reyes, A. T., Bhatta, T. R., Muthukumar, V., & Gangozo, W. J. (2020). Testing the acceptability and initial efficacy of a smartphone-app mindfulness intervention for college student veterans with PTSD. *Archives of Psychiatric Nursing*, 34(2), 58-66.
<https://www.sciencedirect.com/science/article/abs/pii/S0883941719305072>
- Rumann C., Rivera, M., & Hernandez, I. (2011). Student veterans and community colleges. *New Directions for Community Colleges*, 2011(155), 51-58.
- Ryan, S. W., Carlstrom, A. H., Hughey, K. F., & Harris, B. S. (2011, March). From boots to books: Applying Schlossberg's Model to transitioning American veterans. *The Journal of National Academic Advising*, 31(1), 55-63. <https://meridian.allenpress.com/nacada-journal/article/31/1/55/36316/From-Boots-to-Books-Appling-Schlossberg-s-Model>
- Saldaña, J. (2016). *The coding manual for qualitative researchers*. Sage Publications Inc.
- Salmon, G. (2013). *E-tivities: The key to active online learning*. Routledge.

- Schreiner, L. A., & Longman, K. A. (2012). Learning by design: Positive. *Concepts & Connections*, 10
- Schlossberg, N. K., Lynch, A. Q., & Chickering, A. W. (1989). Improving higher education environments for adults: Responsive programs and services from entry to departure. San Francisco, CA: Jossey-Bass
- Schnoebelen A. (2013). Group offers advice for helping military and veteran students. *Chronicle of Higher Education*, 59(26), A21-A22.
- Seehuus, M., & Peisch, V. (2021). College student mental health: For whom does therapy work? *Clinical Psychology: Science and Practice*, 28(4), 398–400.
<https://doi.org/10.1037/cps0000039>
- Shahzad, A., Hassan, R., Aremu, A. Y., Hussain, A., & Lodhi, R. N. (2021). Effects of COVID-19 in E-learning on higher education institution students: The group comparison between male and female. *Quality & Quantity*, 55, 805-826.
- Shen, L. (2014). The NIST cybersecurity framework: Overview and potential impacts. *Scitech Lawyer*, 10(4), 16.
- Shepherd, S., Sherman, D. K., MacLean, A., & Kay, A. C. (2021). The challenges of military veterans in their transition to the workplace: A call for integrating basic and applied psychological science. *Perspectives on Psychological Science*, 16(3), 590-613.
<https://doi.org/10.1177/1745691620953096>
- Shulker, D. (2017). The recent occupation and industry employment patterns of American veterans. *Armed Forces & Society*, 43(4), 695-710.
https://journals.sagepub.com/doi/pdf/10.1177/0095327X16659875?casa_token=fLwGroS2JUAAAAA:K-RR-8lzGAnvEDzohCnM4Y-B1aYP6SGmPYRjeoi4c3SbEh3OuJGfENb7rk3jD40v3FsaTkj7efuh

- Sit, J. W. H., Chung, J. W. Y., Chow, M. C. M., & Wong, T. K. S. (2005, February). Experiences of online learning: Students' perspective. *Nurse Education Today*, 25(2), 140-147.
<https://www.sciencedirect.com/science/article/abs/pii/S0260691704001492>
- Smith, T. (1994). *Exploring the structure of human resource/training and development non-degree certificate programs at United States colleges and universities and the perceived needs of practitioners*. Texas A&M University Dissertations Publishing.
- Smith-MacDonald, L., Raffin-Bouchal, S., Reay, G., Ewashen, C., Konnert, C., & Sinclair, S. (2020). Transitioning fractured identities: A grounded theory of veterans' experiences of operational stress injuries. *Traumatology*, 26(2), 235.
- Sohime, F. H., Ramli, R., Rahim, F. A., & Bakar, A. A. (2020, August). *Exploration study of skillsets needed in cyber security field*. In 2020 8th International Conference on Information Technology and Multimedia (ICIMU) (pp. 68-72). IEEE.
- Stevens, M., & Norman, R. (2016). Industry expectations of soft skills in IT graduates: A regional survey. *Proceedings of the Australasian Computer Science Week Multiconference*, 13, 1-9. <https://dl.acm.org/doi/abs/10.1145/2843043.2843068>
- Summerlot J., Green, S. M., & Parker, D. (2009). Student veterans organizations. In R. Ackerman, & D. DiRamio (Eds.), *Creating a veteran-friendly campus: Strategies for transition and success* (pp. 71-80). Jossey-Bass.
- Sutton, H. (2020). Provide adult learners with hands-on skills, networking opportunities for career readiness. *Recruiting and Retaining Adult Learners*, 22, 11.
<https://onlinelibrary.wiley.com/doi/abs/10.1002/nsr.30637>

