

RESEARCH

Veterans in Classrooms: Post Traumatic Stress, Seating Preferences, and Achievement

Daniel Allen Clark and Kenneth Walker

Texas A&M University, Central Texas, US

Corresponding author: Daniel Allen Clark (daniel-clark@tamuct.edu)

Anecdotal knowledge and qualitative research has suggested that previously deployed combat veterans prefer particular seating locations. Students at a university near a large army base chose preferred seats and answered survey items regarding trauma symptoms and academic achievement. There was a relationship between post-traumatic stress symptoms and preferred seating location, but the location was dependent upon if the student had been deployed. Similar relationship differences were found for academic achievement. From these results, it appears that amongst other factors, post-traumatic stress may impact student seating preferences, especially for students who have been exposed to combat in the military.

Keywords: Student Veterans; post traumatic stress; seating preferences; academic achievement; higher education

Introduction

Following the passing of the Post-9/11 GI Bill, there has been an increase of veterans of the armed services attending colleges and universities in the United States of America (Zhang, 2018). Many of these veterans may have difficulty adjusting to life in an academic setting (Schonfeld et al., 2015). In many cases, difficulty adjusting to academic life may be a reflection of incompatible systemic practices in postsecondary educational environments (Dillard & Yu, 2016). The backgrounds and training of faculty and staff may also impact student adjustment (Gonzalez & Elliott, 2016). An additional reason for academic difficulty identified by researchers is the connection between student veterans and Post-Traumatic Stress Disorder (PTSD; Barry et al., 2012).

Post-traumatic stress and associated effects

PTSD is a psychological disorder that involves some type of exposure to a traumatic event and subsequent symptoms that involve memories that intrude on to one's daily life, avoidance of associated stimuli, alterations of cognition or mood associated with the event, and changes in arousal or reactivity associated with the event (American Psychiatric Association, 2013). In a meta-analysis of 33 studies, Fulton et al. (2015) found that around 23% of veterans returning from the most recent conflicts have PTSD. One study found that the strongest predictor of PTSD was being deployed to a combat zone (Nyaronga & Toma, 2015).

Amongst the many effects of PTSD, the disorder has been linked to problems with attentional processing of emotional

information (Ehlers & Clark, 2000). For example, Armstrong et al. (2013) compared the eye gaze behavior of a group of veterans with combat experience to a group of non-veterans with no psychological diagnoses while looking at faces with different types of emotions. The authors reported that the veterans with PTSD diagnoses spent more time looking at the faces that were negative as opposed to positive. Neither the veterans without PTSD or the healthy controls showed the same bias. Veterans with PTSD have also been shown to have a stronger physiological reaction to negative images and focus more on images related to combat (Kimble et al., 2010). However, another study found that combat experience was associated with threat-related attentional bias for soldiers who had subclinical levels of PTSD symptoms (Ranes et al., 2017). It is thought that the traumatic experiences of individuals with PTSD lead to both structural and hormonal changes in the brain which induce and maintain the symptoms of the disorder (Asalgoo et al., 2015). Given the severity of the disorder, it should not be surprising if it had an impact on the functionality of several areas of life. Of particular interest for this study is how the disorder can impact an individual's performance in postsecondary education.

The effects of PTSD on student veterans

Researchers have documented that PTSD symptoms among student veterans are associated with feelings of alienation on campus, strain on intimate partner relationships, and problematic drinking (Elliott et al., 2011). In addition, symptoms of PTSD may have an impact on the academic perform-

ance of student veterans (Barry et al., 2012). The next step for research in this area may be attempting to discover explanatory factors that may aid in understanding the mechanisms behind the effect of PTSD symptoms on academic performance. One theme that has been introduced by researchers as a possible mechanism is interpersonal and social difficulties experienced by some veterans in an academic environment (Campbell & Riggs, 2015; DiRamio et al., 2008; Fredman et al., 2019; Whiteman et al., 2013).

Veterans in a college classroom

Within the interpersonal sphere, several qualitative studies have reported student veterans having difficulties within a physical classroom environment (Alschuler & Yarab, 2018; DiRamio et al., 2008; Medley et al., 2017; Persky & Oliver, 2010). Some of the students interviewed for these studies mentioned being uncomfortable making comments or being asked questions in class, problems with political differences (DiRamio et al., 2008), or challenges associated with being more mature than other students (Alschuler & Yarab, 2018). Persky and Oliver (2010) described students being discouraged from finishing their education due to their experiences in the classroom. Several of these studies also mentioned student veteran's problems with PTSD and a desire for faculty understanding, yet specific classroom issues were not identified (Medley et al., 2017; Persky & Oliver, 2010). Alschuler and Yarab (2018) described a student veteran with PTSD who was constantly scrutinizing the classroom environment for threats and planning an escape if needed. Another student from the same study was described as being anxious in crowds and planning an escape from the classroom. Along these same lines, the American Council on Education's Toolkit for Veteran Friendly Institutions (2018) warns faculty that student veterans may "request seating preferences" and that these students "are often more comfortable facing a group" (p. 8). From this recommendation, it seems like some of this issue of physical classroom orientation has become part of conventional wisdom for students, instructors, and researchers in this area. However, quantitative research to date has not investigated this particular issue with this population. Previous studies have investigated how seating preferences may affect other factors associated with (and including) academic performance (Becker et al., 1973; Pichierri & Guido, 2016; Shernoff et al., 2017; Zomorodian et al., 2012) and which factors may predict seating preferences (Losonczy-Marshall & Marshall, 2013).

Seating preferences in college classrooms

In an early study of the effect of seating on academic performance, Becker et al. (1973) compared the grades of students who sat in different areas of a large classroom. The study involved 282 college students who all took courses in the same lecture hall. The researchers found that students who sat closer to the front of the room received higher grades. Also, they found that sitting on the sides of the classroom was less advantageous academically com-

pared to the middle of the class. Similar effects have been found across many subsequent studies (Pichierri & Guido, 2016; Shernoff et al., 2017; Zomorodian et al., 2012). However, evidence seems to be more mixed concerning the mechanism behind this effect. Some studies suggest that the differences are due to the environment of the different locations (Stires, 1980), while others claim that it is likely due to how different students choose different seats (Levine et al., 1980). A recent study found that both environmental and self-selection factors are important (Shernoff et al., 2017).

Losonczy-Marshall and Marshall (2013) designed a questionnaire to empirically investigate the possible reasons why students may choose to sit in different areas of the room. Based on a survey of 346 college students, the authors explained that five factors emerged from the data. The most important factor that emerged was that students wanted to sit in a location that was conducive to better academic performance. This measure was associated with sitting closer to the front of the classroom. Although many of the students rated it as less important, another factor that emerged from the same data was finding a seat with an optimal proximity to the entrance of the room. Other studies have implicated differences in functional brain symmetry and processing expectancy as reasons why students choose particular seats (Gur et al., 1975; Harms et al., 2015). Understanding some of these factors may be important, because in conjunction with the previously reviewed research, they may help inform instructors to have insight concerning the seating preferences of student veterans.

