Summer 8-2022

Active Military Student Persistence in Online Courses at California Community Colleges

Stephanie E. Gernert
Old Dominion University, stephanie2e3@gmail.com

Recommended Citation

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ONLINE COURSES AT CALIFORNIA COMMUNITY COLLEGES

by

Stephanie E. Gernert
B.S. February 2001, Fairleigh Dickinson University
M.B.A. May 2003, University of Delaware
M.Ed. May 2009, George Mason University

A Dissertation Submitted to the Faculty of
Old Dominion University in Partial Fulfillment of the
Requirements for the Degree of

DOCTOR OF PHILOSOPHY

COMMUNITY COLLEGE LEADERSHIP

OLD DOMINION UNIVERSITY
August 2022

Approved by:

Mitchell R. Williams (Co-Director)

Kim E. Bullington (Co-Director)

David F. Ayers (Member)

ABSTRACT

ACTIVE MILITARY STUDENT PERSISTENCE IN

ONLINE COURSES AT CALIFORNIA COMMUNITY COLLEGES

Stephanie E. Gernert
Old Dominion University
Directors: Dr. Mitchell R. Williams
Dr. Kim E. Bullington

The diversity of higher education institutions is changing, and more post-traditional students, including those associated with the military, are engaging in higher education. Almost every post-secondary institution in the United States has military students. In 2020, $11.5 billion was spent on over 875,000 eligible military students. Military students often prefer online courses at community colleges due to flexibility around their military career, open-access, and affordability.

Yet, few studies examine active military servicemembers alone and, when research is performed, a lack of thorough data collection exists. Therefore, this study focused on active military students in online education in California Community Colleges. It has a significant military presence, offers more online courses, and issues more certificates than any other higher education system, making an ideal place to conduct this initial research.

This study examined student course success between online courses and traditional courses, compared course success of active military to non-military, and compared active military, veteran, and non-military students' credential earning rates. This quantitative, non-experimental study used *ex post facto* from the California Community College Chancellor's Office's Management Information Systems DataMart. Data from 2012-2013 until 2018-2019 were collected and analyzed using *t*-tests and trend analysis implemented as multiple regression.

The results showed an improvement in military students' course success rate over time, although online courses had a lower success rate than traditional courses. Non-military students' course success rates also improved over time, although there was no statistically significant correlation compared to active military students' rates for online, traditional, nor all courses. All students' credentials earned rate increased over the seven school years and active military students showed a significant increase in credentials earned rate over veteran students. However, there was no effect of being a military student (active or veteran) compared to non-military students when analyzing the credentials earned rate.

The results lead to practical implications. The Department of Defense and individual military branches should remove the current Tuition Assistance restrictions, improve incentives, and increase resources. Community college practitioners should invest money and time into active military students, similar to those for veteran students. State and college leaders should continue to improve institutional support for online courses so *all* students' success rates improve. Finally, it is recommended practitioners compare *all* special populations to students not in the special population, similar to how the current study was performed, and provide the necessary institutional support to hopefully improve student success.

Keywords: military, active-duty, military students, online courses, community college, student persistence, institutional support

This dissertation is dedicated to my furboys (Storm, Spunky, Tyler, Mocha, Roo, Chesney, and Amadeus) who endured many hours of sleeping while I studied for my three advanced degrees, and who kept me calm with cuddles and unconditional love. Rest in peace to those that have left this world before me and welcome to those that have yet to be welcomed to the spoiled life.

It is also dedicated to all of those one-in-a-million people with orphan/rare diseases. Never give up your dreams and ambitions. Your illness does not own or define you; you might take longer but you are strong enough to create your own success. Always be positive.

ACKNOWLEDGMENTS

A vast amount of people assisted me in my journey to the successful completion of my dissertation. First, Dr. Williams who stood by me through sickness and health, never giving up on me, and regularly checking in for more years than I ever expected to be working on this; words cannot express how grateful I am to have you as my dissertation chair. Second, Dr. Bullington who joined me during my final year of my dissertation as a subject matter, and formatting, expert, quickly becoming a colleague ready to help with ideas, frustrations, and friendly support. Third, the Old Dominion University faculty and staff, present and past, including my remaining committee member, Dr. Ayers, whom have seen my many highs and unfortunately some of the lows. Fourth, my parents who helped me through all my years as a professional student and made themselves available when things got exceptionally tough. Fifth, the multitude of doctors who have relentlessly worked on my diagnosis and treatment of Tolosa Hunt Syndrome, for which I was diagnosed within the first year of my Ph.D. program. Lastly, my friends who understood when I stayed home to write but also provided relaxing study breaks when I obviously needed them.

NOMENCLATURE

CCCCO	California Community College Chancellor's Office
COVID-19	Multi-year global pandemic starting spring semester 2019
DoD	Department of Defense
GI Bill	Veteran Affairs' postsecondary education benefits for veterans
MIS	Management Information Systems
Post-9/11 GI Bill	Post-9/11 Veterans Educational Assistance Act of 2008, Chapter 33
VA	United States Department of Veteran Affairs

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CHAPTER 1

INTRODUCTION

The diversity of higher education institutions is changing, and more post-traditional students, such as those associated with the military, are engaging in post-secondary education. Post-traditional students are working individuals pursuing further knowledge and skills while balancing work, education, and life responsibilities (Soares, Gagliardi, & Nellum, 2017). Wang, Elder, and Spence (2012) found more high school students of low socio-economic status, cognitive ability, and academic performance are joining the military as a pathway to college. The military often provides college access for someone who would not otherwise get accepted or afford it (Downs & McAllen, 2014; Wang et al., 2012). As of 2016, more than $65 billion in benefits were provided to over 1.6 million service members, veterans, and their eligible family members since the Post-9/11 GI Bill was implemented on August 1, 2009 (Congressional Budget Office, 2019). An average of over $10 billion is spent (Congressional Budget Office, 2019) and approximately 100,000 degrees and certificates are earned annually (Cate, Schmeling, & Bogue, 2017). In 2020 alone, $11.5 billion was spent on over 875,000 eligible military students (U.S. Department of Veterans Affairs [VA], 2021).