- Thompson, J. M., Lockhart, W., Roach, M. B., Atuel, H., Bélanger, S., Black, T., ... & Truusa, T. (2017). *Veterans' identities and well-being in transition to civilian life-a resource for policy analysts, program designers, service providers and researchers: Report of the veterans' identities research theme working group*. Charlottetown (PE): Veterans Affairs Canada.
- Trauth, E., Joshi, K. D., Graham, K., & Nithithanatchinnapat, B. (2015). *An exploratory study of identity and IT career choice for military service members and veterans with disabilities*. Information Technology Career Choice for Veterans with Disabilities.
<https://citeseerx.ist.psu.edu/document?repid=rep1&type=pdf&doi=134392095e31809560a42db26af50e8a9859c23a>
- Tsai, J., Harpaz-Rotem, I., Pietrzak, R. H., & Southwick, S. M. (2017). Trauma resiliency and posttraumatic growth. In S. N. Gold (Ed.), *APA handbook of trauma psychology: Trauma practice* (pp. 89–113). American Psychological Association.
<https://doi.org/10.1037/0000020-005>
- Twigg, C. (2003). *Improving learning and reducing costs: New models for online learning*. Center for Academic Transformation. <https://www.thencat.com/Articles/erm0352.pdf>
- Umucu, E., Chan, F., Lee, B., Brooks, J., Reyes, A., Mangadu, T., Chiu, C., & Ferreira-Pinto, J. (2022, January). Well-being, PTSD, college adjustment in student veterans with and without disabilities. *Frontiers in Education*, 6.
<https://www.frontiersin.org/articles/10.3389/feduc.2021.793286/full>
- Valuch, J., Gábriš, T., & Hamulák, O. (2017, October). Cyber attacks, information attacks, and postmodern warfare. *Sciendo*, 10(1), 63-89. <https://sciendo.com/article/10.1515/bjlp-2017-0003>

- Van Hoya, G. (2010). Networking as a job search behavior: A social network perspective. *Journal of Occupational and Organizational Psychology*, 82(3), 661-682.
- Van Noy, M. V., McKay, H., & Michael, S. (2019, Summer). *Non-degree credential quality: A conceptual framework to guide measurement*. <https://doi.org/10.7282/00000116>
- Van Slyke, R., & Armstrong, N. (2019). Communities serve: A systematic review of need assessments on U.S. veteran and military connected populations. *Armed Forces & Society*, 46(4).
- Vierthaler, J. M., & Elliott, E. C. (2022). A shared lived experience of a psychologist battling a mental health crisis. *Psychological Services*, 19(1), 46–48.
<https://doi.org/10.1037/ser0000489>
- Walton, G. M., & Cohen, G. L. (2007). A question of belonging: Race, social fit, and achievement. *Journal of Personality and Social Psychology*, 92(1), 82–96.
<https://doi.org/10.1037/0022-3514.92.1.82>
- Webber-Ritchey, K. (2021). Recruitment strategies to optimize participation by diverse populations. *Nursing Science Quarterly*, 34(3).
<https://journals.sagepub.com/doi/abs/10.1177/08943184211010471?journalCode=nsqa>
- Xu, D., & Trimble, M. (2016). What about certificates? Evidence on the labor market returns to nondegree community college awards in two states. *Educational Evaluation and Policy Analysis*, 38(2), 272-292.
<https://journals.sagepub.com/doi/pdf/10.3102/0162373715617827>
- Youngblood, S. E., Corriette, I. C., & Bishop, T. C. (2018, July). Pipeline development through middle school, high School, and community enrichment opportunities. In *2018 FYEE Conference*.

