

Faculty and Staff Perceptions of Student Veterans Pursuing a Degree in Engineering

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Faculty and Staff Perceptions of Student Veterans Pursuing a Degree in Engineering

Student veterans' skills, unique gifts, and experiences are well documented as value added to their organizations. However, student veterans experience biases and perceptions from a variety of sources to include faculty, staff, fellow students, employers, and even pop culture. Some of these perceptions may generalize student veterans positively, while some may portray them negatively without any ill-intent. Faculty and staff perceptions of and interactions with student veterans can impact student veteran learning outcomes and their classroom experience. While student veteran populations fluctuate with the tempo of military activity, the US has seen some of the highest student veteran enrollments as a result of the Post 9/11 GI Bill and the student veterans' desire to pursue their educational goals. Student veterans are a growing part of the university population. Veterans are a special demographic that is tracked on federal and state employment Equal Opportunity Hiring Policies and as a special interest group in the US government census. Demand for technical expertise in the military and civilian sectors will result in student veterans and active duty military members' presence in physical and virtual engineering education campuses. This increase of student veteran and active duty populations requires higher education faculty, advisers, staff, and administrators to appreciate the student veterans' strengths and challenges and to acknowledge their own perceptions of this population.

This paper is part of a larger study of perceptions toward student veterans and the impact of those perceptions on student veterans. Specifically, this investigation focuses on faculty and staff perceptions towards student veterans in engineering higher education. Through the quantitative survey instrument described here and administered across many academic institutions, this paper surfaces existing stereotypes and perceptions retained by faculty and staff. Questions from this survey sought the level of agreement or disagreement regarding several known veteran stereotypes. Preliminary results from mixed model logistic analyses indicate that these biases or perceptions are active in non-veteran faculty and staff populations.

1. Background

Research on the student veteran educational experiences typically adopts an impoverishment approach to understanding student veteran deficits and challenges in the classroom [1]. While this research posture is not malicious— it is empirically easier to study the absence of particular student behaviors or skills than student veteran educational and experiential assets—the result is literature that focuses on effective interventions for student veterans and associated deficit measures [1-7]. In contrast, this study re-centers the student veteran experience to focus on the cultural terrain that student-veterans-in-transition encounter when they enroll in engineering programs in higher education.

Following on previous veteran perceptions-focused research that concentrated on student veterans and student peers in engineering [8], the current study represents a six-institution effort to better understand faculty and staff perceptions of student veterans, and the degree to which they adhere to known stereotypes regarding veterans. The demographic component to the study seeks to understand the relationships among the factors of identity, veteran proximity, institution, role and participants' adoption of known veteran stereotypes.

Leveraging six institutional perspectives, this study¹ surveyed engineering faculty and staff (n = 130) in a variety of institutional settings, including public and private institutions, Land Grant RIs, teaching-focused institutions, and senior military institutions. Applying mixed model logistic regressions to responses from a 22-item survey (using a 5-point Likert Scale: 1-Strongly Disagree → 5-Strongly Agree), were tested for correlations with faculty and staff demography, role, proximity, and institutional profiles. Survey items assessed agreement or disagreement with ten targeted false veteran-associated stereotypes. Matched perceptions of these stereotypes for both veterans and civilians were sought. Institutional Review Boards at each of the institutions approved the study, allowing a broad sample of individual responses.

2. Methods

Targeting common myths and stereotypes of veterans, the survey instrument queried participants' degree of agreement or disagreement with the following statements with regard to both veterans and civilians. For a systematic review and dispelling of these false stereotypes, the authors summarized a meta-analysis [8]. As a point of emphasis, this paper focuses on the general faculty and staff perceptions towards veterans and not veterans' perceptions or veterans' perceptions of other veterans.

Below, a table matches myths with survey items, summarizing both veteran and civilian semantic polarities. Survey items 8 and 9 capturing veteran combat experience and employment expectations do not have a civilian corollary, as indicated in Table 1. These myths or stereotypes are sourced from known veteran stereotypes of veterans [8] and do not reflect the authors' perspectives.

Table 1: Veteran and civilian-coded survey items

Veteran Item	Veteran-coded	Civilian Item	Civilian-coded
1	Veterans are more likely to suffer from PTSD than civilians.	13	Civilians are less likely to suffer from PTSD than veterans.
2	Veterans are more likely to be educated than civilians.	14	Civilians are more likely to be educated than veterans.
3	Veterans are more likely to have relevant job skills.	15	Civilians are more likely to have relevant job skills than veterans.
4	Veterans are generally more organized than civilian employees.	16	Civilians are generally less organized than veteran employees.
5	Veterans and service members are more likely to take initiative on their own than to follow directives as compared to civilians.	17	Civilians are more likely to take initiative on their own than to follow orders.
6	Veterans and their families are more likely to participate in community and social events.	18	Civilians and their families are more likely to participate in community and social events.

¹ Survey is available as a Qualtrics package and suitable for distribution to other engineering and STEM faculty and staff. Please contact corresponding author if interested.

