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Examining Factors Related to Academic Success of Military-Connected Students at Community Colleges

Denise N. Williams-Klotz
Iowa State University, dnwill@iastate.edu

Ann M. Gansemer-Topf
Iowa State University, anngt@iastate.edu

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Colleges

Denise N. Williams-Klotz

Ann M. Gansemer-Topf

Iowa State University

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Abstract

The number of military-connected students enrolling in community colleges has increased dramatically in the past decade and this trend is expected to continue. This research focused on examining factors that contribute to the academic success of community college students. Specifically, the purpose of this quantitative study was to identify the demographic characteristics, campus relationships and financial, academic and personal experiences that are associated with grade point average (GPA) and intent to return for military-connected students at seven community colleges. Identifying as a Student of Color (any race or ethnicity other than White) and experience meeting professors' academic expectations were negatively associated with cumulative GPA and feeling academically prepared to enter the institution was significantly and positively associated with intent to return. The results provide further evidence of the relationships among demographic and academic experiences and academic success. The authors offer recommendations for serving military-connected students at community colleges.

Examining Factors Related to Academic Success of Military-Connected Students at Community Colleges

Across the United States, the Post-9/11 Veterans Educational Assistance Act, commonly referred to as the Post-9/11 G.I. Bill, has facilitated access to collegiate opportunities for a growing number of military-connected students (Cate, 2014; Rumann, Rivera, Hernandez, Cox, & Watson, 2011; United States Department of Veterans Affairs, 2011). Community colleges are uniquely structured to serve military-connected students and are often appealing options for veteran students, especially those recently separated from service (Rumann, 2010). In 2012, two-year public institutions had the highest percentage of military-connected students of all institutional types; 40% of military-connected college students chose to enroll in this type of institution (National Center for Education Statistics [NCES], 2016), and in that same year 100% of two-year public institutions enrolled military service members, veterans, or their dependents (Queen & Lewis, 2014). Community colleges have responded to the influx of military-connected students by developing support structures and resources: 94% of public two-year institutions have professionals dedicated to serving this population of students, and 58% have student military or veteran organizations on campus (Queen & Lewis, 2014). Despite the increase in the number of students and resources devoted to assist this population, research using multi-institutional quantitative designs that explores factors related to the success of this population of students is limited. This study fills the void in this area.

A variety of definitions have been used to describe military-affiliated or veteran students. For purposes of this study, Molina and Morse's definition was used. Molina and Morse (2015) defined a military-connected student as "any student who is active duty personnel, a reservist, veteran or member of the National Guard" (p. 2). Military-connected students' experiences

differ from those of their non-military peers (Cook & Kim, 2009; Ostovary & Dapprich, 2011; Wheeler, 2012). They may not feel engaged in their academic and social campus communities (Livingston, Havice, Cawthon, & Flemming, 2011; Rumann & Hamrick, 2010), may experience frustration in navigating institutional and military bureaucracies to receive financial aid or transfer course credit assistance (United States Government Accountability Office [USGAO], 2013; Vacchi, 2012), and be frustrated by concerns with military transfer credit (Brown & Gross, 2011; Persky & Oliver, 2010). Research focusing on academic outcomes of military-connected students who attend community colleges is emerging, but the majority of these studies have been qualitative and focused on students at one institution (Blaauw-Hara, 2016; Jones, 2017). This quantitative study that analyzes data collected from students at seven community colleges can inform our current understanding of the academic outcomes for this population of students.

The purpose of this study was to identify the demographic characteristics, campus relationships and financial, academic and personal experiences that are associated with grade point average (GPA) and intent to return for military-connected students. For this study, GPA was the student's cumulative GPA and intent to return was a student's expression of his/her/their plan to continue at the same institution the following semester or term (Tinto, 1993). The research questions were:

1. What demographic characteristics, campus relationships and financial, academic and personal experiences were associated with cumulative GPA for students attending community colleges?
2. What demographic characteristics, campus relationships and financial, academic and personal experiences were associated with intent to return for students attending community colleges?

A significant amount of federal, state, and institutional resources are allocated to support military-connected students (NCES, 2016), and it is critical to better understand their outcomes once they enroll in community colleges. Information from this research can be used to develop policies and programs to support the academic success of military-connected students.

Conceptual Framework and Review of Literature

Astin's (1993) Input-Environment-Outputs (I-E-O) model provided a conceptual framework to guide the selection of variables for this study. The I-E-O model illustrated how inputs such as demographic characteristics, background experiences, and the environment (i.e., college experiences) influence collegiate outcomes. For this study, inputs included the demographic characteristics of sex, ethnicity, first-generation status, service-related injury/disability, combat deployment experience, academic preparedness, and having spouse/dependent children. Environments included financial, academic, and personal experiences; outcomes were college GPA and intent to return.

Inputs

Understanding student demographics is essential to understanding student persistence (Renn & Reason, 2013); background characteristics and pre-college characteristics have a significant influence on a student's adjustment to college and eventual outcomes (Ewert, 2012). Research on military-connected students has also identified demographic characteristics to influence academic success.