APPENDIX A: INSTITUTIONAL BOARD APPROVAL

From: Social/Behavioral IRB
To: [Stephen Olson](#)
CC: [David Siegel](#)
Date: 4/1/2024
Re: [UMCIRB 23-000737](#)
Cybersecurity Certifications and Veterans

I am pleased to inform you that your research submission has been certified as exempt on 4/1/2024. This study is eligible for Exempt Certification under category # 2ab.

It is your responsibility to ensure that this research is conducted in the manner reported in your application and/or protocol, as well as being consistent with the ethical principles of the Belmont Report and your profession.

This research study does not require any additional interaction with the UMCIRB unless there are proposed changes to this study. Any change, prior to implementing that change, must be submitted to the UMCIRB for review and approval. The UMCIRB will determine if the change impacts the eligibility of the research for exempt status. If more substantive review is required, you will be notified within five business days.

Document	Description
Ammendment Comment(0.01)	Surveys and Questionnaires
Consent March Edit(0.01)	Consent Forms
Dissertation Approved(0.01)	Study Protocol or Grant Application
Dissertation w/ Appendices January 2024(0.01)	Additional Items
Interview Guide(0.01)	Interview/Focus Group Scripts/Questions
Letter of Support - Purdue(0.01)	Additional Items
Research Announcement for Email, LinkedIn(0.01)	Recruitment Documents/Scripts

For research studies where a waiver or alteration of HIPAA Authorization has been approved, the IRB states that each of the waiver criteria in 45 CFR 164.512(i)(1)(i)(A) and (2)(i) through (v) have been met. Additionally, the elements of PHI to be collected as described in items 1 and 2 of the Application for Waiver of Authorization have been determined to be the minimal necessary for the specified research.

The Chairperson (or designee) does not have a potential for conflict of interest on this study.

APPENDIX B: IRB-APPROVED CONSENT FORM

Informed Consent to Participate in Research

Information to consider before taking part in research that has no more than minimal risk.

Title of Research Study: NO VET LEFT BEHIND: CAREER READINESS FOR VETERANS IN COLLEGE COURSES AND THE IMPACT OF 1:1 PROGRAMMING ON RETENTION AND EMPLOYMENT STATISTICS

Principal Investigator: Stephen Olson, M.S. (Person in Charge of this Study)

Institution, Department or Division: Systems Administrator, UNC Charlotte

Participant Full Name: _____

Date of Birth: _____

Please PRINT clearly.

Researchers at East Carolina University (ECU) and the CWCT consortium of universities study issues related to career readiness, cybersecurity, non-degree programs, employment, and student veterans. To do this, we need the help of volunteers who are willing to take part in research.

Why am I being invited to take part in this research?

The purpose of the present study is to explore the potential impact of a career readiness intervention on student veterans that are currently a part of the CWCT program, in addition to gathering data on the perceived career readiness of these students.

You are being asked to be in this study because you have chosen to participate in the CWCT program as a cybersecurity, non-degree seeking, certificate student during 2023.

Additionally, you have been identified as a student who may benefit from a career readiness intervention or are currently seeking to gain employment in the cybersecurity space while you transition out of the military or have recently transitioned.

If you volunteer to take part in this research, you will be one of about 5-10 people to do so.

Are there reasons I should not take part in this research?