The current study

The overall purpose of the current study was to empirically investigate the seat preferences and associated cognition of student veterans as compared to similar students who had never been deployed to a combat area.

Research Question 1: Do student veterans show different seating preferences than other students?

Hypothesis 1. Based on the reported research and the experience of the authors, it was predicted that student veterans would prefer to sit in the rear of the classroom.

Research Question 2: Are PTSD symptoms related to the seating preferences of students in general and specifically student veterans?

Hypothesis 2. Based on the previous research concerning paying attention to threats and the reports of student veterans from qualitative studies, it was expected that PTSD symptoms would be correlated with the tendency to prefer a seat in the back of the classroom.

Research Question 3: Does the placement of the classroom door affect the seating preferences of college students in general or student veterans? Harms

et al. (2015) found that the entrance position did not affect student seating preferences, but that study was only investigating overall asymmetry in seating locations. However, Alschuler and Yarab (2018) described the experience of a student veteran who was constantly monitoring the environment for threats and planning escape. In order to monitor threats and be able to escape in a timely manner, it is logical that such a student would choose a seat that was also near a door. *Hypothesis 3A.* Based on previous research, it was predicted that students and student veterans would choose seating locations further to the back when the classroom doors were in the back of the classroom, as opposed to when they were in the front of the classroom (images 2 and 4 from **Figure 1**). *Hypothesis 3B.* It was predicted that students and student veterans would choose seats closer to the side of the room when the doors were on the side of the room (images 1 and 3 from **Figure 1**).

Research Question 4: Do similar academic effects of different classroom seating locations apply to student veterans?

Hypothesis 4. It was expected that choosing a seating location near the back of the classroom would be associated with lower Grade Point Average (GPA) across deployed student veterans and non-deployed students.

Method
Participants

This study was conducted with a sample of 253 undergraduate students who were enrolled in an upper level university (only junior and senior level courses are offered for students who have completed their first two years elsewhere) which is located near a large military base. Although only 36.8% of the students in the sample were (currently or in the past) servicemembers, 45.8% of the sample had been married to a service member. In addition, 49% of them were raised by a member of the armed services. Taken together, 85.6% of the students in the sample had either served themselves, been raised by an armed service member, or had been married to a member of the United States Armed Services. The majority of the sample was female (81.3%) and of nontraditional age for college students ($m = 31.02$, $sd = 9.16$). The largest ethnicity represented was white (39.5%), followed by African

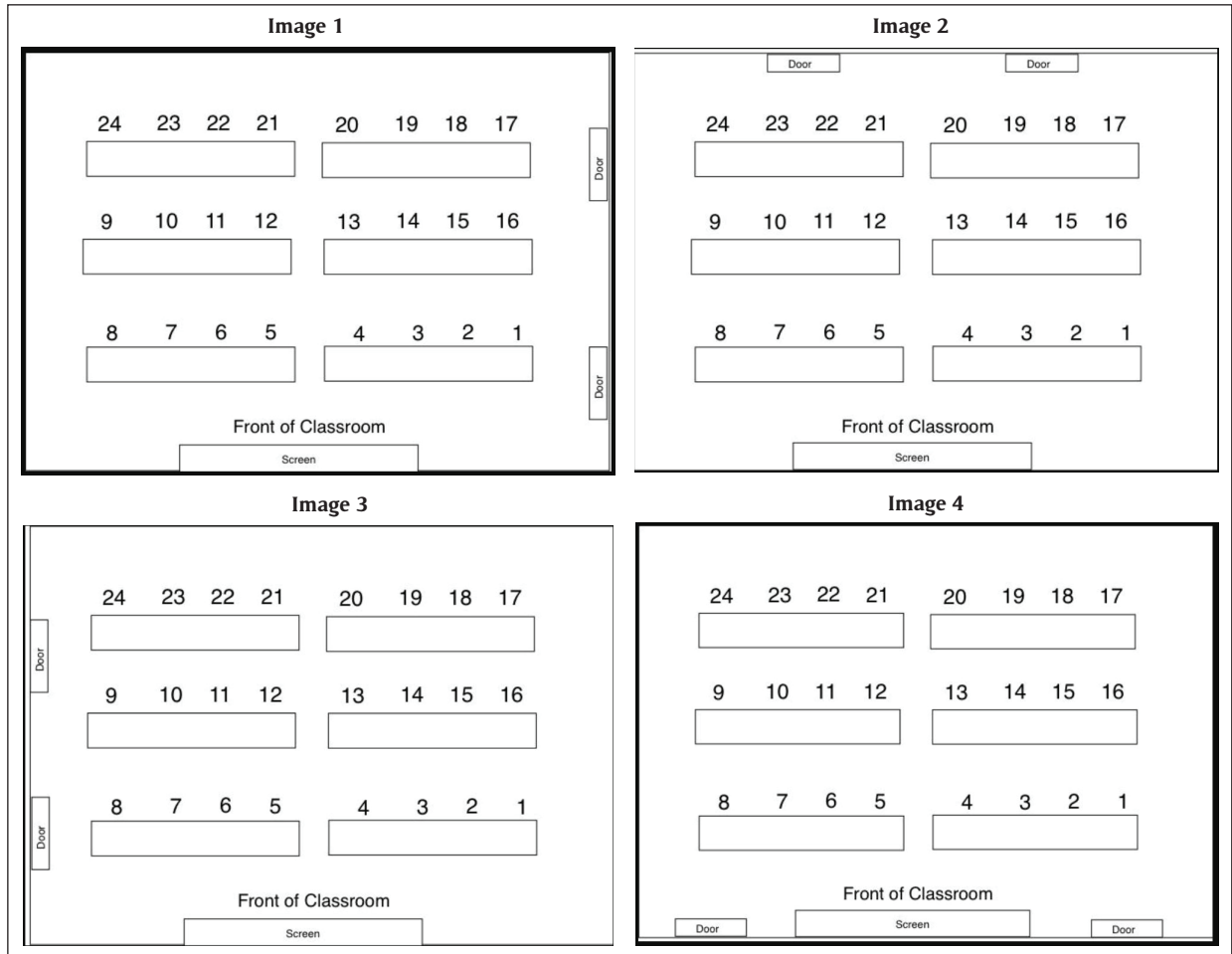


Figure 1: Images Shown to Participants.

American (23.7%), Hispanic/Latino (19%), Asian American (2%), and Native American (1.2%). Many students in the sample (14.3%) identified as having more than one ethnicity. The average self-reported grade point average (GPA) for this sample was 3.16 ($sd = 0.45$).

