

Soldier to Student: Exploring the Unique Skills and Challenges Veterans with Disabilities Bring to College

Michael S. Sheppard

*Engineering Education Systems and Design
Arizona State University
Mesa, United States of America
Michael.Sheppard@asu.edu*

Nadia Kellam

*Engineering Education Systems and Design
Arizona State University
Mesa, United States of America
Nadia.Kellam@asu.edu*

Samantha Brunhaver

*Engineering Education Systems and Design
Arizona State University
Mesa, United States of America
Samantha.Brunhaver@asu.edu*

Abstract—This Work in Progress Paper presents the creation of a codebook that will support a broader study focused on understanding the experiences of veterans with service-connected disabilities as they transition from the military into an undergraduate engineering program. Military careers and engineering student life have stark differences. This exploratory research study aims to develop a deeper understanding of the experiences of engineering student veterans with service-connected disabilities as they transition into higher education. To investigate these transitions, we utilized semi-structured narrative interviews with three sophomore engineering students with disabilities. The participants were purposively selected for maximum variability across particular demographic characteristics. In this thematic analysis, we explored the rich narratives of the students' transitions from military members to undergraduate engineering students by coding the data and organizing the themes as they mapped to the Schlossberg Transition Theory. Further analysis of the data resulted in a codebook consisting of eight codes – two referring to one's self, three that characterize the transitional situation, one aligned with effective social support, and two codes denoting strategies these student veterans use to overcome the unique challenges associated with their transition from military member to engineering academic. The codebook will be presented in this paper.

Keywords—*student veterans, service-connected disability, Schlossberg Transition Theory, qualitative research*

I. INTRODUCTION

There is a dearth of knowledge surrounding the transition of veterans with disabilities into undergraduate engineering programs. Despite the support of the Veterans Administration, academic institutions, and support networks surrounding student veterans, moving from a military lifestyle to that of a student can be a massive undertaking, especially when the student veteran is leaving the military with a service-connected disability [1]. Military careers and student life have stark differences. For example, the military is full of imposed structural guidelines that service members are required to follow or they will face punitive actions, whereas the student lifestyle is full of choices that may affect grades, but few will result in a loss of pay or decrease in rank. Many service members rely on this structure and may face challenges when

this structure is no longer present. Also, many military members have built robust support systems within their teams, platoons, companies, and units. Thus, when there is a shift from the military lifestyle to that of a student veteran they may experience a loss of support or belonging [2]. Depending on the individual veteran's military job and prior experiences, a transition of this nature may be simple and straightforward or fraught with unexpected challenges. In those scenarios of stark difference, past military coping mechanisms may no longer be effective or appropriate [3].

Moreover, student veterans with disabilities may face unique challenges that differentiate them from student veterans without disabilities and from other students. Alternatively, they may find themselves better suited than others to conquer the challenges of an undergraduate engineering program. This work-in-progress paper reports the development of a codebook, which will be used as an analysis tool for this exploratory research study. The purpose of the larger study is to develop a deeper understanding of the experiences of student veterans with disabilities in engineering as they transition into higher education. The research questions for this larger study are as follows:

- 1) *In what ways have the military experiences of veterans with service-connected disabilities shaped their transition from the military to becoming engineering students?*
- 2) *What are some of the social and academic experiences as described by student veterans with disabilities in their engineering program?*

II. LITERATURE REVIEW

A. An Increase in Student Veterans

With the introduction of the Post 9/11 GI Bill on August 1, 2009, veterans have been attending undergraduate programs at historically high rates [4]. From 2008 to 2011, almost 500,000 people had utilized Post 9/11 GI Bill funding to attend undergraduate programs and these numbers are continuing to increase [5]. Along with this increase in the student veteran population there has been an increase in student veterans with disabilities [3].

B. An Increase in Student Veterans with Disabilities

This massive influx of veterans with disabilities into college is due to both an increase in the overall number of student veterans, and an increase in war-related injuries that result in lifelong service-connected disabilities [6]. Not only are there visible disabilities, but also invisible disabilities, such as Post Traumatic Stress Disorder (PTSD) and Traumatic Brain Injury (TBI). Both of these types of disabilities are now prevalent among veterans returning from foreign wars [6].