You should not participate in this study if you are under the age of 18 years or did not serve or are actively serving in the United States military.

What other choices do I have if I do not take part in this research?

You can choose not to participate; there is no penalty for participating and it will not impact any grades or coursework elsewhere in the program.

Where is the research going to take place and how long will it last?

The research will be conducted via Zoom and will last from Spring 2023 to Fall 2023.

What will I be asked to do?

You will be asked to do the following:

- Participate in two virtual interviews with the investigator regarding your perceived career readiness, participation in in-house and third-party programs, and other aspects of your transition from the military into the civilian workforce, and within the context of the CWCT program.
- These interviews will be conducted once in March, 2023, and again in September, 2023, consisting of approximately 30-60 minutes.
- You will be asked to participate in an intervention during the summer of 2023, including either participating as a peer mentor or mentee, with expectations to meet weekly for the course of eight weeks to touch base with one another.
- When paired with a peer mentor, themed guiding questions will be offered to prompt discussion, and a survey form will be sent out at the middle of summer, and at the end, to gauge efficacy.

What might I experience if I take part in the research?

We don't know the risks associated with this research. We do not know if you will benefit from this study. This study will provide a space to engage in career readiness exploration and reflection during your search for employment while you are part of the CWCT program.

Will I be paid for taking part in this research?

We will not be able to pay you for the time you volunteer while being in this study.

Will it cost me to take part in this research?

No, it will not cost you any money.

Who will know that I took part in this research and learn personal information about me?

East Carolina University and staff members at the CWCT program may know you took place in this study. Personal information that is normally kept private may be shared, and with your permission, could be used as information for this research.

How will you keep the information you collect about me secure? How long will you keep it?

All data collected through the interview will be stored in a password protected electronic format. The results of the present study will be used for research and scholarly purposes only. The final report will not disclose any personal identifiers of participants.

The investigator will take precautions to ensure confidentiality and privacy. As such, data will be collected and stored only after consent is granted. With permission of the participants, the

interviews will be recorded and transcribed verbatim by the researcher. The transcripts and recordings will be analyzed by the investigator and stored in a password protected electronic format.

The investigator plans to publish the results of this study. To protect participant privacy and the confidentiality of the research data, the investigator will not include any information that could identify participants in the published results.

Other people may need to see the information the investigator collects about you. This may include people who work for CWCT program and other agencies as required by law or allowed by federal regulations.

What if I decide I don't want to continue in this research?

You can stop at any time after it has already started. There will be no consequences if you stop and will not be criticized.

Who should I contact if I have questions?

The people conducting this survey will be able to answer any questions concerning this research. You may contact the Principal Investigator at solson10@uncc.edu Monday- Friday between the hours of 9am – 5pm. If you have questions about your rights as someone taking part in research, you may call the University & Medical Center Institutional Review Board (UMCIRB) at phone number 252-744-2914 (days, 8:00 am-5:00 pm). If you would like to report a complaint or concern about this research study, you may call the Director for Human Research Protections, at 252-744-2914

I have decided I want to take part in this research. What should I do now?

The person obtaining informed consent will ask you to read the following and if you agree, you should sign this form:

☐ I have read (or had read to me) all of the above information.

☐ I have had an opportunity to ask questions about things in this research I did not understand and have received satisfactory answers.

☐ I know that I can stop taking part in this study at any time.

☐ By signing this informed consent form, I am not giving up any of my rights.

☐ I have been given a copy of this consent document, and it is mine to keep.