Online courses, those taken 100% online using an internet-connected computer and web-based platform for learning, are also increasing in popularity, especially among the military student population (Downs & McAllen, 2014; Johnson, Mejia, & Cook, 2014; Machuca, Torres, Morris, & Whitley, 2014; Wang et al., 2012). Yet military students are failing to complete degrees, especially above the associate's level, possibly due to the need for increased financial, academic, and educational support (Artino, 2007; Fall & Christen, 2011; Ford & Vignare, 2015; Gibson, Kupczynski, & Ice, 2010; Kim & Frick, 2011; Mentzer, Black, & Spohn, 2015; Vance &

Miller, 2009). Higher education institutions need to look at the possible reasons for success or failure for military students and determine what policies and practices could increase persistence, a student-focused measure (National Center for Education Statistics [NCES], 2021) defined as the continuation, or re-enrollment, of courses from semester to semester (Liao, Edlin, & Cuttita Ferdenzi, 2014), among this important population.

While some research has been done on the dropout rates among the millions of military students, there are few studies that examine active military servicemembers alone, often grouping active military students in with veteran military students (Cate, 2014; Ford & Vignare, 2015; Gibson et al., 2010; Molina & Morse, 2015; Olsen, Badger, & McCuddy, 2014). For the purposes of this study, active military students are full-time active-duty servicemembers, active reserve servicemembers, or any guard servicemembers. The California Community College Chancellor's Office's (CCCCO) Management Information Systems (MIS) DataMart defines "Military Total" as "Active Duty, Active Reserve, National Guard" (CCCCO, 2013). Veterans are any and all prior military personnel, including those servicemembers who were discharged, who completed their time, or who retired (VA, 2019).

In 2011, the Department of Defense (DoD) reported that 60% of active-duty military students, including those deployed, took online courses versus traditional courses, compared to 15% just ten years' prior (Peter, 2011). Traditional courses are any courses taken in the traditional, in-person classroom (Johnson et al., 2014) and any courses that do not fall into the *Distance Courses* definition. In the 2020 fiscal year, the DoD spent over $488 million a year funding Tuition Assistance for these active military students (Pulkkinen, 2021). Full-time active-duty servicemembers move an average of every three years and can deploy at any time, both of which can have major impacts on pursuit of higher education credentials (Military.com,

n.d.). A servicemember is any person who is currently enlisted or has served in the military, including active military and veterans.

Because military students have a high possibility of moving or deploying, and online education is becoming more popular, this research focused on active military students in online courses. Since online courses allow the student to take courses almost anywhere in the world, stress and confusion of transferring to another school are eliminated for students. This research also focused on persistence to earning a credential, defined as a degree or certificate completion, of active military students. A certificate is a credential issued by educational intuitions that indicate a completion of a specific program or study or series of courses (Bosworth, 2010). Certificate completion for this study was defined as the students who successfully earned enough credits to be awarded a California Community College Chancellor's Office approved certificate (CCCCO, 2013). Earning of a credential is the most easily defined and measured, thus the most widely used, metric to measure, assess, and evaluate programs and policies (Cate et al., 2017).

Military students as a whole, thus including active military and veterans, have diversified the student body but have also brought unique challenges, which unfortunately includes a greater dropout risk than traditional students (Ford & Vignare, 2015; Olsen et al., 2014; Sorensen & Donovan, 2017; Wilson, Smith, Lee, & Stevenson, 2013). However, existing research lacks thorough data collection, tracking, and examination of retention (Cate, 2014; Cate et al., 2017; Ford & Vignare, 2015; Gibson et al., 2010; Olsen et al., 2014; Tinto, 2006b). Therefore, is a need for more research in order to provide guidance on how higher education institutions can increase credential earning rates, or if an increase is even needed. Tinto (2006b) also mentioned studies existing lacked complexity and detail, including community college students and students

of different gender, race, ethnicity, and socio-economic status, characteristics common to military students.

Online course success and persistence to earning a credential was evaluated using *ex post facto* data from the DataMart produced by the CCCCO (2013). The results can possibly provide insight to college leaders about online course success and the persistence to earning a credential for their active military students. Course success for this study is receiving a passing grade of A, B, C, P, IA, IB, IC, or IPP, as defined by the DataMart (CCCCO, 2013), as opposed to failing, dropping, or withdrawing from the course (Bulman & Fairlie, 2021). This information can guide program improvements at colleges to increase the persistence rate and also furnish data to the Federal government whether the millions of dollars spent on these students is resulting in the anticipated outcomes.

Background

Military students are enrolled at almost every higher-education institution in the United States (Ford & Vignare, 2015). Education is used as a recruiting tool to attract new enlisted servicemembers and to retain current servicemembers with faster promotions and improved overall performance (Peter, 2011; Starr-Glass, 2013; Wilson et al., 2013). Many of these military students prefer to enroll in online courses at community colleges (Evans, Pellegrino, & Hoggan, 2015; Hawn, 2011; Persky & Oliver, 2011). Military students chose community colleges for their affordability, diversity, flexibility, and open-access (Bates, 2012; Evans et al., 2015; Margarit & Kennedy, 2019; Selber, Biggs, Chavkin, & Wright, 2015; Starr-Glass, 2013). These same students choose online courses because they have schedules too demanding for in-person courses, including deploying overseas and changing duty stations every few years (Downs & McAllen, 2014; Machuca et al., 2014; Wang et al., 2012).

Researchers show demographic characteristics common among military students, including being a first-generation college student, working, having a family, or being diagnosed with a disability, are often associated with a lack of persistence and lower graduation rates (Cate et al., 2017; Evans et al., 2015; Fetzner, 2013; Ford & Vignare, 2015; Hayward & Williams, 2015; Olsen et al., 2014; Soares et al., 2017; Wilson et al., 2013). However, persistence and credential earning rates lack an established data collection method (Cate et al., 2017; Ford & Vignare, 2015) and only recently has documentation begun on the time it takes servicemembers to complete a degree (Cate, 2014); therefore, reported statistics are often inconsistent (Ford & Vignare, 2015).