Sex. Since the 1990's women have begun to outnumber and outperform men in higher education; women have higher levels of degree completion and academic success (Ewert, 2012; Flashman, 2013; Severiens & ten Dam, 2010; Sonnert & Frank Fox, 2012). In the last decade, the number of women in the military has increased steadily; women comprised 20% of new

recruits in 2009 (DiRamio & Jarvis, 2011). However, there is a paucity of research on the role of gender in the transition from military service to civilian or student life (Demers, 2013; DiRamio & Jarvis, 2011) and campuses are often unaware of the unique needs of women military-connected students (Elliott, 2014). Women veterans returning to academia enter an environment where their military service is often discounted or underestimated because of their gender (Elliott, 2014; Iverson & Anderson, 2013). Women who serve in the military are less likely to identify themselves as a veteran after their service compared to men, and women veterans may avoid asking for help, especially from men for fear of feeling or appearing weak (Baechtold & De Sawal, 2009). Although in the general population, females have been found to be more academically successful than males, it is not clear if this relationship is similar for military-connected students.

Race/ethnicity. A significant amount of research has explored the role of race and ethnicity in community college student success. At predominately White institutions African American and Latino students have historically been retained at rates lower than their White peers (Fischer, 2007; Perrakis, 2008) and achieved lower GPAs (Palacios & Alvarez, 2016). Very little, if any, empirical research exists on the role of race and ethnicity in the transition to college for military and veteran students at community colleges. What is known about military and veteran Students of Color is largely about representation within the military and veteran populations. Since the 1970's, African Americans have consistently been represented in the military at much higher rates than in the civilian population, and in the last 30 years the number of Latino individuals in the military has risen steadily (Kelty, Kleykamp & Segal, 2010). The percentage of veterans who identify as racial and ethnic minorities is expected to rise in the next

decades (United States Department of Veterans Affairs, 2013), thus, highlighting the need to focus on this currently understudied subpopulation.

First generation. Wurster, Rinaldi, Woods, and Liu (2013) reported that 66% of combat veterans who responded to the National Survey of Student Engagement in 2010 reported being first-generation students. First-generation students can be defined as those students who do not have a parent or guardian who completed a college degree (Ramos-Sánchez & Nichols, 2007). First-generation students cross institution-type and other social identities but the majority of research is consistent: first generation students tend to be retained at lower rates than their non-first-generation peers and they perform lower academically than their non-first generation peers (Bui, 2002; Thayer, 2000).

Students with disabilities. The proportion of military-connected students with disabilities is higher than previous decades (Kraus & Rattray, 2013). College students with disabilities are retained at lower rates, have poorer academic performance and can face significant barriers to college adjustment compared to peers without disabilities (Lombardi, Murray & Gerdes, 2012). Boyraz, Horne, Owens, and Armstrong (2013) found that students with trauma experience or who are suffering from post-traumatic stress disorder (PTSD) are at increased risk of college adjustment difficulty and academic difficulties. This study, therefore, wanted to investigate the impact of disability on military-connected student success.

Deployment. Deployment prior to enrolling in college may experience the transition also impacts student success. Several studies outlined challenges of military-connected students transitioning from military-culture to the college environment. These challenges include adjusting to a new institutional culture (Jones, 2017); financial concerns (DiRamio, Ackerman, & Mitchell, 2008), isolation and role incongruence (Bauman, 2009; Rumann &

Hamrick, 2010). Given the potential influence of deployment status on academic success, the current study examined this relationship.

Academic preparedness. Research has also examined the academic preparedness of military-connected students and its impact on academic success. The results of this research is contradictory. For example, DiRamio, Ackerman, and Mitchell (2008) found military-connected students not academically prepared for college whereas Wilson and Smith (2012) found that military experience assisted students in adapting to the rigor of college. These traits resemble Bandura's (1997) concept of academic self-efficacy or the personal judgment of an individual's capacity to complete a course of action to reach a desired outcome. Self-efficacy has also been found to correlate with grades and college persistence (Davenport & Lane, 2006; Zajacova, Lynch, & Espenshade, 2005). For these reasons, this study investigated military-connected students' perception of their academic preparedness.

Family responsibilities. Bean and Metzner (1985) argued that factors such as family responsibilities were the greatest influence on non-traditional student persistence. Family can be the most powerful advocate and support for military and veteran students, especially those recently returned from deployment (Jones, 2017; Whiteman, Barry, Mroczek, & MacDermid Wadworth, 2013). Roughly half of participants in this study indicated that during their transition to the institution they had a spouse, partner, or dependent children; this demographic characteristic was assessed in the current study in relation to academic success and intent to return. A variety of demographic factors have been linked to academic success of college students. This study investigates if similar inputs influence GPA and intent to return for military-connected students.

Environment

Financial experiences. Financial considerations and experiences can have tremendous influence on students' abilities to engage socially or academically in the institution, and consequently affect their academic success and persistence (Pascarella & Terenzini, 2005; Renn & Reason, 2013). The majority of military-connected students have access to military educational benefits; however, they may lack knowledge about the complex processes required to access the funding (USGAO, 2013). In a review of student veterans' experiences with military educational benefits, the USGAO (2013) found that problems with administration of veterans' benefits can create financial challenges that have a negative impact on students' academic success. Financial experience is critical and procedural delays and frustrations may hinder students' success (Jones, 2017); thus, this study explored whether students' experiences with securing military educational benefits and managing financial transitions are associated with academic success and intent to return.