There were 93 students in the sample who were (or had) served in the armed forces. Of those students, over half (51.6%, $n = 48$) reported being deployed to a combat zone. Not surprisingly, the students who reported serving were older than those who did not ($t[250] = 7.32, p < 0.001$). Also, Student Veterans who reported being Previously Deployed (SVPD) to a combat zone were on average ($m = 38.47, sd = 7.15$) compared to those who had never been deployed ($m = 33.48, sd = 9.23$). The group of students who did not report being deployed to a combat zone were 82.4% female, while those who had deployed were 65.9% female. The largest ethnicity represented in the non-deployed service members group was white (32.4%), followed by African American (29.4%), Hispanic/Latino (14.7%), and Asian American (2.9%). Many students in the non-deployed group (20.6%) identified as having more than one ethnicity. Among the students who reported being previously deployed to a combat zone, the largest ethnicity reported was white (43.9%), followed by African American (31.7%), and Hispanic/Latino (7.3%). Many of these students (17.1%) identified as having more than one ethnicity.

Design and measures

The current study measured PTSD symptoms using two separate instruments for different groups of students. The stu-

dents who identified as SSM/V were given the PTSD Checklist – Military (PCL-M; Weathers et al., 1993a), which included 17 items asking about post-traumatic stress disorder symptoms related to military service. For each item, the participants rated how much they had been affected by the described symptom on a likert scale from zero to five, with zero signifying “not at all” and five indicating “extremely.” For example, one item asked about “feeling upset when something reminded you about a stressful military experience.”

Students who did not identify as SSM/V were given the PTSD Checklist – Civilian (PCL – C; Weathers, 1993b). This scale also had 17 items that asked participants to rate how much they were affected by post-traumatic symptoms in general on an identical scale (to the PCL-M described above) from zero to five. Instead of asking about military experiences, the PCL-C asked about “feeling very upset when something reminded you of a stressful experience from the past.”

GPA was measured with a single item in which the participants were asked to use a sliding bar to move to self-report their GPA anywhere between one and four. Lines representing twenty different intervals (coinciding with different decimals i.e. 2.6) were included from which to choose. The sliding bar was initially set at 2.5.

To measure seating preferences, all of the students were shown four images, one at a time, in the same order (see **Figure 1**). When viewing the image, the participants were told to click on the number of the seat where they would prefer to sit in the classroom. These clicks were recorded by Qualtrics software and then they were coded according to several different measures (see **Figure 2**).

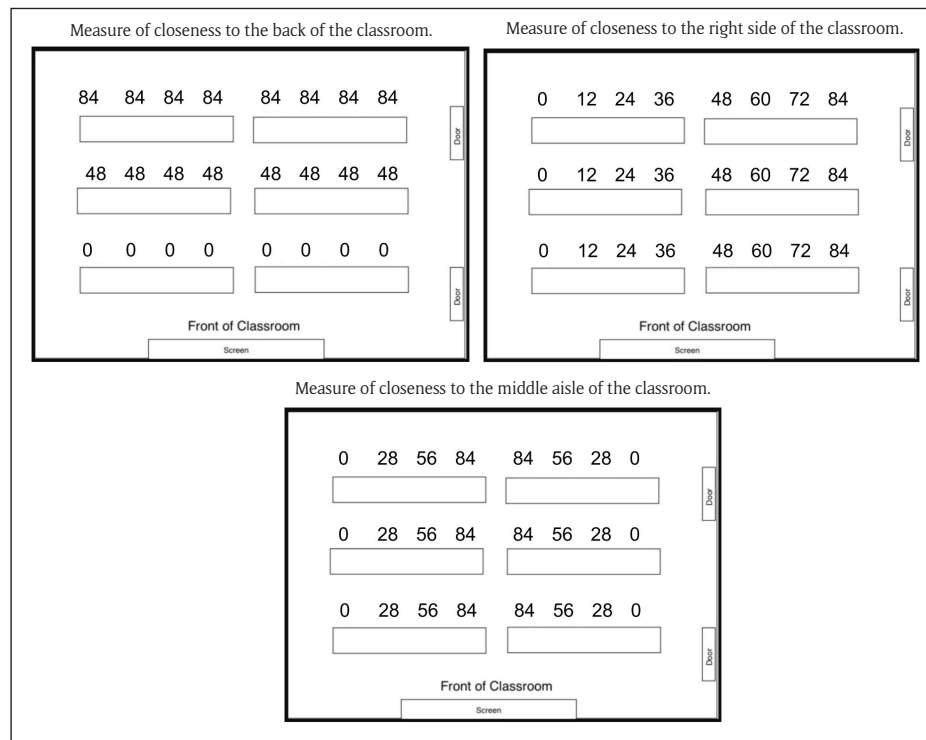


Figure 2: Assigned Values for Different Measurements.

Procedure

This study was administered using the Qualtrics survey platform. Before the study began, the participants were informed and voluntarily consented to participate. The first part of the study involved several questionnaires about academic performance that were completed for a separate study. After completing these questionnaires, the participants were shown the images on **Figure 1**, one image per screen. Upon viewing the image, the participants were instructed to “click on the number of the seat where you would like to sit in this classroom” for each of the four images. The images were displayed in the order that they appear in **Figure 1**.

After responding to the images, the participants answered several demographic questions, including questions about being an armed service member, deploying to a combat zone, and the number of combat deployments. Participants who indicated that they had served in the armed services then responded to the items of the PCL-M, while those who had never served responded to the items of the PCL-C.

Results

Hypothesis 1

When the averages across all four images were computed, student veterans were not more likely to choose a seating

location in the back of the room ($p > 0.3$). However, further inspection of the percentages of the different seating locations revealed there was a pattern (see **Table 3** and **Figure 3**). On average, SVPDs were more likely to choose seat number 24, which was the one in the back left corner of all four images ($F[2, 250] = 6.0$, $MSE = 0.45$, $p < .004$, $\eta^2 p = 0.05$). Post hoc Tukey comparisons revealed that this difference was only significant ($p < .05$) between SVPDs ($m = 0.52$, $sd = 0.97$) and those who had never served ($m = 0.16$, $sd = 0.50$).

Of the 48 SVPDs, 12 of them (25%) chose to sit in seat 24 at least once, compared to 22% of non-deployed student service members, vs. 11% of the civilian students ($\chi^2 = 6.94$, $p < .04$) (**Table 4**). Among the students who had been previously deployed, those who chose seat 24 at least once had higher ratings of PTSD symptoms, $t(46) = 2.21$, $p < .04$, $d = 0.75$. The same was not true for students who had never been deployed ($p > .8$).