An examination of prior research also shows a lack of data collection about military students exists. Many community colleges do not know the number of military students enrolled as they fail to ask students about their military status (Evans et al., 2015; Ford & Vignare, 2015). The military has data showing online learning works for servicemembers, but community colleges have failed to evaluate whether their online programs are appropriately educating their students (Ford & Vignare, 2015). There is also little empirical evidence of effective institutional practices to support military students (Molina & Morse, 2015). Finally, researchers define military students differently, some evaluating only one set of military students such as veterans or full-time active-duty military students, first-time students, full-time students, and others not having appropriately classified groups, leading to confusing results that are unlikely to be generalizable to all military students (Cate et al., 2017; Ford & Vignare, 2015; Gibson et al., 2010).

Without consistent data collection and analysis, it becomes difficult for higher education institutions to effectively adjust services to improve persistence rates among military students

(Cate, 2014; Cate et al., 2017; Ford & Vignare, 2015; Gibson et al., 2010; Olsen et al., 2014).

There are over 100,000 active military students spending federal money on online courses, yet

this lack of research continues to exist (Ford & Vignare, 2015; Gibson et al., 2010; Kirchner &

Pepper, 2020; National Association of Student Personnel Administrators [NASPA], 2013). As

former First Lady Michelle Obama asserted, "military families have done their duty, and we, as a

grateful nation, must do ours. We must do everything in our power to honor them by supporting

them, not just by words but also by deeds" (Hitt et al., 2015, p. 548).

The problem posed in this current study is there is a void in the literature on active

military students in online courses. Specifically, data have not been analyzed to determine

whether online courses are effective for active military students' learning, and if it is effective,

whether it leads to persistence to earning a credential, including a certificate or degree. The

study may contribute to solving this lack of reported data by examining course success of active

military students in California Community Colleges and compare course success rates of active

military students to non-military students. The study also compared the degree completion of

these active military students to veteran students and non-military students. Non-military

students are defined as students who are not associated with the military and students who do not

fall into the *Military Students* definition.

Purpose Statement

The purpose of this study was to examine the success of active military students within

California Community Colleges. The study examined student course success between online

courses and traditional courses, compared course success of active military to non-military, and

compared active military students, veteran military students, and non-military students credential

earning rates. For the purpose of this study, active military students were defined as full-time

active-duty servicemembers, active reserve servicemembers, or any guard servicemembers. The California Community College Chancellor's Office's (CCCCO) Management Information Systems (MIS) DataMart defines "Military Total" as "Active Duty, Active Reserve, National Guard" (CCCCO, 2013).

Research Questions

This study was guided by the following research questions:

1. Is there a statistically significant difference between the course success rate for active military students in online courses compared to active military students in traditional courses at California Community Colleges from 2012-2013 until 2018-2019?

2. Is there a statistically significant difference between the overall course success rate for active military students compared to non-military students at California Community Colleges from 2012-2013 until 2018-2019?

   a. Is there a statistically significant difference between the course success rate for active military students compared to non-military students in online courses at California Community Colleges from 2012-2013 until 2018-2019?

   b. Is there a statistically significant difference between the course success rate for active military students compared to non-military students in traditional courses at California Community Colleges from 2012-2013 until 2018-2019?

3. Is there a statistically significant difference between the seven-year trend of active military students, veteran military students, and non-military students who earned a credential at California Community Colleges from 2012-2013 until 2018-2019?

Professional Significance

Active military students lack persistence to degree completion (Evans et al., 2015; Fetzner, 2013; Ford & Vignare, 2015; Olsen et al., 2014; Wilson et al., 2013) and may not have the necessary credentials for jobs they are otherwise capable of obtaining after their military service (Peter, 2011; Starr-Glass, 2013). One solution is for active military students to enroll in an online certificate or degree program, giving them the flexibility to enroll in courses that meet their demanding schedule and sometimes challenging locations. The federal government spends millions of dollars on educating military students; however, no research studies analyze how successful active military students are, or whether the return on investment is worth the cost (Cate et al., 2017). For example, "very little data have been collected on a large-scale, consistent basis" (Evans et al., 2015, p. 47) for veteran students in postsecondary institutions and "a lack of data on their postsecondary outcomes, and the lack of an established method to collect such data, make it difficult to accurately measure the return on the GI Bill investment" (Cate, 2014, p. 2). Even without proper data regarding outcomes and return on investment, the individual military branches recently started restricting Tuition Assistance education benefits that active military students rely on to take courses towards earning a credential (Altman, 2019; Pulkkinen, 2021).

One way to determine the success of federal educational programs for servicemembers is to frame "an inclusive data-informed narrative… [to] enable campus leaders and professionals to better support the postsecondary goals of today's military-connected students" (Molina & Morse, 2015, p. 17). First, properly defining military students, online courses, course success, credential, certificate and degree completion, and other key terms guided researchers to gather the right data. Second, gathering the appropriate data to measure course success and earning a credential was required to properly research this topic further. Earning a credential, also known

as obtaining a certificate or a degree, is what many educators, researchers, and probably the federal government would consider a success, and thus proper spending of federal money. Finally, the research allowed recommendations that are understandable by college leaders to be made. These steps should allow the research to be replicated by others to expand knowledge about these active military students and continually provide new research about these military students to practitioners.

The research and results will be of value to practitioners to advance the knowledge regarding active military students as related to course success, course delivery methods, and credential earning rates. Practitioners interested in the research and results include military and veteran services, student services, academic affairs, and higher-level community college leaders. The relationship of online course success to traditional course success provides data of the appropriateness of online courses as a method of learning for active military students. Although veterans play an important role in overall student success, many studies focus solely on veterans or group all military together, thus little data exists for active military students. Due to the lack of data about the success of these post-traditional active military students, this study excludes veterans when comparing the course success rates, including overall, online, and traditional, between active military and non-military to show their impact on overall student success rates. Finally, examining the credential earning rates of active military students compared to veteran students and non-military students in a proportional way shows if they are graduating at a statistically significant rate compared to their peers.