In this study, we used the United States' government's definition of "special disabled veteran" to classify a type of disabled status. Prior to discharge from the military, all members undergo a series of physical and psychological medical examinations. All physical and psychological injuries are evaluated, and a percentage of disability is assigned based on the severity and future implications on quality of life. The percentages are summed, which assign the service-member a level of service-connected disability. As per the Veterans Administration, service-connected disability over 30% assigns a designation of "special disabled veteran" to the individual in question and entitles them to compensation [7].

Prior research demonstrates that the transition from a military to a student lifestyle is difficult [8]. If that transition also includes a disability, we suspect that this may pose additional challenges to their success as students, thus motivating this research project.

C. Unique Challenges of Student Veterans with Disabilities

Research has been conducted to better understand the experiences of veterans transitioning into higher education, but little has been done to explore the role of service-connected disabilities and their effect on this transition [1]. Veterans with disabilities face unique challenges that other veterans do not experience as they reintegrate into society [1]. Academic institutions need to be ready to address these unique challenges with increases in academic support, emotional counseling, and other programs designed to assist students across a wide variety of physical and emotional disabilities [3, 9]. Another form of invisible disability is the actual perception of people with disabilities [6]. There is a social stigma surrounding people with emotional and cognitive disabilities like PTSD and TBI. Often, they are seen as being mentally deficient or unintelligent because of generalizations made from exaggerated public cases.

D. Unique Skills of Student Veterans with Disabilities

Past research has been focused on the deficits of student veterans with disabilities and how they need to be better supported by administrators and faculty members of academic institutions [1, 3, 9-10]. However, converse findings have led to an acknowledgement of the unique skills a student veteran may possess. They may find themselves better suited than others to conquer the challenges of an undergraduate engineering program [11]. Due to extensive training, operations, and experiences that 99% of the people living in the United States have never encountered, veterans in engineering have the capacity to bring new skillsets, thought

processes, and problem-solving techniques to the engineering community [12].

Main, Camacho, Mobley, Brawner, and Lord found that, while many of the student veterans participating in their study of veteran pathways in engineering education attributed skills for academic success having been learned in the military, their college experiences were shaped more by their age and non-traditional student status [8]. In this broader study, we seek to expand upon this research by further exploring the valuable relationships between military experiences and their effect on the transition from active military member to engineering student, while also investigating the inherent challenges and opportunities of student veterans with service-connected disabilities.

III. THEORETICAL FRAMEWORK

A. Schlossberg Transition Theory

The focus of this study is on the transitions of student veterans from their military careers to engineering students. Thus, we will theoretically frame this study using the Schlossberg Transition Theory [13]. This framework identifies the four S's of any transition, Self, Situation, Social Support, and Strategy, and how these S's interact with one another [13].

Each S within this framework addresses an aspect of transition. Self describes personal characteristics of one's image and their psychological resources. It also includes demographic characteristics, perceptions of themselves, and value systems. Situation is rooted in the actual transition and the changes that are occurring. This is typically a feature describing the triggers, changes, and stresses of the transitional experience. Social Support consists of people or things that provide care and encouragement throughout the transition. This includes support structures, such as family, friends, mentors, and support from institutions. Strategy focuses on the actions, interactions, interventions, and tactics that are utilized to overcome the challenges of transition [13].

This framework will be used to organize and better understand the emergent themes from the data discussed in this paper. It will allow for a structure that assists in the weaving of emergent themes into a cohesive story of the veterans' transitions into undergraduate engineering programs.

B. Reflexivity

My reflexivity (first person accounts are those of Michael Sheppard, the first author of this paper) will be both a great strength and a potential bias, especially if unacknowledged, in this study [20]. First, I am a member of the population I intend to study. I am a special disabled veteran of the United States Navy, and, following my military service, I began pursuing my undergraduate degree in engineering. I have very vivid memories of my military experience. These experiences have had a clear effect on my studies in engineering, and I expect the same may be true for my fellow veterans who have also decided to pursue undergraduate degrees in engineering. In fact, my contemplation and reflection of how those

experiences following my military career affected my studies drive this very research. I plan on utilizing my experiences from military service, engineering academic studies, and time working in the engineering and education industry to better understand the transition from active duty military member to engineering student.