7	Veterans are more likely to need help or advice than civilian employees.	19	Civilians generally need more help and guidance than veteran employees.
8	Veterans expect perks from employers because of their service status.	--	No Corollary
9	Most veterans serve in combat or combat roles.	--	No Corollary
10	Veterans are more likely to have tattoos or dermal art, which may be inappropriate for some employment roles.	20	Civilians are less likely to have tattoos or dermal art.
11	Veterans are more likely to be diverse or members of underrepresented groups.	21	Civilians are less likely to be diverse or members of underrepresented groups.
12	Veterans are more likely to be rigid thinkers than other employees.	22	Civilians are more likely to be rigid thinkers than veteran employees.

2.1. Survey item selection

All Veteran-centered survey items contain the “more likely to” phrasing. Some civilian-focused survey items contain negative “less likely to” phrasing. This positive polarity for the veteran-focused items is intentional—prior study feedback indicated that “more likely to” was (1) easier to parse for readers; (2) allowed participants to connect a belief statement with a conceptual frame about veterans, if participants were to have access to that cognitive frame, [9]. Where there was prior evidence that a particular belief about veterans was widespread [8], a polarity was introduced to the corresponding civilian statement. As a result, the PTSD belief (items 1, 13), provides a positive, “more likely to” polarity for veterans, and a negative, “less likely to” for civilians, allowing for the test of belief coherence across both cohorts. Similarly, for Organization (items 4, 16), Dermal Art (items 10, 20), and Diversity (items 11, 21), there is a positive-negative polarity to test for belief coherence because these beliefs were found to already be common. All other survey items are phrased using the positive “more likely to” for all cohorts.

2.2. Exploratory analysis

For each survey item, the effect of participant demographics and institutional features on the response was explored. Through the application of pivot tables, response means and absolute value differences were computed for the responses as a function of the demographic and institutional dimensions of interest. The results for each paired relationship category are available in Tables 2-13.

2.3. Demographic variables

Researchers analyzed the role of particular professional and social dimensions in relation to stereotype acceptance. A review of demographic variables follows.

a. Faculty and Staff Role and Level

Faculty and staff respondents identified their Role. Role (here) was used as a possible index for student proximity and seniority and included the following options: Instructor/Lecturer; Senior Instructor/Senior Lecturer; Assistant Professor; Associate Professor; Full Professor; Staff, Industry or Government. Unfortunately, there were few responses for Industry and Government.

b. Institutional Profile

Respondents also identified the nature of their institution: Teaching-focused; Research-focused; 2-year; 4-year; Land Grant; Public; Private. Institution type was included in the demographic section of the survey because the research team believes that there may be relationships between institutional profiles and experience working with veterans.

c. Identity

The survey also captured dimensions of respondents' identities, delivered through both multi-level and multiple-choice options to declare membership to an Underrepresented Minority Group; First-Generation American; First-Generation College Student; and Second-Language English Speaker. The survey also captured Gender; Sexual Orientation; Ethnic and Racial identities, using National Institute of Health (NIH) definitions for gender, orientation, ethnicity and race. All identity dimensions included an option to "decline to answer," and it was rarely used. The fine-grained approach to demography here was in part motivated by plans to scale the survey instrument to a much larger project that leverages key Sociology expertise by members of the research team.

d. Proximity to Veterans

Proximity to veterans correlated with the respondents' personal connections to veterans. Respondents identified their immediate family contacts as well as their distant family or acquaintances. The data also allowed the research team to quantify the number of personal connections, as well as the degree of proximity of those connections to compare any differences. Dimensions for this category included: self as veteran; spouse as veteran; grandparent; parent; adult child; sibling; extended relative; friend; former or current student; and no veteran connection.

e. Green Zone Training

Finally, Green Zone training was targeted as a common and effective HR interventive tool. The survey asked if respondents had completed Green Zone training. While acknowledging that such training is voluntary (usually) and may self-select more amenable participants, its impact on perceptions is a source of interest. Green Zone training is a program for faculty and staff to help them better understand the veteran experience, its unique strengths and balances, and confront bias [10]. Following Green Zone training, attendees usually receive some visual designation (e-badge or physical sticker) to signal their office or person is a veteran ally.

3. Results

a. Role and Level - *The use of roles provides very interesting profiles, but additional definition is required to understand the experience level and course levels of instructors, senior instructors, associate, and full professors.*

Generally assistant professors have been faculty for fewer than 6 years, are heavily focused on gaining tenure generally through research, and, therefore, may teach more graduate level courses, depending on institutional priorities and faculty development models. Associate professors have been faculty anywhere between 6 to 30+ years with those between 6 and 12 years heavily focused on research to gain full professor rank. However, many universities have permanent associate professors managing more administrative roles (associate department heads and associate deans) and/or heavier teaching loads at the undergraduate level when the research is not leading to full professor. Full professors have been faculty normally between 12 and 30+ years and those in later years have moved to administrative or heavier teaching loads as research begins to slow, but may still garner respect to teach graduate or senior level undergraduate courses. Instructors can be full-time or part-time with many not making senior lecturer until 12 years of full-time teaching as an instructor. However, both lecturer and senior lecturer teach more and generally have more interaction with students and usually teach more of the larger enrollment courses, especially lecturers, at the undergraduate level.