This research showing military students' success, or lack thereof, helps community college leaders determine whether their policies are working to increase credential earning rates, or if they need to continue to be improved. After all, "it is one thing to identify effective action;

it is another to implement it in a way that significantly enhance student retention over time"

(Tinto, 2006b, p. 8). It also helps DoD to determine if they should urge the individual branches

to increase, instead of reduce, Tuition Assistance for active military students based on their

impact of course success rates. Overall, the most important goals of the research provide

practitioners with a comparison of course teaching methods (online versus traditional) and trends

of student credential earning rates, and to provide a replicable study for other researchers to

expand the body of knowledge around success among active military students.

Theoretical Framework

Student persistence to completion, along with institutional retention, has been a concern

in the United States since the mid-1970s (Tinto, 2006a). Extensive research on persistence has

led to numerous journal articles, a dedicated journal, multiple studies of best practices, surveys

of student engagement, instruments to measure *dropout proneness*, development of institutional

and state polices to increase persistence, institutional retention audits, and even specialized

consulting firms (Tinto, 2006a, 2006b). Tinto (2006b) provided the first detailed longitudinal

model that explicitly connected student retention to the environment, including the institutional,

academic, and social systems that affected student success. As Bok (2013) succinctly stated:

Tinto has "studied dropouts more intensively than anyone else" (p. 92). Part of the individual is

the characteristics that form their background, referred to as pre-entry attributes (Tinto, 2017b).

These attributes influence the individual's goals, in this case, the goals they have as a student

enrolling in college (Tinto, 2017b). Motivation to persist academically is driven by these goals,

and, therefore, student persistence and institutional support play important roles in students'

completion rates (Tinto, 2017b).

Persistence is one manifestation of motivation, students have to both want to persist and extend the effort despite challenges (Tinto, 2017b). However, motivation is malleable and student experiences can enhance or diminish it (Tinto, 2017b). Tinto (2017a, 2017b) described three impacts on motivation: self-efficacy, sense of belonging, and perception of curriculum. First, self-efficacy is learned and is a student's belief in their ability to succeed based on experiences and interactions (Tinto, 2017a, 2017b). Strong self-efficacy improves goal attainment and "students have to believe they can succeed in college" (Tinto, 2017b, p. 257). Second, a sense of belonging is when a student feels they matter and belong as member of a community; in this case the faculty, staff, and other students (Tinto, 2017a, 2017b). This results in a bond that binds the student to the community even in the midst of challenges (Tinto, 2017b). Finally, perceptions of curriculum are the student's perceived quality of material and relevance to personal matters (Tinto, 2017a) and curriculum perceived as low quality, irrelevant, or unrewarding will result in lower persistence (Tinto, 2017b).

Tinto (2006a, 2006b) discusses ways institutions and faculty can help students learn, mostly by feeding into their sense of belonging, as institutions were not committing the needed resources to shape student persistence at the time of the study. First, all students need to be held to high standards, especially in the United States where expectations are low enough that students do not put much time into studying (Tinto, 2006a). Second, students need academic, social, and sometimes financial, support during college (Tinto, 2006a). This is especially important during the first year when students are adjusting to their life as a college student (Tinto, 2006a). Third, students need frequent and useful feedback using quick assessments, such as a one-minute journal, and shared conversations about their learning, in addition to the college entry assessments and early warning systems many colleges have implemented (Tinto, 2006a,

2006b, 2017b). Fourth, students experience improved learning and increased persistence in fully-integrated learning communities that promote not just intellectual development but also social connections (Tinto, 2006a, 2006b, 2017b). Finally, faculty need further training to promote student learning as faculty are the only educators from kindergarten onward without formal teacher training (Tinto, 2006a, 2006b). Faculty taking this training and improving their actions affecting student retention need to be rewarded with promotions and tenure systems (Tinto, 2006b).

The current study employed Tinto's theoretical framework in terms of student motivation to persistence based on decades of their research and theory of student integration. Motivation to persist academically is discussed in terms of self-efficacy and a sense of belonging, two characters common to, and important for, military students (Artino, 2007; Ford & Vignare, 2015; Olsen et al., 2014; Persky & Oliver, 2011; Starr-Glass, 2013). Institutional support feeds into students' sense of belonging and is discussed in terms support, feedback, learning communities, and faculty training, as shown in Figure 1.
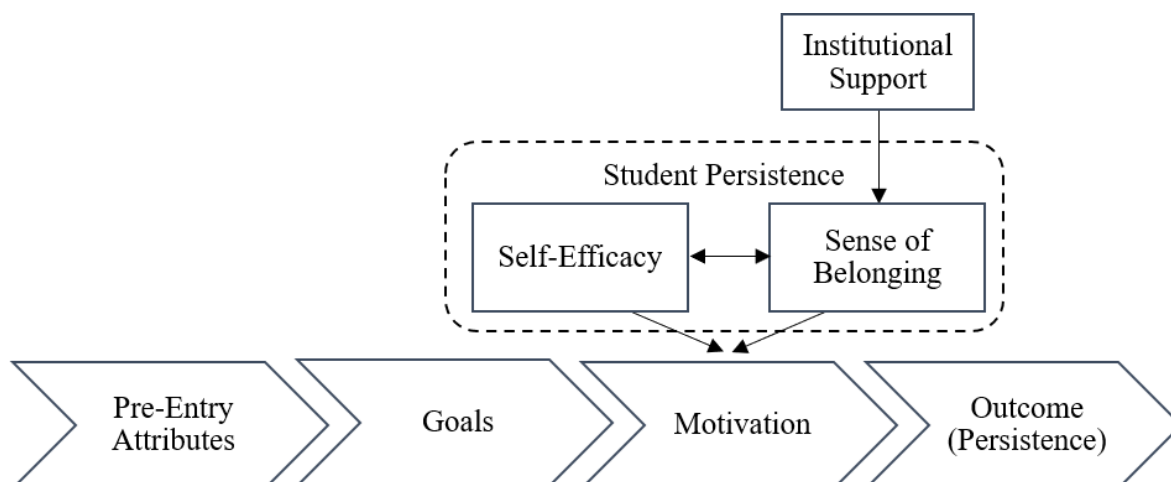
Figure 1. Model for student persistence (adapted from Tinto, 2006b). Both self-efficacy and sense of belonging are student characteristics and influence each other as well as motivation while institutional support influences sense of belonging. The bottom line shows a direct forward influence.