Academic experiences. Many military-connected students are eligible to transfer credits toward their degree programs, and 93% of two-year public institutions award credit for military experience (Queen & Lewis, 2014). However, there are no consistent policies among institutions, and the processes to apply credit to one's degree can be confusing. This type of academic experience can contribute to students experiencing a lack of respect for their experiences by the institution (Molina & Morse, 2015; Persky & Oliver, 2010).

Personal experiences and relationships. Personal experiences were explored in this study through students' perceptions of their institutions' environments and their experiences with feelings of belonging in those environments. Many military-connected students who re-enroll or enter an institution directly after service view higher education and their campuses as anti-veteran, unwelcoming environments (DiRamio et al., 2008). Several qualitative studies have

explored the transition experiences veterans who enrolled at a community college and noted the power of social support from fellow student veterans and military-affiliated peers (Blaauw-Hara, 2016; Hammond, 2016; Jones, 2017; Rumann & Hamrick, 2010).

Personal connections to members of a community have a consistently important role in student success and persistence (Pascarella & Terenzini, 2005). This and contact with faculty members outside of the classroom, have a consistently important role in promoting academic success and persistence (Pascarella & Terenzini, 2005). Students in this population often report feelings of disconnection between themselves and their non-military peers who may not have the same levels of maturity or lack real-world understanding of global conflicts (Blaauw-Hara, 2016; DiRamio & Jarvis, 2011; Rumann et al., 2011). Campus connections with fellow veterans and service members can provide conduits to the concepts of team and connectedness woven throughout military training (DiRamio et al., 2008; Rumann & Hamrick, 2010).

Prior research has examined the influence of environmental factors on the military-connected student experience, but few have considered these factors simultaneously. This study seeks to advance our understanding of military-connected student success by examining several of these variables within two statistical models.

Outputs

Academic success. GPA was used as a measure of academic success for this study; a higher GPA indicated a higher level of academic success. Although GPA is not the sole measure of academic success, it is a commonly agreed upon metric to assess it (Pascarella & Terenzini, 2005). For community college students, GPA has been found to be highly correlated to transfer to and graduating from another four-year institution (Carlan & Byxbe, 2000; Davidson & Bush, 2016; Johnson & King, 2016; Wang, 2009). As many students enter the

community college with the subsequent goal of graduating with a baccalaureate degree, it is critical to examine community college GPA. Within the literature, GPA has been shown to be influenced by demographic and environmental factors (see Boyraz, Horne, Owens, & Armstrong, 2013; Flashman, 2013; Stater, 2009), psychosocial factors such as academic self-efficacy (Edman & Brazil, 2009; Robbins, Lauver, Le, Davis, Langley, & Carlstrom, 2004) and social support (David et al., 2013; Tovar, 2015). This study considered the relationship of these variables to GPA.

Intent to return. Tinto (1993) defined intent to return as a student's expression of his or her plan to continue at the same institution the following semester or term, in this study that would indicate returning for the next academic year. Similar to research for GPA, a myriad of demographic, environmental and social factors influence intent to return (Fong, Davis, Kim, Kim, Marriott, & Kim, 2016; Martin, Galention, & Townsend, 2014; Palacios & Alvarez, 2016) but intent to return and early academic success are not perfectly correlated constructs (Tracey, Allen, & Robbins, 2012); therefore, in this study, intent to return and academic performance were examined separately. Research about the academic success of military-connected students is inconclusive. Teachman (as cited in Kelty et al., 2010) reported that student veterans tend to achieve lower levels of degree attainment than non-military students, and Kelley et al. (2013) reported that student veterans were 4.1% more likely to drop out of post-secondary institutions than their non-military peers. However, early findings of a study conducted through Student Veterans of America and the National Student Clearinghouse that included nearly one million individuals showed that degree attainment for veterans was greater than 50%—similar to the general college student population (Cate, 2014).

Research on military-connected students is expanding, but more information on factors

that influence these community college students' academic success, including the role of faculty and staff in the student experience is needed (Vacchi & Berger, 2014). As more military-connected students are projected to enroll in community colleges (Queen & Lewis, 2014), and more initiatives dedicated to serving this population have developed; therefore, research provides critical insight into how these resources can best be used to support military-students' academic success. This study fills a gap in the literature on military-connected students by using quantitative data to examine these two academic success variables: GPA and intent to return.

Methods

Before beginning the research, the study was approved by the Institutional Review Boards (IRB) at the researchers' institution and each participating institution. This project utilized a cross-sectional, non-experimental survey design with data collected at one point in time across the selected population (Creswell, 2014).