Results from veteran-focused survey questions and civilian-focused survey questions are presented below in Table 2, separated by Role and Level. Please note that at the bottom of each question comparison, the results are further analyzed by comparing non-tenured faculty to tenured faculty. Bolded items indicate candidates' statistical regression that are likely significant and are $r \leq 0.05$ from the mean value for that category. Overall means for each category are given in red.

PTSD is a critical area that many assume will be more likely to be present within the veteran population than the civilian population. The overall viewpoint by faculty and staff seems to support this, but the more experienced faculty (senior instructor and full professor) who are more likely to have had more contact with veterans over a longer period (time teaching), to include students pre-9/11, are more neutral toward the statement of veterans being more likely to have PTSD.

When it comes to taking initiative or following orders, it is clear all respondents believe that the veteran is more likely to take initiative than follow orders. Many believe those serving in the military are used to following ethical, moral, and safe orders and, so, question why student veterans would deviate from given instructions if the faculty are the leaders in the classroom. Of course, the military also trains its people to take initiative because combat operations are messy, and the orders are only as good as the plans that were used to make them. Once the battle (project, homework, etc.) begins, the leader on the ground must make decisions to solve the problems at hand. A deeper dive is required to understand what level of courses the more experienced faculty member is most likely to teach (larger enrollment undergraduate courses) to understand why they may be closer to neutral on the comparison.

Overall, faculty and staff believe veterans are more likely to be organized rather than civilians, but a closer look displays that the tenured faculty are more likely to believe this which ultimately sways the results. A look at the level of courses lecturers and assistant professors teach is needed to more fully understand these results.

The consensus is that veterans are more likely to be rigid thinkers as compared to other employees. This is clearly based on their belief that the military prides itself on following procedures without overthinking, which allows teams to react to challenging (combat drills) situations without hesitation. However, staff and senior lecturers who may interact with veterans differently, based on the level of courses they teach, or when students interact with staff, see the veterans as less rigid in their thinking. Tenured faculty observe veterans as less rigid thinkers than untenured faculty.

Generally, faculty and staff see veterans as being more diverse than the civilian student populations within engineering. The exception being the senior lecturers which may be based on the level of courses they teach. Please note, they are also the smallest of the faculty pools within the study. Clearly the military prides itself on being one of the most diverse organizations in the United States and its practices of selecting candidates with diversity in mind for military academies is currently coming under attack in U.S. courts [11]. The goal for promoting a more diverse officer pool at service academies is to provide leaders representative of the diversity naturally observed within the enlisted ranks. Of course, many enlisted service personnel join the military to change their position in life and gain the opportunity to use the GI Bill to afford college after serving honorably in the military. The overall diversity of the military greatly enhances the possibility of increasing the diversity in engineering firms through the GI Bill.

All faculty, except the senior lecturers (smallest pool of faculty within the study) believe that veterans bring relevant job skills to the classroom. They have spent several years (usually more than 3) gaining a unique skill set within their military unit. Senior lecturers within the study may teach a certain level of courses where they do not see the relevant job skills a veteran might possess, such as theory heavy courses versus practice-based courses. Tenured faculty agree more strongly about veterans having relevant job skills compared to untenured faculty.

Faculty generally observe veterans as being slightly more educated than their civilian counterparts. The faculty who have advised veterans returning to college see the depth and range of transfer courses as well as the depth of military courses they have taken that do not necessarily equate to course transfer. Many veterans have completed first-year courses, especially humanities and social science courses. Most need to take Freshman Engineering and begin their journey somewhere within the sophomore year if they also were able to take a few key mathematics and science courses during their time in the military. Tenured faculty as well as staff may be more likely assigned as advisers for veterans returning to the classroom. This may explain why untenured faculty believe civilian students are more educated. This lack of contact with veterans through advising as well as activities outside of the classroom also may impact their perception of veterans engaging within community. They may not see them at engineering club activities, while associate professors and staff may observe them based on the fact they may have similar hobbies, similar age, and similar age children. Veterans are generally older than the undergraduate student population and will engage in community differently. There was strong consensus that veterans are less likely to seek help. Many veterans note that they did poorly when they initially went to college and decided to join the military and let the military assist them in paying for college when ready to return. When they return, their stronger work ethic, matured learning abilities, and enhanced appreciation for the level of opportunities a college

degree provides are key factors many mention as their internal drive to be successful, a drive that leads many to be self-motivated independent learners.

Interestingly, the landscape of dermal art has changed. Twenty years ago, the results would have most likely pointed to veterans being more likely to have dermal art, but the current results are neutral with a lean toward civilian students more likely to have dermal art. Again, a deeper dive into what course level faculty are teaching would assist in understanding why most faculty were generally neutral while the assistant professors (untentured faculty overall) observed civilians more likely to have dermal art and associate professors (tenured faculty overall) observing more veterans with dermal art. Of note, dermal art was included on the questionnaire because it matched with known veteran myths.