Overview of Methodology

This quantitative, non-experimental research study used *ex post facto* data from the MIS DataMart produced by the CCCCO. The California Community College system was chosen for its proximity to multiple military bases within the state, as well as being the largest provider of workforce training in the United States, with one in four of all community college students attending one of their schools (CCCCO, 2021). It also produces the largest number of certificates of any institution (Bosworth, 2010), a credential often overlooked when discussing completion rates but considered in this study. The DataMart collects term and annual data from California Community College system's 73 districts and 116 colleges (CCCCO, 2021). The Chancellor's Office reports these data to state and federal agencies (CCCCO, 2013).

Active military, veterans, military students, non-military students, online courses, traditional courses, course success, credential, certificate and degree completion, and persistence

were all defined for other researchers to understand the scope of the study. The study addressed

the need for gathering the right data to evaluate the success of active military students, defined as

full-time active-duty servicemembers, active reserve servicemembers, or any guard

servicemembers. The DataMart defines "Military Total" as "Active Duty, Active Reserve,

National Guard" (CCCCO, 2013). The data analysis determined whether there is a statistically

significant association between success and course delivery and determined whether there is a

statistically significant trend between active military students' credential earning rates to those of

veteran military students and to the non-military student population.

A quantitative study was chosen for three reasons: (a) there was a standardized data

collection representative of a larger sample; (b) the data were used to explain and predict an

outcome: success and persistence of military students in California Community Colleges; and (c)

the research was detached and performed in a shorter-term setting (Leedy & Ormrod, 2016).

The study compared data over seven school years, from 2012-2013 until 2018-2019. The earliest

school year, 2012-2013, was the first year significant and reliable data were provided in the

DataMart, despite military student data collection starting in 2011-2012 by CCCCO for military

students (CCCCO, 2013), as discussed in the *Data Outliers* section. The latest school year,

2018-2019, was chosen as the schools physically closed in the spring semester due to the

COVID-19 pandemic, creating a vastly different learning environment difficult to properly

access course success and credential earning rates (Bulman & Fairlie, 2021; Floyd, 2021; Guth,

2020; Hart et al., 2021; Prokes & Housel, 2021). The final school year was also chosen because

at the time of data collection, the DataMart warned users the following when selecting

Retention/Success for a Special Population/Group, the key data for Research Question One:

These data submissions represent a very specific set of processes that have surfaced

known issues with any metric related to headcount as the system shifted course delivery

formats to ensure the continuation of instruction during the pandemic. … In the

meantime, research or reporting using this data for terms starting with Spring 2020 is not

currently supported and is not recommended. (CCCCO, 2013, n.p.)

Once the data were gathered, the data were analyzed using SPSS and descriptive statistics

described the data. The data for all three research questions focused on students at California

Community Colleges over a seven-year period from 2012-2013 until 2018-2019. Before

starting, the researcher examined each dataset to get a general overview and to remove any data

outliers, as discussed in the *Data Outliers* section. Using a *t*-test, the data from Research

Question One was analyzed to determine if there is a statistically significant difference between

course success in online courses and traditional courses for active military students. A *t*-test was

also used to analyze the data from Research Question Two to determine if there is a statistically

significant difference between the overall, online, and traditional course success rates for active

military students compared to non-military students. The data for Research Question Three was

analyzed using trend analysis implemented as multiple regression since the data were

quantitative with known independent and dependent variables. The data were analyzed to

examine differences, if any, of the credential earning rate of active military students, veteran

military students, and non-military students.

Delimitations

The following delimitations applied to the current study:

- First, the choice to study military student persistence in online education within California Community Colleges was a delimitation. It was a decision made by the researcher through the proposal development.

- The quantitative study examined specific variables to evaluate course success and earning a credential.

- The study examined active military students in online courses of a researcher-selected community college system in the state of California. Therefore, it is unknown whether this is representative of the general United States' population.

- *Ex post facto* data were used. The researcher had no control over the collected, nor the accuracy of the data.

Definition of Key Terms

The following are definitions of key terms used in this study:

- Active Military: Full-time active-duty servicemembers, active reserve servicemembers, or any guard servicemembers. The DataMart defines "Military Total" as "Active Duty, Active Reserve, National Guard" (CCCCO, 2013).

- Certificate: A credential issued by educational intuitions that indicate a completion of a specific program of study or series of courses (Bosworth, 2010). Not to be confused with certifications or licenses that are typically awarded by a standard-setting third-party (Bosworth, 2010; Carnevale, Rose, & Hanson, 2012).

- Certificate Completion: Students who successfully earned enough credits to be awarded a California Community College Chancellor's Office approved certificate (CCCCO, 2013).

- Course Success: Receiving a passing grade of A, B, C, P, IA, IB, IC, or IPP, as defined by the DataMart (CCCCO, 2013), as opposed to failing, dropping, or withdrawing from the course (Bulman & Fairlie, 2021).

- Credential: A degree or certificate completion. The term "without credentials" is the total of other credit reward or noncredit reward (CCCCO, 2013).

- Degree Completion: Students successfully earning enough credits to be awarded a degree.

- Distance Courses: Courses including an online courses and lower-tech offline or hybrid methods, such as videos and recorded lectures played without the use of the internet. It provides educational opportunities for location, time, and situationally challenged populations, including deployed military servicemembers (Bates, 2012).