Sample

Seven community colleges, predominately White, in one Midwestern state participated in the study. The military-connected populations at these colleges ranged from 1.4% to 3.5% of the student bodies. All military-connected students who identified as military personnel, reservists, National Guard members, or veterans of the U.S. Armed Forces were invited to participate in the survey (N=1,745). Of the 1,745 individuals invited to participate in this study, 265 responded (15%) to the survey. Seven responses were removed from all analyses as influential cases. Of the remaining, 212 responses were available for analysis of Research Question 1 after first-semester students without a GPA were removed (n=46) and 205 were available for analysis after removing those who indicated not intending to return because of graduation, program completion or intent to transfer (n=53). Response rates across institutions

was largely representative with two institutions slightly overrepresented in the respondents.

Race/ethnicity and sex of survey participants were similar to the population of military-connected students at participating institutions: 82% identified as male and 18% identified as female (participants were provided an option to identify as neither exclusively female nor male but no participants selected this option); 83% as White; 6% as African American, 2% as Asian American, 4% as Hispanic or Latina/o, 2% as multiracial and 3% chose not to identify.

Instrumentation and Data Collection

Data for this study were collected in 2014 with the Survey of Veteran and Military Students (SVMS) developed by Williams (2013). Focus groups and expert review were utilized to assess the validity of the instrument. Groves et al. (2009) recommended the use of focus groups and expert review to assess question efficacy. The SVMS was reviewed by an expert in military and veteran student experiences on campus. The survey instrument was also tested with the local student veteran organization who participated in a focus group to provide feedback on the instrument and review question efficacy prior to the survey's launch. The focus groups were conducted with students who had transferred from a community college to a four year institution following or during military service. Cronbach's alpha scores were run to measure internal consistency and reliability (Nunnally, 1978). After procedures for reliability and validity were conducted, the survey was disseminated through Qualtrics.

Variables

Cumulative GPA measured as a continuous variable and intent to return measured as a binary variable were the dependent variables in this study. GPA was self-reported and based on at least one full semester of coursework at that the community college; courses transferred to the community college were not calculated in GPA. The goal was to respect the experience of

military-connected students, and therefore use of an anonymous survey was desirable. Intent to return was collected by inviting participants to indicate plans regarding whether they would return to the institution the following year. Responses from participants who noted departure due to graduation, program completion or intent to transfer in the coming semester were removed prior to analysis to ensure that they were not grouped with attrition. Because military-connected students may experience disruptions in academic progress due to deployment or other military service, we sought to capture intent to return rather than retention. As such, intent to return may be a more accurate indicator of how military-connected students perceive and plan their academic journeys.

There were five categories of independent variables in the study: (1) demographic characteristics; (2) financial experiences; (3) academic experiences; (4) personal experiences; and (5) relationship experiences. Table 1 describes the complete list of variables.

Table 1

Missing Data

Prior to analysis, data were reviewed and assumptions for each statistical method were tested. Missing data were managed with use of multiple imputations to maintain statistical power and reduce bias that results from deletion of incomplete cases (Cox, McIntosh, Reason & Terenzini, 2014). Multiple imputation included a three-step process that provided valid inference when data were missing or incomplete (Harel & Zhou, 2007; Schafer & Graham). First, datasets were created using multivariate or logistic imputation models to generate responses for missing data; second, regression analysis was performed on each dataset

separately; third, the results from each dataset's analysis were combined into one analysis and reported (Harel & Zhou).

Multiple imputation presents a unique concern when performing logistic regression in that traditional fit statistics (likelihood ratio test statistics, model chi-squared statistics, and classification tables, etc.) cannot be used because multiple imputation approximates a model for each variable separately; as a result, most goodness of fit measures are not useful because they examine multiple variables simultaneously. Manly and Wells (2012) recommended comparing the regression results after multiple imputation and traditional imputation to determine if they produced similar results. If the results are similar, as in this study, utilizing the fit statistics from the mean-imputed data to move forward with analysis is appropriate. Given the results from the goodness of fit statistics, analysis for this study continued with use of multiple imputed data in order to preserve statistical power in both the logistic and hierarchical linear regression.

Data Analysis

Research Question 1. Hierarchical linear regression was used to analyze academic success with GPA as the continuous dependent variable (Johnson & Wichern, 2007). Students beyond their first semester in college were included in this analysis. Prior to analysis, data were reviewed to ensure that assumptions of normality, linearity, and homoscedasticity were met (Salkind, 2010) and multicollinearity was avoided (Kohler & Kreuter, 2009). Items PWELCOME and PCARED were removed prior to any analysis because of high inter-item correlation ($r = 0.78$). Using Stata, variables were entered based on the theoretical model. The variables FHASSLE, PFELT, RVSTAFF and RMILSTU were eliminated as they did not contribute to the model variance and a final regression analysis using this parsimonious model was run (Johnson & Wichern, 2007). Regression results were based on the parsimonious

model. Because this study utilized multiple imputation to manage missing data, the mean R^2 and mean adjusted R^2 from all imputations were included to illustrate the amount of variance in intent to return explained by the model (Hoeppner, Kelly, Urbanoski, & Slaymaker, 2011; Penn, 2009).