Participant's Name (PRINT) : _____

Signature: _____

APPENDIX C: PHASE I INTERVIEW GUIDE

AT Evaluation Questions

Stephen D. Olson

1. What type of educational background do you currently have?
2. What branch of service did you serve in, and what was your rank / occupational specialty? (Ghosh et al., 2019)
3. How did you plan out your transition from the military to cybersecurity/civilian workforce? At what stage of your transition are you in? (Schlossberg)
 - a. Stage 1 – Currently in Service – Active Duty
 - b. Stage 2 – Currently in Service – Reserve/National Guard
 - c. Stage 3 – Separated from Service <6 months
 - d. Stage 4 – Separated from Service <2 years
 - e. Stage 5 – Separated for longer than 2 years
4. What type of career readiness or professional services have you utilized historically? If so, where? (Aronson et al., 2020).
5. What aspects of your own career readiness and employment search do you think you can improve on? (Summerlot et al., 2009).
6. Have you attended any Career events as part of the CWCT program? If so, which ones?
7. If so, did you feel better or less prepared for your own job search?
8. What parts of securing a job in the cybersecurity field are you finding difficult? (Sohime et al., 2020).

9. What strategies do you have in place to cope with the challenges related to this transition? (Schlossberg)
 - a. I.e. situation modifications, means of controlling problems, stress reduction, etc.
10. On a scale of 1-5, how would you rate your current ability to network with other professionals in the field? (Ansmann et al., 2014). (Van Hoya, 2010).
 - a. Why did you choose that rating?
11. On a scale of 1-5, how confident are you in your interview skills? (Aronson et al., 2016)
 - a. Why did you choose that rating?
12. On a scale of 1-5, how confident are you in your current resume? (Aronson et al., 2016)
 - a. Why did you choose that rating?
13. Do you have a support structure in place to assist you with this transition? (Schlossberg)
 - a. Prompts: relationships, family, friends, communities, institutions, etc.
14. How long have you been in the CWCT program?
15. How would you describe your race and ethnicity?
16. How would you describe your gender? (Schlossberg)
17. Would you be open to participating in a peer mentor program or peer community?
(Brandy, J. 2019) (Kees et al., 2021).
18. Is there anything else you think would be helpful for me to know?

*Participants that are not veterans, or under the age of 18 will be exited from the evaluation.

APPENDIX D: PHASE III INTERVIEW GUIDE

1. Are there any aspects of your career readiness/job search you think you have new ways to improve on based on your experience in the peer mentor program?
(Summerlot et al., 2009)
2. Do you feel more prepared for your job search?
3. Have you learned any new strategies to assist in your transition into the civilian workforce or cybersecurity? (Schlossberg, 1987)
4. On a scale of 1-5, how would you rate your current ability to network with other professionals in the field after participating in the peer mentor program? (Ansmann et al., 2014; Van Hoyer, 2010).
 - a. Why did you choose that rating?
5. On a scale of 1-5, how confident are you in your interview skills after participating in the peer mentor program? (Aronson et al., 2019)
 - a. Why did you choose that rating?
6. On a scale of 1-5, how confident are you in your current resume after participating in the peer mentor program? (Aronson et al., 2019)
 - a. Why did you choose that rating?
7. Do you have any new ideas on support structure? (Schlossberg, 1987)
 - a. Prompts: relationships, family, friends, communities, institutions, etc.
8. In general, what was your experience with your peer mentor?
 - a. Pros? Cons? Challenges? Most helpful aspects?
9. Is there anything else you think would be helpful for me to know?

APPENDIX E: RESEARCH STUDY ANNOUNCEMENT

AT Survey Consent Paragraph for Exempt Research
Stephen D. Olson
IRB Submission – ECU EdD Program

You are being invited to participate in a research study titled **Exploring the Career Readiness of Non-Degree - Certificate Seeking Veteran Students enrolled in Cybersecurity Programs** being conducted by Stephen Olson, the Department of Educational Leadership. The goal of this study is to try to understand the current state of career readiness of student veterans from the aforementioned group, and decipher the specific variables that are related to the employment journey for this population. **Participation is voluntary.** Your responses are confidential. There is **no penalty for not taking part** in this research study. Please email Stephen Olson at solson10@uncc.edu for any research related questions or the University & Medical Center Institutional Review Board (UMCIRB) at 252-744-2914 for questions about your rights as a research participant.