Hypothesis 2

For SVPDs, there was a relationship between overall PTSD symptom rating and sitting towards the back of the classroom, $r = .29$, $p < .05$ (**Table 1** and **Figure 4**). On the level of the four constructs of symptoms (intrusion, avoidance, mood, and arousal), sitting in the back of the classroom was associated with symptoms of arousal, $r = .32$, $p < .03$.

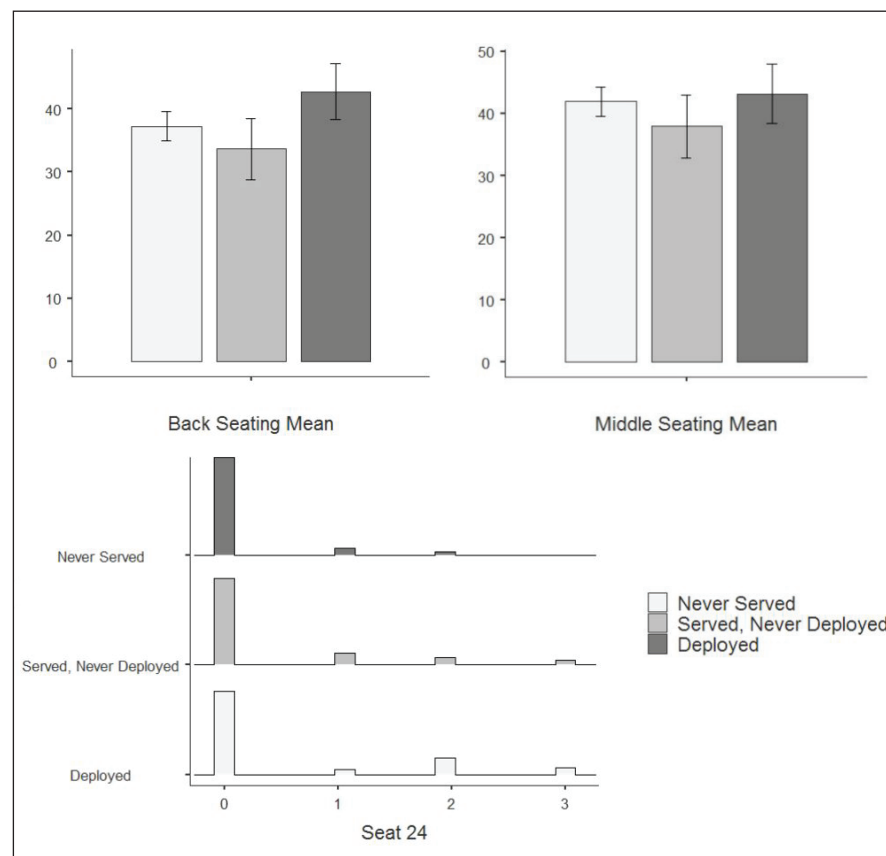


Figure 3: Seating Across Different Groups.

Table 1: Correlations between Seating Preferences for Deployed Veterans.

Variable	1	2	3	4	5	6
1. PCL	—					
2. GPA	-.13	—				
3. Back Mean	.29*	-.26	—			
4. Right Mean	-.22	.37**	-.37*	—		
5. Middle Mean	-.33*	.13	-.41**	.37**	—	
6. Door Mean	.03	-.07	-.03	.19	-.04	—

* $p < 0.05$, $n = 48$.**Table 2:** Correlations between Seating Preferences for Non-Deployed Participants.

Variable	1	2	3	4	5	6
1. PCL	—					
2. GPA	-.16	—				
3. Back Mean	.02	-.17*	—			
4. Right Mean	.23*	-.09	-.03	—		
5. Middle Mean	.03	-.06	-.26**	-.01	—	
6. Door Mean	.03	.04	-.08	-.00	-.17*	—

* $p < 0.05$, ** $p < .01$, $n = 205$.**Table 3:** Means and Standard Deviations of Study Measures.

Group	Control, Low PCL		Control, Higher PCL		Deployed, Low PCL		Deployed, Higher PCL	
	m	sd	m	sd	m	sd	m	sd
Measure								
PCL	21.97	11.22	55.29	9.99	12.41	10.97	58.03	11.90
CS1.Back	36.00	32.35	38.06	32.57	31.76	33.39	49.16	35.38
CS2.Back	38.74	31.19	38.08	32.19	31.76	33.39	54.19	35.58
CS3.Back	36.69	32.98	38.28	33.76	36.71	34.59	46.45	35.83
CS4.Back	30.40	30.78	35.52	34.36	34.59	32.56	41.03	36.10
CS1.Right	41.94	28.73	46.06	25.93	45.88	23.71	39.48	30.23
CS2.Right	37.37	27.96	45.06	28.78	43.06	24.02	32.90	28.56
CS3.Right	36.80	29.03	36.24	28.79	45.88	25.89	38.32	32.41
CS4.Right	39.09	30.37	46.80	28.92	40.94	23.64	34.45	30.00
CS1.Middle	41.87	36.24	46.95	33.43	54.35	33.53	38.84	37.34
CS2.Middle	42.93	36.23	41.14	36.01	56.00	35.69	38.84	35.91
CS3.Middle	40.00	36.60	39.48	35.17	51.06	37.35	32.52	36.93
CS4.Middle	36.53	35.40	40.32	36.33	57.65	36.33	37.03	37.14
CS1.Door	41.94	28.73	46.06	25.93	45.88	23.71	39.48	30.23
CS2.Door	38.74	31.19	38.08	32.19	31.76	33.39	54.19	35.58
CS3.Door	47.20	29.03	47.76	28.79	38.12	25.89	45.68	32.41
CS4.Door	58.40	28.49	52.32	33.40	54.35	30.92	46.45	35.83
Back.Mean	35.46	29.05	37.57	29.96	33.71	29.17	47.71	30.18
Right.Mean	38.80	18.05	43.55	15.03	43.94	11.52	36.29	14.21
Middle.Mean	40.33	31.31	41.81	31.08	54.76	28.99	36.81	33.81
Door.Mean	46.57	15.63	46.11	14.97	42.53	16.13	46.45	20.26

On the symptom level, for SVPDs, picking a seat in the back was associated with feeling upset when something reminded them of a stressful experience ($r = .43$, $p < .003$), having angry or irritable outbursts ($r = .38$, $p < .008$), and having difficulty concentrating, $r = .39$, $p < .007$. No symptoms of

PTSD were associated with sitting in the back of the room for student service members who had not been deployed. For civilian students, there was a relationship between choosing a seat in the back and feeling like their future had somehow been cut short, $r = .16$, $p < .05$ (**Table 2**).