The final two questions did not have a civilian corollary, but the results are interesting. When considering whether veterans had been in combat or would expect special recognition, the overall results were neutral with a lean toward disagree. The two bookends were consistent for both questions in that associate professors were on the agree side of neutral while the staff leaned the most toward disagree. The course level and advising role of associate professors and how/why/when staff interact with veterans would possibly provide more clarity as to this difference when the rest of the faculty were generally in agreement.

Table 2: Responses to Veteran Belief Statements, Based on Role and Level (Bolded items indicate candidates' statistical regression that are likely significant and are $r \leq 0.05$ from the mean value for that category. Overall means for each category are given in red)

PTSD	> Vet	Initiative	> Vet
All:	0.423	All:	0.824
Instructor:	0.506	Instructor:	0.154
Senior Instructor:	0.056	Senior Instructor:	0.458
Assistant Professor:	0.515	Assistant Professor:	0.662
Associate Professor:	0.769	Associate Professor:	0.923
Full Professor:	0.174	Full Professor:	0.830
Staff:	0.467	Staff:	0.848
<i>Non-Tenured:</i>	<i>0.545</i>	<i>Non-Tenured:</i>	<i>0.587</i>
<i>Tenured:</i>	<i>0.389</i>	<i>Tenured:</i>	<i>0.864</i>
Organized	> Vet	Rigid Thinkers	> Vet
All:	0.312	All:	0.377
Instructor:	0.135	Instructor:	0.567
Senior Instructor:	-0.389	Senior Instructor:	0.278
Assistant Professor:	0.051	Assistant Professor:	0.625
Associate Professor:	0.462	Associate Professor:	0.462
Full Professor:	0.543	Full Professor:	0.403
Staff:	0.353	Staff:	0.114
<i>Non-Tenured:</i>	<i>0.104</i>	<i>Non-Tenured:</i>	<i>0.653</i>
<i>Tenured:</i>	<i>0.514</i>	<i>Tenured:</i>	<i>0.422</i>
Diverse	> Vet	Relevant Job Skills	> Vet
All:	0.224	All:	0.822

Instructor:	0.348	Instructor:	0.782
Senior Instructor:	-0.236	Senior Instructor:	0.375
Assistant Professor:	0.265	Assistant Professor:	0.313
Associate Professor:	0.308	Associate Professor:	1.154
Full Professor:	0.306	Full Professor:	0.929
Staff:	0.277	Staff:	0.915
<i>Non-Tenured:</i>	<i>0.288</i>	<i>Non-Tenured:</i>	<i>0.629</i>
<i>Tenured:</i>	<i>0.308</i>	<i>Tenured:</i>	<i>1.010</i>
Educated	> Vet	Community	> Vet
All:	0.143	All:	0.17
Instructor:	0.417	Instructor:	-0.795
Senior Instructor:	-0.333	Senior Instructor:	-0.250
Assistant Professor:	-0.290	Assistant Professor:	0.015
Associate Professor:	0.077	Associate Professor:	0.385
Full Professor:	0.488	Full Professor:	0.040
Staff:	0.039	Staff:	0.270
<i>Non-Tenured:</i>	<i>0.033</i>	<i>Non-Tenured:</i>	<i>-0.224</i>
<i>Tenured:</i>	<i>0.307</i>	<i>Tenured:</i>	<i>0.163</i>
Seek Help	< Vet	Dermal Art	< Vet
All:	-0.511	All:	-0.031
Instructor:	-0.538	Instructor:	0.006
Senior Instructor:	-1.472	Senior Instructor:	-0.028
Assistant Professor:	-0.287	Assistant Professor:	-0.581
Associate Professor:	-0.385	Associate Professor:	0.231
Full Professor:	-0.219	Full Professor:	0.101
Staff:	-0.944	Staff:	0.018
<i>Non-Tenured:</i>	<i>-0.583</i>	<i>Non-Tenured:</i>	<i>-0.178</i>
<i>Tenured:</i>	<i>-0.278</i>	<i>Tenured:</i>	<i>0.151</i>
Combat	< Neutral	Expect Spcl Recogn	< Neutral
All:	2.8	All:	2.5
Instructor:	2.615	Instructor:	2.230
Senior Instructor:	2.778	Senior Instructor:	2.000
Assistant Professor:	2.412	Assistant Professor:	2.706
Associate Professor:	3.692	Associate Professor:	3.000
Full Professor:	3.087	Full Professor:	2.696
Staff:	2.200	Staff:	2.033

b. Institutional Profile - When parsing the data according to institutional type (i.e., Teaching-focused; Research-focused; 2-year; 4-year; Land Grant; Public; Private), the research team noted some interesting trends in the perceptions of veterans with respect to PTSD and education that warrant further investigation. Future research in these areas carries importance and value both for student veterans choosing which type of school they want to attend, and for institutions contemplating and undergoing change to become more veteran friendly.

First, while survey participants across all institutions agreed that veterans as a group are more likely to experience PTSD than civilians as a group are, the strongest statements of this belief (i.e., the biggest difference between selections of veterans more likely and civilians less likely to suffer PTSD) occurred among participants from Research-Focused and Private institutions. See Table 3.