- Military Students: Students who are active military or veterans taking college courses.

- Non-Military Students: Students who are not associated with the military. Also, any student who does not fall into the *Military Students* definition.

- Online Courses: Courses taken 100% online using an internet-connected computer and web-based platform for learning. These include delayed interaction and simultaneous interaction formats (Johnson et al., 2014).

- Persistence: The continuation, or re-enrollment, of courses from semester to semester (Liao et al., 2014). This is a student-focused measure (NCES, 2021).

- Post-traditional students: Working individuals pursuing further knowledge and skills while balancing work, education, and life responsibilities (Soares et al., 2017).

- Servicemembers: Any person who is or has served in the military, including full-time active-duty, part-time reserve, or any guard, plus veterans.

- Traditional Courses: Any courses taken in the traditional, in-person classroom (Johnson et al., 2014) and any courses that do not fall into the *Distance Courses* definition

- Veterans: Any and all prior military personnel, including those servicemembers who were discharged, who completed their time, or who retired (VA, 2019).

Summary

Active military students are post-traditional, adult student students who use their military educational benefits to obtain promotion points and/or earn a credential. Many choose to attend a community college and prefer online courses. California has 73 districts, including 116 community colleges (CCCCO, 2021), offering more online courses (Johnson et al., 2014) and issuing more certificates (Bosworth, 2010) than any other higher education system. Along with a significant military presence, it was an ideal place to conduct initial research on active military students in online education. Examining online course success of active military students at community colleges, if active military students at the community college are earning credits or persisting to certificate or degree completion and comparing credential completion of active military students to other student populations, was the main focus of the current study. This research hopes to offer some best practices and possible improvements for all of California Community Colleges to perhaps increase military student course success and persistence to earning a credential. It also hopes to provide a replicable study for other researchers to evaluate the effectiveness of their online programs for their active military students in order to provide

greater success, as measured by earning a credential, for these students and appropriate spending of federal dollars.

This dissertation is organized into five chapters. The remaining four chapters are chronologically ordered. Chapter 2 provides a literature review on all military students before focusing on active military students. It also provides information about online education, community colleges, and motivation to persist to earning a credential. Chapter 3 describes the methods of this quantitative, non-experimental study using *ex post facto* data. Chapter 4 reports on the data found and analysis completed. Finally, Chapter 5 has a discussion on the study's findings, the implications for practitioners, and provides recommendations for future studies.

CHAPTER 2

LITERATURE REVIEW

The military uses educational incentives as a recruiting tool to attract and retain servicemembers for its all-volunteer force. It recognizes education positively contributes to retention, performance, and competence (Starr-Glass, 2013). College credits allow a servicemember to earn promotion points, move up the ranks faster, and is highly recommended for upper-level enlisted ranks (Mentzer, Black, & Spohn, 2015; Peter, 2011; Starr-Glass, 2013; Wilson, Smith, Lee, & Stevenson, 2013). The military also emphasizes the need for a college degree to be hired in a civilian position upon discharge from the military (Peter, 2011; Starr-Glass, 2013). As a result of the military's encouragement for education, along with other contributing economic factors, a significant rise in the number of military students in college has recently occurred (Starr-Glass, 2013). The military has also driven a rapid growth in online course enrollment nationwide as military students enroll at a higher rate than their non-military peers (Kirchner & Pepper, 2020; Meine & Dunn, 2017) with "well-established, military-focused schools [being] among the key initial players" (Meine & Dunn, 2017, p. 667). In 2016, more than 340,000 military students completed a postsecondary certificate or degree (Guth, 2019).

Background

American military servicemembers have received government-funded benefits since colonial times when Plymouth Colony provided pensions to disabled veterans in 1636 (McGrevey & Kehrer, 2009). The first major military impact on higher education was the end of World War II when $1 billion was spent "on university-based research [and development] aimed at winning the war and devising 'new instruments of destruction and defense'" (Gumport, 2011, p. 377). Shortly after the war ended, the 1944 GI Bill (Serviceman's Readjustment Act, 1944)

sent over one million veterans into higher education institutions, tripling the number of higher

education professors in a rapid expansion (Mumper, Gladieux, King, & Corrigan, 2011;

Schuster, 2011). By 1947, half of all students were veterans, a huge benefit since "hundreds of

thousands of Americans… would not have attended college" (p. 115) and since it allowed many

Black and Hispanic veterans to join the middle class (Mumper et al., 2011). Academic

institutions accepted expansion and military presence as the norm, expanding departments and

adding graduate programs (Altbach, 2011). These patterns continued with the Cold War when

Congress encouraged more students to attend school in national interest areas and strengthened

research partnerships, including increased funding (Mumper et al., 2011; Gumport, 2011). All of

the initiatives before 9/11 allowed 7.8 million, nearly half of the earlier war veterans, to pursue

education or training programs (Hendrickson, Lane, Harris, & Dorman, 2013). Yet research

literature paid little attention to higher education institutions supporting military students before

9/11, instead focusing on comparing military students to non-military students (Mentzer et al.,

2015; Olsen, Badger, & McCuddy, 2014).

The number of military students is increasing once again; 71% of veterans use their

educational benefits (Defense Activity for Non-Traditional Education Support [DANTES], 2022)

and 73% plan to use their benefits (Kirchner, 2015) and approximately 200,000 veterans

transition out of the military each year, often enrolling in higher education (Kirchner & Pepper,

2020). The Post-9/11 GI Bill, effective August 1, 2009, committed "significant resources to the

education of millions of active duty servicemembers and veterans" (Wilson et al., 2013, p. 628)

and is said to be "the largest [expansion of] educational-benefits… in the 65-year history of the

GI Bill" (Persky & Oliver, 2011, p. 111; Cate, Schmeling, & Bogue, 2017). Key changes from

the original GI Bill are tuition amounts increases, improved eligibility, allowing the transfer of

unused benefits to a family member, and the ability to qualify for funds for books, supplies, fees, and a housing allowance (Dortch, 2018; McGrevey & Kehrer, 2009; Radford, Bentz, Dekker, & Paslov, 2016; Starr-Glass, 2013). However, veterans are only using 17 out of the 36 months of their educational benefits (Jenner, 2019).