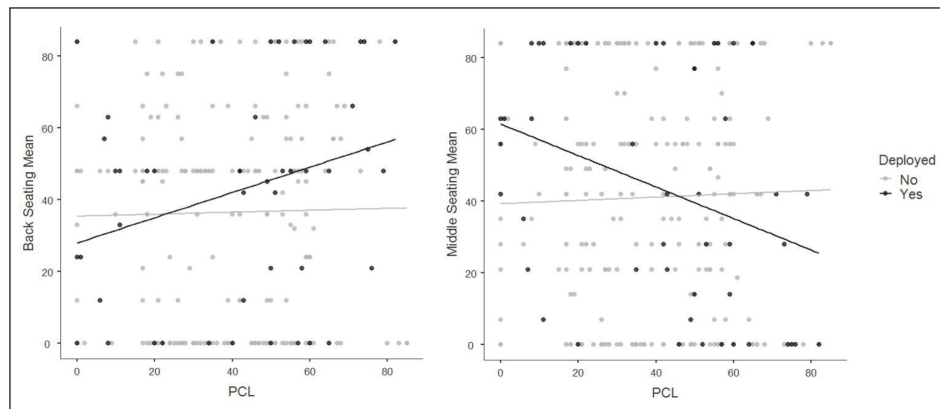


Figure 4: Relationships Between PCL Ratings and Seating.

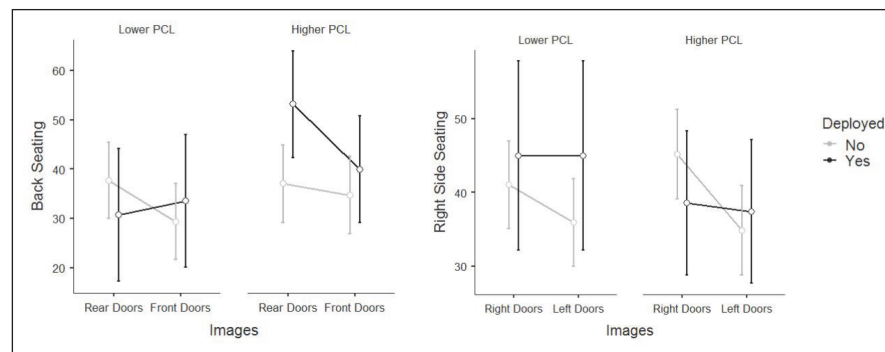


Figure 5: Seating Changes by Image.

The overall average rating of PTSD symptoms for SVPDs was also associated with choosing to sit towards the outer portions of the classroom, $r = -0.33$, $p < .03$. On the symptom level, for SVPDs, picking a seat in the outside was associated with feeling upset when something reminded them of a stressful experience ($r = -.37$, $p < .02$), having angry or irritable outbursts ($r = -.34$, $p < .02$), and having difficulty concentrating, $r = -.31$, $p < .04$. Also, sitting towards the outside of the room was associated with avoiding thinking about a stressful experience ($r = -.35$, $p < .02$), having trouble remembering details of an event ($r = -.29$, $p < .05$), losing interest in enjoyable activities ($r = -.29$, $p < .05$), and trouble falling or staying asleep, $r = -.42$, $p < .02$.

In contrast, PTSD symptoms were associated with sitting more on the right side of the classroom for students who had never been deployed to a combat zone, $r = .23$, $p < .002$.

Hypothesis 3A

A $2 \times 2 \times 2$ mixed repeated measures and between subjects analysis of variance was conducted to see if the students of different groups (deployed veterans or not, higher PTSD symptoms or Lower PTSD symptoms) picked seats further towards the rear of the classroom, comparing the condition when the doors were at the back of the room (Figure 1, Image 2), to when the doors were at the front of the room (Figure 1, Image 4). Overall, the students chose seats fur-

ther to the rear of the classroom when the doors were in the rear, $F(1, 247) = 4.67$, $MSE = 426.56$, $p < .05$, $\eta^2p = .02$ (See Figure 5). No two-way interactions were found for deployment status or PTSD symptoms. However, there was also a three-way interaction between all the variables involved, $F(1, 247) = 5.12$, $MSE = 426.56$, $p < .03$, $\eta^2p = .02$. Tukey post hoc comparisons were computed that revealed only one significant comparison in this analysis. The difference was between SVPD with higher PCL ratings ($n = 31$, $m = 54.19$, $sd = 35.58$) when the doors were in the back of the classroom (Figure 1, Image 2), and civilian students with lower PCL ratings ($n = 105$, $m = 30.54$, $sd = 30.78$) when the doors were at the front of the room (Figure 1, Image 4), $t(363.05) = 3.56$, $p = .01$, $d = 0.75$.

Hypothesis 3B

A similar $2 \times 2 \times 2$ mixed repeated measures and between subjects analysis of variance was conducted to see if students chose different seats on the lateral dimension when the doors were moved from the right side (Figure 1, image 1) to the left side (Figure 1, image 3). No differences were found to support this hypothesis.

Hypothesis 4

For students who had never deployed to a combat area, choosing seats near the back of the room was associated with having a lower grade point average, $r = -.17$, $p < .02$.

(See **Figure 6**). The relationship between these variables was similar for SVPD, except the relationship was only marginally significant, $r = -.26$, $p = .08$. However, choosing a seat further to the right side of the classroom was associated with having a better grade point average for SVPD, $r = .37$, $p < .01$. This relationship was not present in the other groups, as mentioned earlier, sitting on the right was associated with PTSD ratings for the other students.

Discussion

Previous studies have suggested that student veterans may exhibit symptoms of PTSD as well as difficulties in interpersonal situations. The current study investigated the impact of these and other variables on where students would prefer to sit in a classroom. In addition to completing questionnaires concerning demographic variables and PTSD symptoms, the students picked their preferred seats across four different classroom images. The images were almost exactly the same, besides the location of the exit doors in the classroom images.

Overall, student veterans who had deployed were not more likely to prefer seating in the back of the classroom across the four different door configuration images. However, they were more likely than the civilian students to choose the seat on the left corner of the back row. Although a relatively

small percentage of the formerly deployed student veterans in the sample chose this seat at least once (25%), those who did had higher PTSD symptom ratings than the students who did not choose that spot.

Based on a report from a previous qualitative study (Alschuler & Yarab, 2018), it was expected that PTSD symptoms would be correlated with choosing a seat in the back of the classroom. However, this hypothesis was only partially supported. Symptoms of PTSD were correlated with choosing a rear seat for students who had previously deployed to a combat area. For these same students, PTSD symptoms were related to sitting towards the outer areas of the classroom as well. On the symptom level, both seating locations (the back and the outside) were associated with being upset about traumatic reminders, angry or irritable outbursts, and having difficulty concentrating. The last symptom may be particularly concerning for educators, since previous studies have found that sitting near the back of the classroom may affect one's ability to pay attention and concentrate (Shernoff et al., 2017). Interestingly, PTSD symptom ratings were correlated with a preference for the right side of the classroom among the non-service member students.