The final model was:

$$GPACURR = \beta_0 + \beta_{\text{demographics}_{1,2\dots 8}} + \beta_{\text{financial factors}_{1,2\dots 5}} + \beta_{\text{personal factors}_{1,2\dots 5}} + \beta_{\text{academic integration factors}_{1,2,3}} + \beta_{\text{academic credit factors}_{1,2,3}} + \beta_{\text{relationships}_{1,2\dots 4}} + e_i$$

Research Question 2. Because intent to return was a dichotomous variable, logistic regression was used to answer Research Question 2. Logistic regression assumes that the binomial distribution describes the distribution of errors; this assumption was tested using a z-test (Peng, Lee, & Ingersoll, 2002). Data were also scanned for influential data points and multicollinearity (Kohler & Kreuter, 2009). Items PWELCOME and PCARED were removed prior to any analysis because of high inter-item correlation ($r = 0.78$). The final model was:

$$\text{logit}(\text{Intent to Return}) = \beta_0 + \beta_{\text{demographics}} + \beta_{\text{financial factors}} + \beta_{\text{social factors}} + \beta_{\text{academic factors}} + \beta_{\text{relationships}}$$

where, β_0 is the intercept parameter and β are the coefficients for the independent variables.

Limitations

Although this multi-institutional quantitative study expands our understanding of military-connected students, it was not without limitations. The response rate was 15% and though demographically the sample was representative of the population, the low response rate should be considered when interpreting the findings. Military-connected students were largely identified by institutions as those who receive military benefits, but not all military-connected students receive benefits (NCES, 2016); it is possible that a number of students eligible for this

study were not invited to participate if they did not self-identify as military-connected with their institutions. Also, this study focused on institutions in one geographic area and the results may not be generalizable to the greater population of military-connected students.

This study examined if students had relationships with students, veteran's staff, and faculty but did not examine the type and strength of these relationships. Measures of GPA and intent return were based on self-reported data and not institutional reports of GPA. Using self-reported data was less difficult than accessing the institutional records of each student at each institution; accessing institutional data would require the respondent's identity to be known. Because past research has confirmed a high degree of accuracy between self-reported and institutional data on questions related to academic success (i.e., GPA, persistence) (Kuncel, Credé, & Thomas, 2005), self-reported measures were utilized. Because of a limited number of Students of Color, this study defined race as a binary variable for the purposes of analysis—White or Students of Color. Combining all Students of Color within one racial category ignores unique experiences that may shape the transition experiences or academic outcomes for racial and ethnic subpopulations. Race and ethnicity are complex variables and future studies should elaborate on the factors that influence racial groups specifically.

Results

Regression results indicated that the model was statistically reliable in detecting associations with GPA: $R^2_{adj} = .24$, $F(20, 172.2) = 2.27$, $p = 0.003$. The variables accounted for 24% of the variance in cumulative GPA. Two of those factors were negatively associated with cumulative GPA: identifying as a Student of Color ($\beta = -.30$, $t(191) = -2.51$, $p = .014$) and experience meeting professors' academic expectations ($\beta = -.23$, $t(191) = -2.81$, $p = .006$) (see

Table 2). White students were more likely to have higher GPAs than non-White students and the higher level of frustration of meeting professors' academic expectations, the lower the GPA.

Table 2

Logistic regression was employed to analyze variables associated with intent to return. Because goodness of fit tests are not logical following multiple imputation, the model was repeated using mean-imputation. To confirm goodness of fit for the model using mean-imputed data, a Hosmer-Lemeshow goodness of fit test was performed. The test resulted in a Hosmer-Lemeshow X^2 of 5.92 with a high p -value (0.66), indicating that the model may be a good fit for the data. A classification table revealed that 90.24% of the students who were predicted to intend to return, did intend to return. Results were very similar to those acquired using multiple imputation: there was a negative association between intent to return and feeling academically prepared to enter the institution ($\beta = -2.22, p < 0.01$); students who felt more academically prepared were more likely to intend to return. A summary of all regression findings comparing multiple and mean imputations are included in Table 3.

Table 3

Discussion

The findings from this study indicate that for military-connected students, identifying as a Student of Color was associated with lower GPA. This finding mirrors past research on community college students that has found that non-White students have lower GPAs than their

White peers (Feldman, 1993; Palacios & Alvarez, 2016). Despite the lower GPAs, there was no statistical difference in intent to return between White and Students of Color. Community college GPA is correlated with successful transfer and completion of a baccalaureate degree (Davidson & Bush, 2016; Wang, 2009) and the number of military-connected Students of Color are expected to increase in the next decade (Molina & Morse, 2015). Therefore, it is critical that institutions are aware of and provide support for the challenges faced by Students of Color, especially for those attending predominately White institutions.

Frustration with meeting faculty expectations was also associated with lower GPA although relationships with faculty and staff were not associated with GPA or intent to return. One limitation of this study is the inability to know why students were frustrated and what expectations they perceived faculty members to have. Nevertheless, this finding suggests that military-connected students value their ability to meet faculty expectations, regardless of their relationship. The influence of military culture may explain this results. Blaauw-Hara's (2016) found that prior military socialization has a strong influence on the collegiate experience. Military-connected students may be hesitant to seek out relationships with faculty and staff, but they are socialized to follow orders from their commanders and possess a deep sense of loyalty and commitment (Demers, 2013). Therefore, it is not surprising that an inability to meet faculty expectations may be related to academic success.