Due to commonalities in our backgrounds, my hope is that common experiences helped to foster a sense of trust and shared understanding with the participants involved in this study. However, there is also potential for personal bias and the possibility that I might take for granted certain themes, given that I am also a veteran who has transitioned into an engineering program. I took steps to ensure my experiences did not spill into the participants' narratives. Throughout the iterative coding process, I met with my peers within the research team to discuss findings. Ultimately, it is my hope that my experiences offer a unique approach to this study and thereby benefit veterans seeking engineering degrees.

IV. METHODS

A. Research Site

This study focused on student veterans with disabilities currently engaged in an undergraduate engineering degree program at Arizona State University. As one of the largest institutions in the country, it currently educates about 3,400 students who are military veterans and was ranked in the top 100 in the nation for the Best Colleges for Veterans in 2018, out of more than 5,300 colleges and universities, which made it ideal to utilize as a research site [14-16]. The students enrolled in engineering courses on this site were enrolled in a Bachelor of Science in Engineering program, which has a focus on engineering design and project-based learning.

B. Participants and Recruitment

This study employed purposive sampling to select three participants with maximum variability in their demographic characteristics [17]. According to Maxwell, maximum variability draws out the greatest variety from the least number of participants in the hopes of providing the richest illustration of their experiences as they relate to the study focus [18]. The three participants were selected based on the variability of demographics such as race, gender, age, and military profession. For this study, one sought after trait was the existence of service-connected disability over 30%, which was present across all participants. Along with the aforementioned demographic requirements, the participants had to be enrolled in the same engineering program and hold sophomore student standing. Sophomore status was of import to ensure that the student veterans had adequate student experience without being too far removed from their military time and initial transition into student status.

To recruit participants, I visited all 200-level engineering project courses on the Polytechnic Campus of Arizona State University. In each course, I took a few minutes to introduce myself to the class, familiarize the students with my area of research, and explain the study for which I was recruiting participants. Following this face-to-face engagement with the

students, recruitment e-mails were sent to the instructors of these courses, inviting them to share an online demographic survey with their students. As students completed the demographic surveys I reviewed the results and made participant selections. Three students were selected to achieve the desired level of demographic variability within the sample. Participants were within 25 and 30 years of age. They represented both male and female genders, three different ethnicities, two different branches of the military, and three different careers within their military time. Two were non-combatants and one was a combat veteran. All three student veterans were also awarded service-connected disability greater than 30%. Each participant was then contacted to participate in an interview, and interviews were scheduled within seven days of survey completion.

C. Data Collection

Data was collected through 60-minute, semi-structured narrative interviews conducted in a private room in the Arizona State University Polytechnic Campus Library. A narrative interview structure was used, along with probing questions developed from the research questions and aligned with Schlossberg's Transition Theory [13]. The open-ended categories for the interview questions were framed around engineering experiences, military experiences, transitional experiences, and comparisons to peers.

D. Analytical Procedures

Interviews were audio recorded and transcribed verbatim by myself. It should be noted that portions of the interview transcripts were heavily laden with expletives and verbal pauses. In the instances where these portions would appear as document excerpts the verbiage was cleaned up to improve readability. Expletives were altered to include asterisks in place of some vowels and verbal pauses were removed. Even with these adjustments the messages conveyed by these passages remains unchanged.

Preliminary analysis began with the use of in vivo and descriptive coding. In vivo coding entails codes that are direct quotes to excerpts while descriptive coding summarizes passages in a word or short phrase [19]. Based on the initial in vivo and descriptive coding, a total of 13 provisional codes were generated [19]. These provisional codes were used to complete the first cycle of data inspection for the three transcripts. Due to differences in the data between transcripts, eight additional provisional codes were added to the codebook before the completion of first cycle coding. Following the initial coding of the transcripts, I conducted code mapping, pattern coding, and data reduction, where codes that initially appeared applicable to the research questions, but were found unrelated, were removed [19]. One such removed code was "Academic Self-Efficacy", which did not serve to further this investigation. What resulted mapped well to the theory [13]. I found that all of the final codes had an appropriate place within this theoretical framework lending more evidence that it should be suitable for answering our research questions and elucidating this complex transition. Evidence of the codes and their fit with the associated data are displayed as example excerpts in the codebook.