The team hypothesizes that existing perceptions about veterans and PTSD may be heightened within high intensity learning environments that may be more common at Research-Focused and selective Private institutions. Due to their more selective admission standards and performance-oriented culture, learning environments (i.e., intense, competitive, performance-oriented) within these types of institutions may exacerbate existing feelings of stress, uncertainty, and lack of belonging among student veterans, who are already engaged in demanding identity and role transition experiences [12]. Ultimately, competitive and performance-oriented learning environments and higher socio-economic status student bodies, more common at selective Private Institutions, may work to exclude or distance student veterans from their peers and slow their transition process, ultimately playing into and heightening baseline beliefs about veterans and PTSD among civilians at these institutions. Alternatively, in less intensive learning environments more common at teaching-focused and public institutions, some of this distance between student cohorts may be mitigated through student-focused pedagogy and learning supports.

Table 3: Institution type and beliefs about veteran PTSD status

	Veterans more likely to suffer PTSD	Civilians less likely to suffer PTSD	Difference
Overall	3.780	3.357	0.423
Teaching-Focused	3.561	3.317	0.244
Research-Focused	3.894	3.348	0.546
2 Year	4.000	4.000	0.000
4 Year	3.855	3.407	0.447
Land Grant	3.755	3.340	0.415
Private	3.879	3.250	0.629
Public	3.735	3.364	0.372
Other	3.697	3.406	0.291

Second, participants across all institutional types — except participants situated within Private Institutions—considered veterans more likely to be educated than civilians (Table 4). Participants from private institutions considered veterans less likely to be educated than civilians. This result may be attributable to the selectivity of the private institutions as compared to public institutions. Private institutions, with competitive admissions standards and higher costs, are known to educate smaller student veteran populations than public institutions do [13]. The lack of robust student veteran populations, combined with selective admission standards, may support faculty and staff beliefs at private institutions that veterans are less educated than civilians.

Table 4: Institution type and beliefs about veteran education status

	Veterans more likely to be educated	Civilians more likely to be educated	Difference
Overall	3.000	2.8557	0.143
Teaching-Focused	3.024	2.950	0.074
Research-Focused	3.000	2.761	0.239
2 Year	4.000	2.000	2.000
4 Year	3.091	2.698	0.393
Land Grant	3.102	2.872	0.230
Private	2.909	2.970	-0.061
Public	3.088	2.750	0.338
Other	3.030	3.000	0.030

The survey data surfaced other interesting insights, relative to perceptions that veterans are more diverse, are more willing to participate in community events, and are rigid thinkers, based on participants' institutional type (Table 5). For example, participants from Teaching-focused Institutions were more likely to believe veterans to be demographically diverse than participants from research-focused institutions were. These differences in perceptions could partially result from the fact that teaching-focused schools tend to draw more in-state and local community students, while Research-focused Institutions bring more out-of-state and international students into their ranks. Considering that military service members as a group approach the demographic diversity of the aggregate U.S. population [14], it could be that student veterans stand out as more diverse within teaching-focused institutions and blend in with the more diverse student population at research-focused institutions.

Table 5: Institution type and beliefs about veteran diversity

	Veterans more likely to be diverse	Civilians more likely to be diverse	Difference
Overall	3.030	2.806	0.244
Teaching-Focused	3.244	2.725	0.519
Research-Focused	3.021	2.739	0.282
2 Year	3.000	3.000	0.000
4 Year	2.964	2.736	0.228
Land Grant	3.061	2.809	0.253
Private	3.152	2.970	0.182
Public	2.853	2.625	0.228
Other	3.212	3.030	0.182

Next, participants from 4-year and Public Institutions believed that veterans were less likely than civilians to participate in community events, while participants from other institutions believed that veterans were more likely to participate in community events (Table 6). This difference may result from the fact that most student veterans fund themselves through a public education using some combination of employment and GI Bill benefits. In addition, as post-traditional students, student veterans are likely to support dependent family members for whom they are responsible. Pursuing a four-year post-secondary degree, itself, is a demanding task; student veterans who are

pursuing 4-year degrees at Public Institutions, who may also work and support dependents, may not have adequate free time available to engage in community during their education.

Table 6: Institution type and beliefs about veteran community engagement

	Veterans more likely to participate in community	Civilians more likely to participate in community	Difference
Overall	3.170	3.000	0.170
Teaching-Focused	3.146	2.850	0.296
Research-Focused	3.149	2.913	0.236
2 Year	4.000	2.000	2.000
4 Year	3.073	3.094	-0.022
Land Grant	3.143	2.957	0.185
Private	3.091	2.909	0.182
Public	3.118	3.125	-0.007
Other	3.333	2.939	0.394

Last, participants across all institutional types, except those from Land Grant Institutions, considered veterans more likely to be rigid thinkers. This difference in perceptions of veterans' ability to be creative and think "out of the box" could partially result from the Land Grant mission and institutional epistemologies that result from their federally-mandated, Land Grant mission to provide practical education, in areas such as agriculture and engineering, to the entire citizenry of a state [15]. Thus, it could be that the more experiential education and training and hands-on technical skills and ways of thinking that veterans bring with them to higher education are better understood and more highly valued at Land Grant institutions, than at Research-focused or Private institutions. Faculty and staff at Research-focused or Private institutions may tend to value and produce knowledge and skill in areas where veterans have little to no prior experience or training, and thus, veterans may appear more strongly as "rigid thinkers" as they learn new ways of thinking, doing, and being.