Feeling academically prepared to enter the institution was a predictor of intent to return for participants attending community colleges. As mentioned, this factor may be related to the concept of academic self-efficacy (Bandura, 1997). Students who felt they were prepared for the rigors of college may be more likely to intend to return to complete (Davenport & Lane, 2006). Zajacova et al's (2005) research noted that academic self-efficacy is an important factor

in ameliorating non-academic stressors, suggesting that gains in academic preparation may also yield to gains in other non-academic areas.

Academic credit concerns and frustrations with accessing and receiving military educational benefits were not associated with intent to return or cumulative GPA in this study, but the literature includes many examples of these factors shaping the collegiate experience (Boerner, 2013; DiRamio et al., 2008; Jones, 2017; Rumann & Hamrick, 2010). Military-connected students, because of their military experience which values determination, motivation and persistence to “complete the mission” (Blaauw-Hara, 2016, p. 812), may possess resilience to or tolerance for bureaucracy. The lack of significant variables found in this study may be the result of this resiliency; however, this does not diminish the need to evaluate these processes. A failure to determine and address any of these concerns may lead to students’ continued frustrations and feelings that they are less prepared to be academically successful or may not meet faculty member’s expectation. This, in turn, can impact academic success.

In this study, service-related injury or disability was not significantly associated with cumulative GPA or intent to return. This finding is significant despite the variable’s lack of significance. The vast majority of research on military-connected students is centered on injury and/or disability, especially post-traumatic stress disorder (PTSD) and other mental health concerns. Living with a service-related injury or disability is the experience of some students—an estimated 20-30% according to Kraus and Rattray (2013)—the extensive number of researchers exploring this area could lead practitioners and scholars to focus on disability as a roadblock to success for military-connected students. This research suggests that institutions, while not ignoring service-related injuries and disabilities, need to take a broader approach in serving this population of students. Osborne (2014) summarized that a lack of understanding of

military culture, coupled with the media's focus on PTSD, traumatic brain injury, and the violent behavior of some veterans, makes military-connected students susceptible to inaccurate stereotypes about their abilities to integrate into a campus community and succeed academically. These inaccurate stereotypes—especially when held by staff, faculty, and administrators—could result in resources being solely or primarily channeled toward mental health care, and not toward other needed areas such as academic and faculty support.

Recommendations for Community College Practice

Findings from previous studies inform how higher education professionals serve as resources and assist students as they navigate the institution. The findings from this study add to our understanding of the possible influences of institutional agents on military-connected students' success.

For example, Williams-Klotz & Gansemer-Topf (2017) found that students were appreciative of staff members who helped them navigate processes to acquire military educational benefits, advisers who worked with them to advocate for the application of military credit, and faculty who made expectations clear and respected students. To this end, it was not the relationships themselves that contributed to students' cumulative GPAs, but rather, the roles of the relationships in neutralizing other barriers that contributed to cumulative GPA. Feeling academically prepared to enter the institution was the only variable significantly associated with intent to return, which could be due, in part, to the work of institutional agents, such as faculty and staff. For example, Blaauw-Hara (2016) and Jones (2017) found that military-connected students' connection to the larger campus community impacted their academic success. This finding indicates that institutional administrators should continue to allocate resources for staff

and faculty to be knowledgeable about, prepared for, and available to assist military-connected students (Heineman, 2016).

The results of this study illuminate the need for community college administrators to collaborate to best serve military-connected Students of Color. Partnerships between veterans' services and multicultural student services either through combined programs, orientation sessions, or study skills assistance, can provide academic support to increase military-connected Students of Color GPAs. Personnel hired to work with military-connected students need to recognize the unique needs of Students of Color and assessment efforts devoted to understanding the effectiveness of veteran's programs and centers must also solicit feedback from Students of Color. These findings, coupled with past research on the transition experience of Students of Color (Harper, 2008; Rendón, 1994; Strayhorn, 2012) highlight the need for more research focused specifically this subpopulation of students.

In a review of military-friendly campuses Heineman (2017) suggests that orientation programs specifically for military-connected students and training for faculty and staff on the needs and experiences of this population can improve the community college experience for military-connected students. These initiatives could include discussions about faculty expectations and clarify students' understanding of these expectations.

The results of this study further illustrate the importance of academic self-efficacy. Community college leaders should strive to design programs with academic self-efficacy and academic preparation in mind (Jones, 2017). This approach could include development of program outcomes related to promoting and building these skills, and an institutional focus on serving military-connected students throughout their transitions to promote continued growth in these areas and use of these skills.

Findings from the current study suggest that institutions should develop or maintain programs that provide academic preparation prior to military-connected students' enrollment, or early in their transitions to the institution. Additionally, community colleges could see gains in intent to persist by discussing and identifying levels of academic preparedness with military-connected students upon entry to the institution, with particular emphasis on how their military training and experiences inform their approaches to their academic work.

Providing proactive, community-wide efforts to engage in outreach to military-connected students is also critical (Blaauw-Hara, 2016; Heineman, 2016; Rumann-Hamrick, 2010). These programming efforts could include orientation courses or sessions designed to connect needed academic skills with military training and previous experiences, as recommended by the American Council on Education (ACE; 2011); intentional discussions between faculty or staff and new military-connected students; or collaborations with military-connected student organizations to include these components in some of their activities.