Based on the same qualitative study as well as anecdotal experience, it was expected that previously deployed

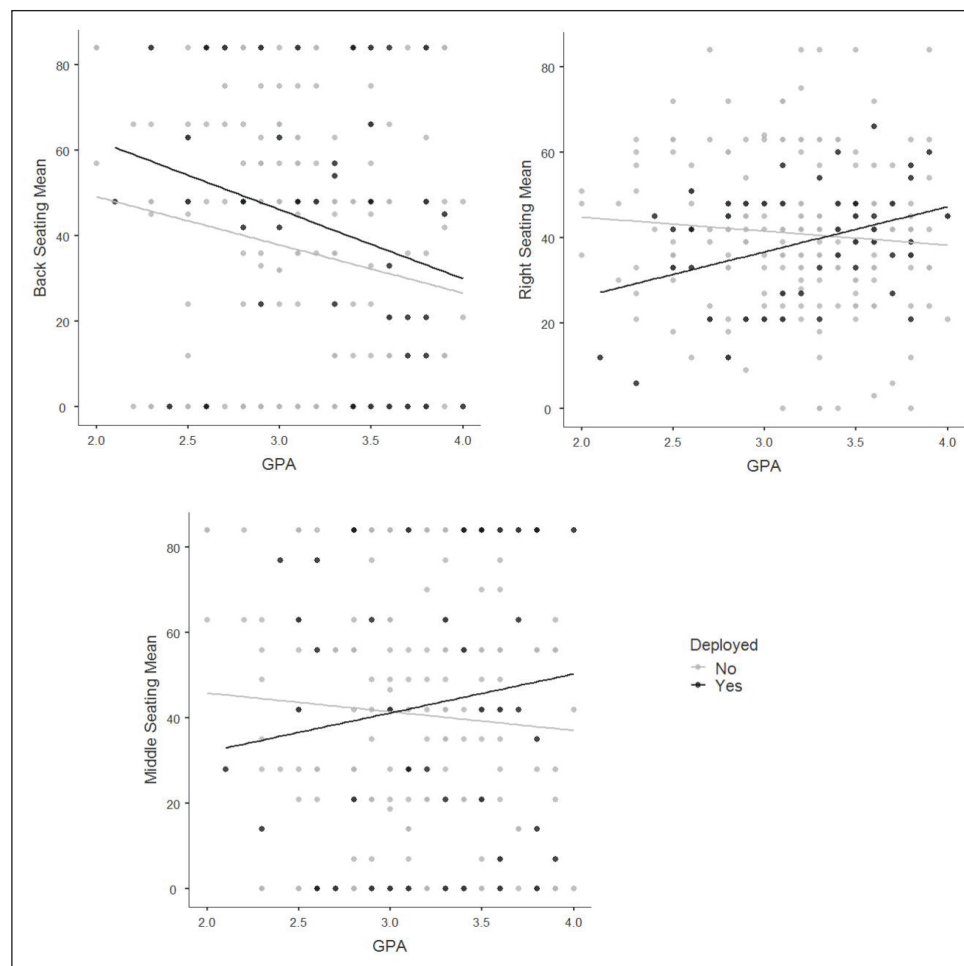


Figure 6: Seating and Grade Point Average Relationships.

students would alter their choice of a seating location based on the position of the classroom doors. This prediction was partially supported in this study since two different types of changes were investigated. One change involved comparing the image where the doors were at the back of the room (image 2 from **Figure 1**) to another image where the doors were at the front (image 4 from **Figure 1**). The students overall picked seats closer to the back of the classroom when the doors were in the back, as opposed to when the doors were in the front of the room. Students with higher PTSD symptom ratings were more likely to choose seats in the back of the classroom compared to those with lower ratings when the doors were in the rear. Similar to some of the previous results, this analysis did not differ based solely on deployment status, but on the interaction between deployment status and PTSD symptom severity. The SVPD who had higher PTSD ratings picked seats closer to the back of the classroom in comparison to SVPD with lower PTSD ratings. The same effect was not observed in the non-SVPD group.

Another prediction regarding the effect of classroom door position was that the lateral position of the classroom doors would affect student choice of a classroom seat. This prediction was not supported. Similar to the results of the Harms et al. (2015) study, no differences in seating preferences were found between the left and the right side door entrances on any of the group differences investigated.

Finally, previous studies led to a prediction that there would be a relationship between seating preferences and student grade point average (Pichierri & Guido, 2016; Shernoff et al., 2017; Zomorodian et al., 2012). In agreement with previous studies, students who had never deployed and preferred seats closer to the back of the room had slightly lower grade point averages. The relationship was similar among SVPD, yet it was only marginal in strength.

Unexpectedly, SVPD who picked seats further to the right side of the classroom had higher grade point averages. One possible reason for this finding could be a previously researched connection between right side bias and approach motivation (Nash et al., 2010). However, this explanation is

Table 4: Percentage of Seat Choices by Different Groups.

Image	Image 1		Image 2		Image 3		Image 4	
	Control	SVPD	Control	SVPD	Control	SVPD	Control	SVPD
Seat								
1	3.90	6.30	3.90	6.30	5.37	0.00	6.83	4.17
2	2.93	0.00	1.95	0.00	2.93	4.20	3.41	2.08
3	3.41	6.30	2.44	2.10	3.90	4.20	2.93	4.17
4	10.73	10.42	9.76	12.50	7.32	8.33	9.76	14.58
5	5.85	6.25	6.83	2.08	8.29	6.25	7.32	4.17
6	2.44	0.00	2.93	4.17	3.41	6.25	3.41	2.08
7	2.93	4.17	1.95	4.17	1.46	0.00	2.44	0.00
8	6.34	2.08	5.37	2.08	6.83	6.25	9.27	8.30
9	2.93	4.17	6.83	4.17	9.76	4.17	5.37	2.10
10	2.93	6.25	4.88	6.25	4.39	2.08	2.93	6.30
11	5.85	0.00	5.37	0.00	2.93	0.00	3.90	0.00
12	5.85	8.30	6.83	2.10	5.37	4.20	4.39	4.20
13	6.83	8.30	6.34	14.60	4.39	10.40	4.39	12.50
14	6.83	0.00	4.39	0.00	3.90	0.00	3.90	2.08
15	2.44	2.10	0.49	0.00	2.44	4.20	2.93	2.08
16	6.34	2.10	8.29	0.00	3.90	6.30	8.29	4.17
17	6.83	8.30	6.34	4.20	3.90	10.40	5.85	2.08
18	1.46	4.20	0.98	4.17	0.49	2.10	0.49	0.00
19	0.49	0.00	1.46	4.17	0.98	0.00	0.49	2.10
20	3.41	4.20	2.44	4.17	2.93	2.10	2.93	2.10
21	1.46	2.10	1.46	4.17	3.41	4.20	1.46	4.20
22	1.46	4.20	1.46	2.08	0.98	0.00	1.46	0.00
23	1.46	2.10	1.46	2.08	2.93	0.00	1.95	2.10
24	4.39	8.30	4.88	14.58	7.80	14.60	3.90	14.60

Control $n = 205$, SVPD $n = 48$.

not likely, since the same relationship was not found for other students. For the other students (non-deployed), sitting further to the right was associated with higher ratings on the civilian PTSD symptoms scale.