c. Identity - *There were several correlations related to Gender, Race, and First-Generation Student Status. The most significant difference was in females believing most veterans had PTSD. In some small sample populations of the traditional categories, it was necessary to cluster some of these identities.*

Gender

There were gender differences in the perception that veterans experience PTSD at a higher rate than civilians (Table 7). While both males and females had relatively high levels of agreement that veterans were more likely to have PTSD, females had higher levels of agreement that this was true. Regarding the perception that veterans are more likely to seek help, females were less likely to agree that veterans were more likely than civilians to seek help. For the survey item related to having relevant job skills, males were more likely than females to indicate that veterans had relevant job skills as compared to civilians.

Table 7: Veteran vs. civilian more likely to, based on gender, selected items

	Male	Female
Vet > PTSD	3.750	4.000
Civ > PTSD	3.509	3.297
Diff	0.241 (Vet more likely to have PTSD)	0.703 (Vet more likely to have PTSD)
Vet > More likely to seek help	2.679	2.316
Civ > More likely to seek help	3.074	3.158
Diff	-0.396 (Vet more likely to seek help)	-0.842 (Vet more likely to seek help)
Vet > Relevant job skills	3.554	3.447
Civ > Relevant job skills	2.611	2.789
Diff	0.942 (Vet more likely to have relevant job skills)	0.658 (Vet more likely to have relevant job skills)

Race

Respondents who identified as persons of color were less likely than white respondents to believe that veterans were more educated than civilians. However, white respondents believed civilians were more likely to seek help than veterans. (Table 8).

Table 8: Veteran vs. civilian more likely to, based on race, selected items

	White	Non-White
Vet > Be educated	3.094	2.467
Civ > Be educated	2.798	3.214
Diff	0.296 (Vet more likely to be educated)	-0.748 (Civ more likely to be educated)
Vet > Seek help	2.529	2.600
Civ > Seek help	3.095	2.786
Diff	-0.566 (Civilians more likely to seek help)	-0.186 (Civilians slightly more likely to seek help)

First-Generation Student Status

Research has shown that first-generation students bring unique experiences and background to their college studies. For example, first-generation students generally experience higher rates of attrition than continuing generation students [16], achieve lower GPAs [17] and graduate at lower rates than continuing education students [18]. On the other hand, first-generation student status can also be a source of pride for students, as illustrated by a study of first-generation student veterans in engineering [19]. The survey data for this study reveal some differences for

several of the survey items between first-generation students and non-first-generation students. The items for which the differences between the two groups (first-generation students and non-first-generation students) were higher are featured in Table 9. First-generation students had higher rates of agreement that veterans were more likely to suffer from PTSD, to take initiative, and to have relevant job skills. First-generation students had lower rates of agreement than non-first-generation students that veterans were likely to participate in community events.

Table 9: Veteran vs. civilian more likely to, based on First-Generation student status, selected items

	First-Generation Student	Non-First-Generation Student
Vet > To suffer from PTSD	3.000	3.000
Civ > To suffer from PTSD	2.633	2.956
Diff	0.367 (Vet more likely to have PTSD)	0.004 (Vet more likely to have PTSD)
Vet > Take initiative	3.742	3.551
Civ > Take initiative	2.500	2.912
Diff	1.242 (Vet more likely to take initiative)	0.639 (Vet more likely to take initiative)
Vet > Participate Comm	3.032	3.232
Civ > Participate Comm	3.233	2.897
Diff	-0.211 (Vet less likely participate in community/social events)	0.335 (Vet more likely to participate in community/social events)
Vet > Relevant job skills	3.645	3.412
Civ > Relevant job skills	2.500	2.735
Diff	1.145 (Vet more likely to have relevant job skills)	0.676 (Vet more likely to have relevant job skills)

d. Proximity to Veterans - *Having a multitude of connections to veteran populations is more impactful on one's opinion and beliefs with respect to stereotypes than having a more direct familial tie.*

Respondents also quantified their proximity to veterans, selecting from the following connections, if true (Table 10):

Table 10: Proximity (personal connection) to veterans

Proximity (Personal Connections) to Veterans	Number of Responses
I am a veteran	19
Spouse, sig other, or former spouse is/was a veteran	14
My grandparent is/was a veteran	45

My parent is/was a veteran	49
My adult child is/was a veteran	8
My sibling is/was a veteran	11
My extended relative is/was a veteran	66
A friend of mine is/was a veteran	74
A former or current student is/was a veteran	42
No personal connections with veterans	2

Based on the responses, it is apparent that nearly all the respondents had some connection with a veteran. A vast majority stated that they were related to a veteran while the remaining either had a friend who was a veteran or knew a student who was a veteran. This section allowed for multiple selections, so it makes sense that someone who is a veteran also has friends that are veterans and possibly other family connections to the military.