Implications for Research

The majority of factors that were included in our initial analysis were not significantly associated with student GPA or intent to return. This finding appears initially to be at odds with qualitative studies that extol the importance of factors such as peer relationships, financial challenges or service-related injury or disability (Bauman, 2009; DiRamio et al., 2008; Griffen & Gilbert, 2015; Livingston et al., 2011; Rumann & Hamrick, 2010; Schiavone & Gentry, 2014). However, differences in methodological approaches may explain these varying results. A quantitative study, by nature, seeks to measure and quantify relationships; qualitative studies seek to understand relationships and phenomena (Creswell, 2014). Through regression analysis, many factors are considered simultaneously, and only those that are most significant

emerge. The differences in findings point to the need to engage in various methodological approaches as a way to gain a richer understanding of the military-student connected experience. Mixed methods approaches that integrate qualitative and quantitative methods can make significant contributions to this research.

Data in this study was geographically limited, collected at predominately White institutions and included small sample sizes. Future research with larger sample sizes and more geographical and institutional diversity can help to validate the potential generalizability of results. This study examined the students' experiences at one point in time using self-reported data; future research should consider a longitudinal approach using institutional data to address the role of transition and demographic factors as students move toward the completion of their degrees. For example, little is known about the experiences of military-connected students who choose to transfer from community colleges to four-year institutions and little research has investigated the influence of these variables over the student's time in college.

This study was developed using Astin's (1993) I-E-O model. Results question the appropriateness of this model to accurately capture the unique collegiate experience for military-connected students. As mentioned earlier, engagement or financial factors were not associated with intent to return or GPA but prior military experience or socialization may play a more significant role. Therefore, other models that explicitly list factors such as military socialization (see, for example, Hammond, 2016; Livingston et al., 2011; Vacchi & Berger, 2014) may be more appropriate for understanding the academic success of this population.

The population of military-connected students is unique (Molina & Morse, 2015); this study found differences in GPA between White students and Students of Color but due to small sample sizes, did not investigate differences among subpopulations of Students of Color. This

study viewed Veteran and/or military-connected as a “core identity” (Hammond, 2016; p. 151) for students but given the diversity within this population of students and knowing research has found differences in success by race and ethnicity (Palacios & Alvarez) and gender (Walpole, Chambers, & Gross, 2014), exploring the intersectionality of this core identity with other racial and gender identities can provide insights into the military-connected student experience.

Conclusion

This quantitative study focused on community college military-connected students provides insights about the experiences of this population. The findings both corroborate and build upon past research. Enrollment of military-connected students in community colleges is expected to grow. Findings from this study can highlight new research opportunities and assist institutions in identifying needed resources to support successful academic outcomes for this population of students.

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Table 1.

Independent Variable List

	α	Variable	Code	Key
Dependent Variables				
		Current cumulative GPA	GPACURR	Continuous, 0.0 to 4.0
		Intent to Return	RETURN	1= Yes; 0 = No
Independent Variables				
Demographic characteristics	N/A	Sex ^a	SEX	1 = female; 0 = male
		Race ^b	RACE	1 = Student of Color; 0 = White
		First-generation	FGEN	1= yes; 0 = no
		Combat deployment experience	DEPLOY	1= yes; 0 = no
		Service-related injury/disability	INJURY	1= yes; 0 = no
		Spouse/Dependent Children	FAMILY	1= yes; 0 = no
Financial experiences	0.80	Understood the process for securing MEB	FUNDERSTOOD	1 = SD; 2 = D; 3 = A; 4 = SA ^c
		Process for securing MEB was hassle-free	FHASSLEF	1 = SD; 2 = D; 3 = A; 4 = SA
		MEB were sufficient to cover needs	FCOVER	1 = SD; 2 = D; 3 = A; 4 = SA
		The process for securing MEB was what I expected	FEXPECT	1 = SD; 2 = D; 3 = A; 4 = SA
		Determining MEB eligibility was hassle-free	FDETERMINE	1 = SD; 2 = D; 3 = A; 4 = SA
Academic Experiences: Academic Integration	0.71	Felt academically prepared to enter the institution	AIPREP	1 = SD; 2 = D; 3 = A; 4 = SA
		Felt academically overwhelmed	AIOVERW*	1 = SD; 2 = D; 3 = A; 4 = SA
		Experience meeting professor's expectations	AIEXPECT*	1 = No frustration; 2 = Some frustration; 3 = High frustration