Limitations

This study was limited in many ways. One particular limitation was that the images used for choosing a classroom seat were shown in the same order for all of the participants. It could be possible that the order in which the images were presented affected the participant's propensity to choose a seat. Another limitation was that these seats were chosen based only on a diagram, when the reality of choosing a seat in a classroom is likely much more multifaceted and requires the student to take into account many more factors (Losonczy-Marshall & Marshall, 2013). In addition, the study may have benefitted from having more SVPD in the sample, so that more specific effects could have been investigated in that particular group.

Implications for instructors

Since the current study was exploratory, making strong and definitive conclusions from the results would likely be preliminary. However, some overall patterns may be worth noting that could impact the classroom practice of instructors in higher education.

First, it appeared that being a SVPD alone did not have much of an effect on the particular behaviors measured in this study. The effects found were more concentrated to SVPD with higher levels of PTSD symptoms. Therefore, instructors may use precaution in making assumptions about students based solely on SVPD status.

Second, it may be valuable for instructors to understand that students may choose seating for reasons that may not be readily apparent or based on the most common factors. Although the effects of psychopathological factors on seating preferences were not always consistent across the groups in the study, it was consistent that the two factors were related.

Directions for future research

Since very little quantitative research appears in academic literature concerning the issues of SVPDs in college classrooms, there is room for many avenues of inquiry. Similar to the current study, it could be that future studies could look to further investigate assumptions that are often made about these student populations in academic literature as well as practice in higher education. The end goal of such studies could be to enhance faculty confidence with this population as well as student access and success.

In relation to the specific issue reported in this study, there are also many possibilities. One issue from this study that warrants future attention could be the surprising connection between sitting on the right side of the classroom and overall academic performance. Another important direction

might be to investigate more possible factors that SVPD in particular may consider when choosing a location to sit in a classroom. Different types of seating configurations could also be investigated to see if SVPD focus on sitting in a particular location in the room as opposed to searching out a particular seat for another reason. It might also be interesting to see if seating preferences for SVPD may change over time as a student progresses towards completing a degree and becomes more comfortable with the classroom environment in general.

Additional Files

The additional files for this article can be found as follows:

- **Appendix A.** PCL – M Questions. DOI: <https://doi.org/10.21061/jvs.v6i1.153.s1>
- **Appendix B.** Demographic Questions. DOI: <https://doi.org/10.21061/jvs.v6i1.153.s2>
- **Appendix C.** PCL – C Questions. DOI: <https://doi.org/10.21061/jvs.v6i1.153.s3>

Competing Interests

This research was not funded by any external entity. Therefore, no conflicts of interest are expected to have occurred.

References

- Alschuler, M., & Yarab, J.** (2018). Preventing student veteran attrition: What more can we do? *Journal of College Student Retention: Research, Theory & Practice*, 20(1), 47–66. DOI: <https://doi.org/10.1177/1521025116646382>
- American Council on Education.** (2018). *Toolkit for veteran friendly institutions*. Washington, DC: Author. Retrieved from: <https://www.acenet.edu/news-room/Documents/Veterans-Toolkit-2018.pdf>
- American Psychiatric Association.** (2013). *Diagnostic and statistical manual of mental disorders* (5th. ed.). Washington, DC: Author. DOI: <https://doi.org/10.1176/appi.books.9780890425596>
- Armstrong, T., Bilsky, S. A., Zhao, M., & Olatunji, B. O.** (2013). Dwelling on potential threat cues: An eye movement marker for combat-related PTSD. *Depression and Anxiety*, 30(5), 497–502. DOI: <https://doi.org/10.1002/da.22115>
- Asalgoo, S., Jahromi, G. P., Meftahi, G. H., & Sahraei, H.** (2015). Posttraumatic stress disorder (PTSD): Mechanisms and possible treatments. *Neurophysiology*, 47(6), 482–489. DOI: <https://doi.org/10.1007/s11062-016-9559-9>
- Barry, A. E., Whiteman, S. D., & MacDermid Wadsworth, S. M.** (2012). Implications of posttraumatic stress among military-affiliated and civilian students. *Journal of American College Health*, 60(8), 562–573. DOI: <https://doi.org/10.1080/07448481.2012.721427>
- Becker, F. D., Sommer, R., Bee, J., & Oxley, B.** (1973). College classroom ecology. *Sociometry*, 36(4), 514. DOI: <https://doi.org/10.2307/2786247>