The categories were then paired up in relation groups, i.e. immediate family (Spouse, Parent, Child and Sibling) and more distant relationships (Grandparent, Extended Relative, Friend and Student). Additionally, groups were created based on the number of reported veteran connections, with the filter criteria being those that selected one or two relational options and those that selected three or more. It was found that 51% of the participants had three or more connections, 47% had one or two connections, and the remaining ~2% reported no connections.

One interesting effect to explore is the differences in the survey responses as a function of the respondents' relationships to veterans. Table 11 below shows the absolute value of the magnitude of the response differences for all survey dimensions and for a few key questions related to the veteran population. Upon examining the results in Table 11, it is interesting to note that the respondents who knew veterans from 3 or more relational categories had a greater average deviation in their responses. Respondents with immediate or more direct relationships with veterans show a much greater average deviation versus those respondents who only reported relationships that were more distant.

Looking at specific dimensions or stereotypes, the response deviations among the groups of respondents varied the most for the stereotypes related to PTSD, serving in combat, special recognition, and rigidity of thinking. For PTSD, special recognition, and rigidity of thinking, the impacts of those having 3+ connections were on the order of three times greater average deviation versus having a first level or immediate familial connection. It should also be mentioned that for these deviations, having a closer familial connection or more categories of relationships resulted in a change that positively combatted the stereotype. For example, respondents with more connections or closer familial connections became more neutral in their beliefs regarding a veteran suffering from PTSD or being a rigid thinker. Similarly, the change with respect to veterans seeking recognition moved towards disagreement. One interesting dimension is that for the stereotype regarding veterans serving in combat, the mean response was on the order of five times greater average deviation from neutral towards disagreement for those with 3+ connections. However, the response showed little change for those with immediate vs secondary relationships.

Table 11: Response differences among respondents with close (immediate familial) ties and more distant ties to veterans, and respondents who reported relationships with veterans from 3 or more categories vs those with fewer types of relationships / connections

Dimension / Topic	Magnitude of Difference of Mean Response	
	Immediate Relationship vs. More Distant Relationship	3+ Connections vs. 1-2 Connections
Overall (Mean Over All Questions)	0.097	0.256
Veterans More Likely to Suffer PTSD	0.224	0.645
Veterans Served in Combat	0.004	0.526
Veterans More Likely to Expect Special Recognition	0.200	0.698
Veterans More Likely to Be Rigid Thinkers	0.197	0.594

Of note, when looking at the question, Veterans are more likely to suffer from PTSD, results show that the likelihood of this belief increases the further the familial connection is away from the individual. Table 12 (column 2) shows that a veteran responded slightly higher than average with 3.1, which increased a little if the spouse was a veteran, more if the veteran was their parent and the greater movement (stronger belief) occurred if the relationship was a grandparent that was a veteran. If the child was a veteran, the number was significantly less. This trend was also present, although to a lesser degree, in the questions: Veterans are more likely to be rigid thinkers and Veterans are more likely to have relevant job skills.

Table 12: Average responses to key questions showing trends with respect to immediate family relationships

Relationship to respondent	Veterans are more likely to suffer PTSD	Veterans are more likely to be rigid thinkers	Veterans are more likely to have relevant job skills
Veteran	3.105	2.632	3.263
Spouse	3.357	2.643	3.357
Parent	3.511	2.800	3.432
Grandparent	3.776	2.959	3.469
Child	2.625	2.125	3.429

The survey results show that the closer a respondent's relationship is to a veteran, the more the respondent's beliefs align with responses from veterans themselves. In general, for most questions, it also shows that the more veteran connections an individual has, the closer aligned their beliefs are with respect to veterans.

e. Green Zone Training - Preliminary regression analyses indicate that respondents who have had Green Zone Training are less likely to agree with veteran myths.

Green Zone training is a program, much like "safe spaces" for other students, where student veteran contacts at a university are knowledgeable and supportive to create a more veteran-

friendlier environment. “Green Zone” is a term well-recognized by military personnel as a safe place during a deployment or combat zone. One of the goals of the Green Zone training is to have a positive effect on the success of student veterans [20]. Training sessions cover basic knowledge about the concerns and issues facing military students and the resources available for them. Thus, the sessions may be unique due to campus resources on or near the campus. The training is typically two hours with the first hour devoted to topics such as the military experience, the emotional cycle of deployment, issues in transitioning from base to campus, special needs of student veterans with disabilities, and strategies for easing the transition. The second hour may be interactive with scenarios or focus on campus resources. Green Zone allies are not expected to become experts on the military or the resources, but to be empathetic and to work with the student veterans to help them solve their problems.

Table 13 shows the significant differences between respondents who had Green Zone training and those that did not. Green Zone training specifically addresses some of the stereotypes and perceptions, often citing causes for some of the misperceptions (age difference, life experiences, television portrayal, etc.). The perception that veterans experience Post Traumatic Stress Syndrome (PTSD) at a higher rate than civilians was nearly dispelled after Green Zone training.