V. RESULTS

This study is a work in progress and, as such, the codebook will be shared as this paper's results. The following includes the final codes, their descriptions, and an example excerpt from the interview data. These codes are arranged according to the four S's of Schlossberg's Transition Theory: Self, Situation, Social Support, and Strategy [13].

A. Self

1) Code: Challenges & Successes While in the Military

a) Description: The various aspects of the military that were particularly challenging or resulted in a sense of accomplishment (e.g. training, culture, peers, advancement, etc.)

b) Example Excerpt: "No sh*t, you would patrol right outside the gate and you would get into a firefight." (To clarify, this excerpt describes the military member being engaged in combat while he provided security patrols directly outside a United States' military base in Afghanistan.)

2) Code: Unique Challenges Due to Service-Connected Disability

a) Description: Any challenges that are tied specifically to the participants' service-connected disability.

b) Example Excerpt: "I don't want to f*cking tell them because I don't want them to think this of me, you know, as being that weak-*ss weirdo."

B. Situation

1) Code: Social Challenges and Loss of Military Support

a) Description: Any challenges that have occurred in terms of socialization, making friends, and working with people in social environments.

b) Example Excerpt: "You don't know these people. There's not a whole lot to connect to and to build off of."

2) Code: Academic Challenges

a) Description: Any challenge particularly attributed to the academic studies in engineering or other coursework.

b) Example Excerpt: "It takes me forever to f*cking learn this concept."

3) Code: Comparison to Peers in Engineering

a) Description: How the participants see themselves when compared to their engineering student peers.

b) Example Excerpt: "I think the difference is just like I think there is a different sense of what we need to accomplish."

C. Social Support

1) Code: Present, but Possibly Ineffective Resources

a) Description: Detailing the support system, supportive people, and challenges due to a lack of support while enrolled in engineering.

b) Example Excerpt: "Yeah, [the Veteran Center], it's like a catch-all. They've got you and it's just like they can't handle everything and they don't have the resources."

D. Strategy

1) Code: Students' Actual and Unique Strengths

a) Description: Particular skills that the participants view as having been useful in their engineering curriculum, studies, and academic successes.

b) Example Excerpt: "I guess as far as having previous leadership roles and stuff like that, I can tell when a group is just disorganized; [when] someone needs to step up and I guess that's helpful. So, if someone does need to step up I'll step up and [say] hey we need to get this f*cking done and get the ball rolling."

2) Code: Working with Veteran Peers in Engineering

a) Description: Any interactions that they had with student veterans in their engineering program.

b) Example Excerpt: "We all get along really well as far as I can tell. We all kind of have similar frustrations with people and stuff. So, in my class, we had to form groups and my group was four out of five veterans, made things easy. We all did our work, we knew that it would get done, no one was like hey I'm not going to do this, and I wasn't worried about it, like carrying my weight. So that made things a lot easier, especially for that class because it was rough."

VI. CONCLUSION AND FUTURE WORK

The codebook presented in this paper will be used to conduct a thematic analysis of the interview data. This analysis will focus on gaining a better understanding of the unique strengths utilized and challenges encountered as veterans with service-connected disabilities continue their transitions from military service into an undergraduate engineering program.

Through the iterative review and analysis of these interview transcripts required to construct this codebook, it was evident that there are unique skills and challenges that these student veterans are facing. Some aspects of their skillsets, like the ability and motivation to lead when placed in academic teaming situations, were uniform across the participants. However, there are also skills that are exhibited individually and may be attributed to the variability between participants' military and personal backgrounds. These, and other findings, will be discussed in future work.

Building on our results, we plan on conducting a longitudinal study with the three student veterans in this study to gain a more robust understanding of their journey toward becoming engineers. In addition, we will be interviewing more student veterans and student veterans enrolled in undergraduate engineering programs at different institutions.

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