In terms of payments, federal aid provided $50 million between the time the Post-9/11 GI Bill passed in August 2008 to September 2009, primarily to for-profit schools and community colleges (Cass & Hammond, 2015; Ford & Vignare, 2015; Renn & Reason, 2013). From 2009 to 2014, $10 billion a year was spent on a combination of GI Bill benefits (over $41 billion total) and Department of Defense's (DoD) funded tuition assistance (over $625 million a year) (Mentzer et al., 2015). This encompasses about 5% of all postsecondary students (Radford et al., 2016; McCaslin et al., 2014) and 38% of veterans (Guth, 2019). In 2020, $11.5 billion in payments were made to over 875,000 beneficiaries (VA, 2021), consistent with the average yearly historical amounts reported (Congressional Budget Office, 2019).

The DoD also started higher education research initiatives related to national defense, such as advanced foreign languages (Hendrickson et al., 2013), and reported spending $1 billion in funding through the Voluntary Education Program (National Association of Student Personnel Administrators [NASPA], 2013). In August 2017, the Forever GI Bill was signed, further expanding benefits by eliminating the 15-year cap, increasing benefits to Purple Heart recipients and almost 8,000 military students who were forced to discontinue learning due to school closures, helping students to identify schools offering priority enrollment, and added extra money incentives to those obtaining STEM (science, technology, engineering, math) degrees (Dortch, 2018; Guth, 2019; VA, 2021). The Forever GI Bill also requires the VA to report yearly academic progress information to Congress and automated GI Bill claims using rule-based

processing (Dortch, 2018). On August 1, 2022, active military students will become eligible for the Yellow Ribbon Program, a program currently for veterans that helps pay for tuition and fees not covered by the Post-9/11 GI Bill (Dortch, 2018; VA, 2022). Finally, military installations created education centers, suggesting that "politicians and military leaders are interested in seeing servicemembers participate [at higher education institutions] and attain college degrees" (Wilson et al., 2013, p. 628). And unlike during the era of the original GI Bill, this time higher education institutions are realizing they must improve services for the military student population to be credible, or at minimum, viable (Smith, 2011).

Military Students

The increase in military students, defined as active military and veterans taking college courses, is diversifying the student body and bringing unique challenges. Higher education institutions need to support all military students because "the environmental supports provided by university programs, policies, and people are critical variables in the equation of success for [military] students" (DiRamio & Jarvis, 2011, p. 23). The first step is identifying military students through a military-related demographic question in the student information system, preferably during the application process (Ford, Northrup, & Wiley, 2009), as not every military student utilizes military education benefits (Cate et al., 2017; McCaslin et al., 2014) or will disclose their military status (McCaslin et al., 2014). For example, almost every community college enrolled a servicemember in 2012-2013 but only 91% were the recipient of federal education benefits that would identify them as a military student; 79% were identified as an admissions application question and 59% because the student self-identified to the military office on campus (Queen & Lewis, 2014).

Once military students are identified, the next step to support students is to ensure the institution provides a smooth transition from servicemember to student, has flexible policies, properly staffs military programs and offices, and provides appropriate retention methods for success (Church, 2009; DiRamio & Jarvis, 2011; Hitt et al., 2015; Kirchner, 2015; Olsen et al., 2014; Persky & Oliver, 2011; Starr-Glass, 2013). NASPA (2013) found three-fourths of responding institutions to have dedicated personnel and institutions with over 100 military students had a dedicated office; Queen and Lewis (2014) found this number to be higher at 94%. Finally, it is ideal to have a support team consisting of faculty and staff who have a commitment to student success (Johnson, 2009; Tinto, 2006a, 2006b), understand the history and culture of the institution, and can apply "their professional expertise and problem-solving skills… to provide a high level of service to [this] unique student population" (Johnson, 2009, p. 59).

Military students have characteristics similar to other post-traditional older adult learners with busy lives; both often enroll in community colleges (Cate et al., 2017; Evans, Pellegrino, & Hoggan, 2015; Ford & Vignare, 2015; Johnson, 2009; Margarit & Kennedy, 2019; McGrevey & Kehrer, 2009; Mejia, & Cook, 2014; Persky & Oliver, 2011; Postsecondary National Policy Institute, 2021; Soares, Gagliardi, & Nellum, 2017). Characteristics include being a part-time student due to working a full-time job, being a first-generation college student, and having a family and/or dependents (Ann Clovis & Chang, 2021; Evans et al., 2015; Ford et al., 2009; Kirchner and Pepper, 2020; Margarit & Kennedy, 2019; Radford et al., 2016; Shea & Bidjerano, 2019), thus making them overall less engaged in the campus community (Margarit & Kennedy, 2019). Post-traditional students are working individuals pursuing further knowledge and skills while balancing work, education, and life responsibilities (Soares et al., 2017). The National Postsecondary Student Aid Study 2011-12 found nine percent of post traditional learners were

connected to the military and the American Council on Education defines having a military connection as a main characteristic factor of post-traditional learners (Soares et al., 2017).

Military students also have experiences different from other post-traditional students their age from their time as an enlisted or commissioned servicemember. Upon transitioning to college, these unique experiences cause these servicemembers to bring various strengths and struggles to the educational environment (Cass & Hammond, 2015; Evans et al., 2015; Ford & Vignare, 2015; Karp & Klempin, 2016; McGrevey & Kehrer, 2009; Molina & Morse, 2015; Osborne, 2014; Persky & Oliver, 2011). For example, they want more discussion, projects, and real-life exercises, similar to how they learned in the military, than readings and tests (Persky & Oliver, 2011). They also have barriers that do not affect post-traditional students, such as transitioning to civilian life and military-related disabilities (Cass & Hammond, 2015; Cate et al., 2017; Ford & Vignare, 2015; Olsen et al., 2014; Osborne, 2014). However, evidence of how these demographic characteristics and experiences intersect with the college experience and outcomes does not exist (Molina & Morse, 2015).