Table 13: Green Zone training effect on selected perceptions

	GZ – yes	GZ - no
Vet > PTSD	3.600	3.800
Civ > PTSD	3.556	3.337
Diff	0.044 (Vet: Civ $\approx$ No Diff)	0.463 (Vet more likely to have PTSD)
Vet > Educated	2.600	3.044
Civ > Educated	2.000	2.944
Diff	0.600 (Vet more likely to be educated)	0.101 (Vet: Civ $\approx$ No Diff)
Vet > Comm Participation	2.400	3.256
Civ > Comm Participation	3.111	2.989
Diff	-0.711 (Vet much less likely to participate in community)	0.267 (Vet more likely to participate in community)
Vet Served in Combat	2.000 (Vet < likely to be in combat)	2.889 (Neutral)

The military population is screened for PTSD, and reporting is encouraged while the civilian population often underdiagnoses due to the stigma. Participants with Green Zone training were also more likely to agree that veterans were more educated, again emphasizing the training and availability of continuing education opportunities. However, Green Zone training was also found to correlate with selected veteran myths—respondents disagreed with the perception that veterans are more social and likely to participate in their community. Green Zone training does typically address that veterans have an age difference, perhaps young families, and other obligations that may prevent them from the same social interactions as their civilian student

counterparts. Other interpretations are that Green Zone training may emphasize or strengthen some of these misperceptions [19]. Finally, the belief that all veterans serve in combat was also addressed in Green Zone training, and the survey results echo this in the last perception highlighted in Table 13.

5. Discussion

Misperceptions about student veterans can have negative consequences for student veterans and non-student veterans, alike. Although this study does not investigate the extent that negative perceptions affect student veteran performance, self-efficacy, and persistence, a sense of belonging is important to academic persistence in STEM and a communal outcome that is acknowledged in many diversity, equity, and inclusion initiatives in higher education [21]. Despite historically high enrollments in higher education, student veterans continue to face biases on college campuses from their faculty and staff. Student veteran stereotypes can negatively impact their higher education experiences, and literature indicates faculty can unknowingly retain these stereotypes. Educators all want to serve the needs of students. Student veterans are a unique group of students who took a different path to get to the classroom. Recognizing the societal views toward student veterans improves educators' abilities to advocate for and advise them. Faculty are also better positioned to educate other faculty and staff, but perhaps more importantly, they are entrusted to create learning spaces and the environment for all student success. Some key observations from this data suggest:

Role and Level

- 1) More experienced faculty are less likely to believe that most veterans suffer from PTSD, as compared to their more junior faculty counterparts.
- 2) Strong consensus among faculty and staff that veterans are less likely to seek help.
- 3) A deeper look into the level of the courses (freshman, sophomore, junior, senior, graduate) responding faculty are actually teaching may provide better insight to some of the trends for untenured vs. tenured, assistant professors and senior lecturers.

Institutional Profile

- 4) Research-focused institutions and Private institutions are more likely to believe that veterans suffer from PTSD.
- 5) All institutional types except Private institutions believed veterans were more likely to be educated than civilians.
- 6) Teaching-focused institutions were more likely than Research-focused institutions to believe veterans were more diverse than civilians.

Identity

- 7) Women were more likely than men to agree that veterans suffer more from PTSD, though the difference was slight.
- 8) First generation students were more likely than non-first-generation students to agree that veterans participate in community events.

Proximity to veterans

- 9) Having a multitude of connections to veteran populations is more impactful on one's opinion and beliefs with respect to stereotypes than having a more direct familial tie.
- 10) The closer a respondent's relationship is to a veteran, the more the respondent's beliefs align with responses from veterans themselves.
- 11) With respect to the PTSD dimension, there seems to be a bias / stereotype that occurrences of PTSD are greater among older generations than among younger ones (respondents with connections to grandparents > connected to parents > connected to spouse > connected to child).

Green Zone Training

- 12) Although Green Zone Training alleviated some misperceptions, such as the higher likelihood of PTSD in veterans, it may also embolden or strengthen some of these misperceptions.

6. Conclusions and Future Work

The IRB approved survey revealed possible correlations between certain variables (faculty, institution, institutional profiles, demographics, etc.) and perceptions towards veterans. The authors acknowledge that there are opportunities to provide more resolution in each of the areas (number of years in role, number of veterans at institution, size of institution, etc.) that can provide more insight. Each of these areas could be a separate study. The preliminary findings suggest Green Zone training positively combats many stereotypes related to veteran student populations, despite the loose definition of content / curricula for the training. As the study expands, there is an opportunity to discover how institutional and social dynamics interact with perceptions of veterans' abilities, expertise, and potential as employees. Future research may result in resources to guide veterans toward institutions offering the best educational experience for veterans.

Future work in this area will examine, revise, and validate the survey tool, expanding the overall response rate. These exploratory findings suggest there may be more correlations that can help the team develop interventions for faculty, staff, and administration as this project moves forward. Future work includes investigating the key observations noted in the previous section. Other perceptions towards student veterans stem from potential and current employers, fellow students, medical facilities, and even the student veterans themselves. These groups may have misperceptions that impede or interrupt the student veteran transition, and their reasons may be significantly different than the faculty and staff population.

Acknowledgements

This material is partially based upon work supported by the National Science Foundation under Grant No. 2045634. Any opinions, findings, and conclusions or recommendations expressed in this material are those of the authors and do not necessarily reflect the views of National Science Foundation.

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