- Campbell, R., & Riggs, S. A.** (2015). The role of psychological symptomatology and social support in the academic adjustment of previously deployed student veterans. *Journal of American College Health, 63*(7), 473–481. DOI: <https://doi.org/10.1080/07448481.2015.1040408>
- Dillard, R. J., & Yu, H. H.** (2016). Best practices in student veteran education: Making a “veteran-friendly” institution. *The Journal of Continuing Higher Education, 64*(3), 181–186. DOI: <https://doi.org/10.1080/07377363.2016.1229106>
- DiRamio, D., Ackerman, R., & Mitchell, R. L.** (2008). From combat to campus: Voices of student-veterans. *NASPA Journal, 45*(1). DOI: <https://doi.org/10.2202/0027-6014.1908>
- Ehlers, A., & Clark, D. M.** (2000). Invited essay: A cognitive model of posttraumatic stress disorder. *Behaviour Research and Therapy, 38*, 319–345. Retrieved from www.elsevier.com/locate/brat. DOI: [https://doi.org/10.1016/S0005-7967\(99\)00123-0](https://doi.org/10.1016/S0005-7967(99)00123-0)
- Elliott, M., Gonzalez, C., & Larsen, B.** (2011). U.S. military veterans transition to college: Combat, PTSD, and alienation on campus. *Journal of Student Affairs Research and Practice, 48*(3), 279–296. DOI: <https://doi.org/10.2202/1949-6605.6293>
- Fredman, S. J., Marshall, A. D., Le, Y., Aronson, K. R., Perkins, D. F., & Hayes, J. A.** (2019). Interpersonal relationship quality mediates the association between military-related posttraumatic stress and academic dysfunction among student veterans. *Psychological Trauma: Theory, Research, Practice and Policy, 11*(4), 415–423. DOI: <https://doi.org/10.1037/tra0000363>
- Fulton, J. J., Calhoun, P. S., Wagner, H. R., Schry, A. R., Hair, L. P., Feeling, N., ... Beckham, J. C.** (2015). The prevalence of posttraumatic stress disorder in Operation Enduring Freedom/Operation Iraqi Freedom (OEF/OIF) Veterans: A meta-analysis. *Journal of Anxiety Disorders, 31*, 98–107. DOI: <https://doi.org/10.1016/j.janxdis.2015.02.003>
- Gonzalez, C. A., & Elliott, M.** (2016). Faculty attitudes and behaviors towards student veterans. *Journal of Postsecondary Education and Disability, 29*(1), 35–46. Retrieved from <https://eric.ed.gov/?id=EJ1107471>
- Gur, R. E., Gur, R. C., & Marshalek, B.** (1975). Classroom seating and functional brain asymmetry. *Journal of Educational Psychology, 67*(1), 151–153. DOI: <https://doi.org/10.1037/h0078685>
- Harms, V. L., Poon, L. J. O., Smith, A. K., & Elias, L. J.** (2015). Take your seats: Leftward asymmetry in classroom seating choice. *Frontiers in Human Neuroscience, 9*, 457. DOI: <https://doi.org/10.3389/fnhum.2015.00457>
- Kimble, M. O., Fleming, K., Bandy, C., Kim, J., & Zambetti, A.** (2010). Eye tracking and visual attention to threatening stimuli in veterans of the Iraq war. *Journal of Anxiety Disorders, 24*(3), 293–299. DOI: <https://doi.org/10.1016/j.janxdis.2009.12.006>
- Levine, D. W., O'Neal, E. C., Garwood, S. G., & McDonald, P. J.** (1980). Classroom ecology: The effect of seating position on grades and participation. *Personality and Social Psychology Bulletin, 6*(3), 409–412. DOI: <https://doi.org/10.1177/014616728063012>
- Losonczy-Marshall, M., & Marshall, P. D.** (2013). Factors in students' seat selection: An exploratory study. *Psychological Reports, 112*(2), 651–666. DOI: <https://doi.org/10.2466/11.07.PR0.112.2.651-666>
- Nash, K., McGregor, I., & Inzlicht, M.** (2010). Line bisection as a neural marker of approach motivation. *Psychophysiology, 47*(5), 979–983. DOI: <https://doi.org/10.1111/j.1469-8986.2010.00999.x>
- Nyaronga, D., & Toma, R.** (2015). Student service members/veterans' mental health: Who is at a greater risk for posttraumatic stress symptoms on college campuses? *Military Psychology, 27*(4), 223–231. DOI: <https://doi.org/10.1037/mil0000079>
- Persky, K. R., & Oliver, D. E.** (2010). Veterans coming home to the community college: Linking research to practice. *Community College Journal of Research and Practice, 35*(1–2), 111–120. DOI: <https://doi.org/10.1080/10668926.2011.525184>
- Pichierri, M., & Guido, G.** (2016). When the row predicts the grade: Differences in marketing students' performance as a function of seating location. *Learning and Individual Differences, 49*, 437–441. DOI: <https://doi.org/10.1016/j.lindif.2016.04.007>
- Ranes, B., Long, M. P., Usar, M., Stephanie Traynham, C., Usa, M., & Hayes, A.** (2017). The influence of combat experience on psychologically healthy soldiers' attentiveness to environmental threats. *Military Medicine, 182*, 1787. DOI: <https://doi.org/10.7205/MILMED-D-16-00261>
- Schonfeld, L., Braue, L. A., Stire, S., Gum, A. M., Cross, B. L., & Brown, L. M.** (2015). Behavioral health and adjustment to college life for student service members/veterans. *Journal of American College Health, 63*(7), 428–436. DOI: <https://doi.org/10.1080/07448481.2014.963106>
- Shernoff, D. J., Sannella, A. J., Schorr, R. Y., Sanchez-Wall, L., Ruzek, E. A., Sinha, S., & Bressler, D. M.** (2017). Separate worlds: The influence of seating location on student engagement, classroom experience, and performance in the large university lecture hall. *Journal of Environmental Psychology, 49*, 55–64. DOI: <https://doi.org/10.1016/j.jenvp.2016.12.002>
- Stires, L.** (1980). Classroom seating location, student grades, and attitudes. *Environment and Behavior, 12*(2), 241–254. DOI: <https://doi.org/10.1177/0013916580122008>
- Weathers, F. W., Litz, B. T., Herman, D. S., Huska, J. A., & Keane, T. M.** (1993a). The PTSD Checklist-Military Version [Psychological Test]. <https://www.ptsd.va.gov/professional/assessment/documents/APCLM.pdf>. DOI: <https://doi.org/10.1037/t05198-000>

- Weathers, F. W., Litz, B. T., Herman, D. S., Huska, J. A., & Keane, T. M.** (1993b). The PTSD Checklist-Civilian Version [Psychological Test]. <http://www.ptsd.va.gov/professional/pages/assessments/ptsd-checklist.asp>. DOI: <https://doi.org/10.1037/t02622-000>
- Whiteman, S. D., Barry, A. E., Mroczek, D. K., & Wadsworth, S. M.** (2013). The development and implications of peer emotional support for student service members/veterans and civilian college students. *Journal of Counseling Psychology, 60*(2), 265–278. DOI: <https://doi.org/10.1037/a0031650>
- Zhang, L.** (2018). Veterans going to college: Evaluating the impact of the post-9/11 GI bill on college enrollment. *Educational Evaluation and Policy Analysis, 40*(1), 82–102. DOI: <https://doi.org/10.3102/0162373717724002>
- Zomorodian, K., Parva, M., Ahrari, I., Tavana, S., Hemyari, C., Pakshir, K., ... Sahraian, A.** (2012). The effect of seating preferences of the medical students on educational achievement. *Medical Education Online, 17*(1), 10448. DOI: <https://doi.org/10.3402/meo.v17i0.10448>

How to cite this article: Clark, D. A., & Walker, K.. (2020). Veterans in Classrooms: Post Traumatic Stress, Seating Preferences, and Achievement. *Journal of Veterans Studies, 6*(1), pp. 259–270. DOI: <https://doi.org/10.21061/jvs.v6i1.153>

Submitted: 21 October 2019

Accepted: 09 January 2020

Published: 21 August 2020

Copyright: © 2020 The Author(s). This is an open-access article distributed under the terms of the Creative Commons Attribution 4.0 International License (CC-BY 4.0), which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited. See <http://creativecommons.org/licenses/by/4.0/>.



VT Publishing

Journal of Veterans Studies is a peer-reviewed open access journal published by VT Publishing.

OPEN ACCESS