Academic Experiences: Credit Transfer/Awarding	0.78	Understood process for military credit transfer	ACUNDERSTOOD	1 = yes; 0 = no
		Level of satisfaction with credit application	ACSATISFIED	1= Very dissatisfied; 2 = Dissatisfied; 3 = Satisfied; 4 = Very satisfied
		Experience obtaining credit for military service	ACOBTAIN*	1 = No frustration; 2 = Some frustration; 3 = High frustration
Personal experiences	0.91	Instructors valued the life and work experiences gained from military service	PVALUE	1 = SD; 2 = D; 3 = A; 4 = SA
		Felt like an important member of the community	PFELT	1 = SD; 2 = D; 3 = A; 4 = SA
		Institution was welcoming for military and veteran students	PWELCOME	1 = SD; 2 = D; 3 = A; 4 = SA
		Institution was well-prepared to assist military and veteran students	PPREP	1 = SD; 2 = D; 3 = A; 4 = SA
		Institution cared about military and veteran students	PCARED	1 = SD; 2 = D; 3 = A; 4 = SA
Relationship experiences	N/A	Relationship with fellow military and veteran students	RMILSTU	1 = yes; 0 = no
		Relationship with Veteran staff	RVSTAFF	1 = yes; 0 = no
		Relationship with Faculty	RFAC	1 = yes; 0 = no
		Relationship with Academic adviser	RADV	1 = yes; 0 = no

Notes: *reverse coded item

^aAn option was provided for participants to report that they do not identify as exclusively male or female; no participants selected this option.

^bRace and ethnicity were collected using categories outlined by the U.S. census; however, student of color comprises all participants reporting non-white race/ethnicity for the purposes of analysis.

^cSD=strongly disagree; D=disagree; A=agree; SA = strongly agree

Table 2.

Regression Coefficients and Descriptive Statistics for Study Factors and Cumulative GPA for Military-Connected Students at Community Colleges (N=212)

Variable	β	SE B	M	SD
SEX	-0.02	0.11	0.20	0.40
RACE	-0.30*	0.12	0.15	0.36
FGEN	0.10	0.09	0.52	0.50
DEPLOY	-0.05	0.09	0.51	0.50
INJURY	-0.09	0.09	0.41	0.49
FAMILY	0.13	0.09	0.52	0.50
SEMCOMP	0.01	0.02	3.00	2.43
FUNDERSTOOD	0.00	0.07	3.00	0.93
FCOVER	-0.08	0.05	2.75	0.91
FEXPECT	0.05	0.06	3.03	0.93
AIPREP	0.10	0.08	3.25	0.71
AIOVERW [^]	-0.02	0.06	2.23	0.89
AIEXPECT [^]	-0.23**	0.08	1.67	0.65
ACUNDERSTOOD	0.16	0.14	0.48	0.51
ACOBTAI [^]	0.18	0.13	1.89	0.86
ACSATISFIED	0.09	0.09	2.37	0.98
PVALUE	-0.10	0.06	2.94	0.83
PPREP	0.04	0.07	3.16	0.74
RFAC	-0.13	0.16	0.87	0.34
RADV	0.18	0.11	0.73	0.45

Model Summary

F (20, 172.2) = 2.27**

$R^2 = 0.31$

$R^2_{adj} = 0.24$

Note. [^]indicates reverse-coded variable, *p < 0.05, ** p < 0.01

Table 3

Logistic Coefficients for Study Factors and Intent to Return Using Multiple Imputation and Mean Imputation for Missing Data (N=205)

Variable	Multiple Imputation			Mean Imputation		
	β	Odds Ratio	Std. Err.	β	Odds Ratio	Std. Err.
SEX	0.38	1.46	0.07	0.26	1.30	0.99
RACE	0.82	2.26	0.08	1.12	3.05	3.43
FGEN	-1.31	0.27	0.05	-1.21	0.30	0.19
DEPLOY	0.35	1.42	0.02	0.39	1.48	0.88
INJURY	-0.91	0.40	0.05	-1.06	0.35	0.24
FAMILY	-0.37	0.69	0.05	-0.43	0.65	0.40
SEMCOMP	-0.15	0.89	0.10	-0.13	0.88	0.08
FUNDERSTOOD	0.67	1.95	0.04	0.54	1.71	0.78
FHASSLEF	-0.25	0.78	0.00	-0.15	0.86	0.42
FCOVER	-0.03	0.97	0.04	-0.09	0.92	0.36
FEXPECT	-0.36	0.70	0.04	-0.61	0.55	0.26
FDETERMINE	0.08	1.08	0.04	0.14	1.15	0.59
AIPREP	-2.21**	0.11**	0.04	-2.22**	0.11**	0.07
AIOVERW^	0.13	1.14	0.04	0.16	1.17	0.50
AIEXPECT^	-0.36	0.70	0.05	-0.29	0.75	0.40
ACUNDERSTOOD	-0.80	0.45	0.07	-0.64	0.53	0.39
ACOBTAI^	-0.09	0.91	0.05	0.13	1.13	0.69
PVALUE	-0.20	0.82	0.04	0.06	1.06	0.49
PFELT	-0.36	0.70	0.04	-0.49	0.62	0.32
PPREP	0.65	1.91	0.04	0.74	2.09	1.11
RMILSTU	0.43	1.54	0.06	0.47	1.61	1.14
RVSTAFF	0.31	1.36	0.06	0.60	1.82	1.27
RFAC	-0.54	0.58	0.07	-1.13	0.32	0.39
RADV	0.99	2.69	0.06	0.62	1.86	1.26

Note. ^ indicates reverse-coded item, ** $p < 0.01$