Strengths of Military Students

Military students have many strengths learned from their time as servicemembers and, while similar to other adult learners, they also bring unique experiences to educational environment (Evans et al., 2015; Ford & Vignare, 2015; McGrevey & Kehrer, 2009; Persky & Oliver, 2011). They are known for adaptability, leadership, reliance on other learners, self-discipline, specialized skills, strong camaraderie with their peers, teamwork, and time-management skills (Ackerman, DiRamio, & Garza Mitchell, 2009; Ford & Vignare, 2015; Karp & Klempin, 2016; McGrevey & Kehrer, 2009; Olsen et al., 2014; Persky & Oliver, 2011). Compared to their non-military peers, they see themselves as being more mature, having the

ability to better set and achieve goals, being more serious about their studies, having different life experiences and perspectives, and being worldlier (Ackerman et al., 2009; Ford & Vignare, 2015; Karp & Klempin, 2016; Olsen et al., 2014; Osborne, 2014). In fact, a 2005 national study revealed "Americans have more confidence in the leaders of their professional, all-volunteer military than in any other profession in American society" (McGrevey & Kehrer, 2009, p. 93). The challenge is for the institution to assist military students in translating these positives into their academic career (NASPA, 2013).

Common Struggles of Military Students

Military students also bring challenges to higher education institutions. These include the need to relearn basic academic concepts and study skills, problems with concentration, increased stress, sleeplessness, avoidance of public spaces, physical and mental issues, relationship strain, employment challenges, alcohol abuse, and possibly deployment for active-duty, reserves, and guard forces that suddenly disrupts normal life (Cass & Hammond, 2015; Cate et al., 2017; Ford & Vignare, 2015; Hawn, 2011; Karp & Klempin, 2016; Osborne, 2014). Military students also contrast their behaviors and experiences to other students, often mentioning their extra discipline, experiences, and their different lifestyle (Ford & Vignare, 2015; Olsen et al., 2014; Wilson et al., 2013). Research often compares military students to post-traditional first-generation students. While both groups face the same risk factors, military students often have combat-related mental and physical injuries that increase the amount of risk factors they face (Ford & Vignare, 2015; Osborne, 2014). All of these risk factors and challenges can cause a difficult transition from military service to school, reduced participation, inability to concentrate, and retention problems (Cass & Hammond, 2015; Olsen et al., 2014).

The interruption of school due to deployment is exclusive to military students and "represent[s] disruptive, life-altering transitions" (Ackerman et al., 2009, p. 12). Military students must suddenly end their current semester, deploy, and upon knowing a return date, determine their transition back to education (Renn & Reason, 2013). The transition from deployment back "into the classroom can be as stressful as deployment" and "might be the most difficult barrier a student veteran faces" (Kirchner, 2015, p. 116). Most of the transition to deployment and back to school is done by the student; only 22% of higher education institutions provide a formal and expedited process (Bauman, 2009; Renn & Reason, 2013). Deploying includes working with professors to determine how to handle their current coursework, including the possibility of completing while deployed, and working with financial aid about benefits, awards, and tuition (Bauman, 2009; Johnson, 2009). Returning includes working with staff from registration, advising, and financial aid to ensure a smooth transition into a new semester (Ackerman et al., 2009; Bauman, 2009; Johnson, 2009). This interruption to school often leads to a significantly longer time to completion, although military students' success rate is similar to traditional students' success rate despite having many post-traditional student characteristics that could lead to non-completion (Cate, 2014; Cate et al., 2017; Molina & Morse, 2015).

A common deployment issue is returning with physical and/or mental health injuries, both temporary and permanent ones (Cass & Hammond, 2015; Hawn, 2011; Johnson, 2009). Combat military students are twice as likely to have a disability than other college students (Cass & Hammond, 2015). In 2011-2012, eighteen percent of military students reported a disability compared to only thirteen percent of nonmilitary students (Radford et al., 2016). However, military students "do not typically identify themselves" as individuals who qualify for disability support as they are "trained to be warriors, ready at all times," and "the term *disabled*

[implies]… *not fit*, weak, unable to participate or perform" (Burnett & Segoria, 2009, p. 54).

They also leverage their military training into civilian roles of security and law enforcement,

fields with unforgiving disability history and require an extreme level of confidentiality (Burnett

& Segoria, 2009). Therefore, this number is likely much higher.

Temporary injuries may include mentally processing the sudden transition from

servicemember to student, feeling older in their classes, having unresolved issues from

experiences while deployed, or being more alert about noises and events reminding them of

deployment (Bauman, 2009; Ford et al., 2009; Ford & Vignare, 2015). Permanent injuries can

be physical or mental and cause students to have special needs, although military students

hesitate to self-identify on campus (Cass & Hammond, 2015; Church, 2009). Physical injuries

are usually visible and easily recognized. However, traumatic brain injuries (TBI) are physical,

invisible injuries. TBIs affect around 20% of veterans and can be difficult to diagnose since

symptoms do not always occur immediately following the initial trauma (Betts et al., 2013;

DiRamio & Spires, 2009).

Mental health issues are grouped in with other non-visible injuries and referred to as

invisible wounds or *invisible/hidden disabilities* (Aikins, Golub, & Bennett, 2015; Betts et al.,

2013). Around fifty different types of invisible wounds exist (Betts et al., 2013; Church, 2009).

A common mental health issue is post-traumatic stress disorder (PTSD), a "normal human

reaction to an abnormal and traumatic event" with a stressor that is extreme or life threatening

(DiRamio & Spires, 2009, p. 82). Research has found that 20% to 40% of people in war zones

experience PTSD and, when properly treated, successfully attend a higher education institution

(Betts et al., 2013; Church, 2009; DiRamio & Spires, 2009; Mentzer et al., 2015). However,

only half of servicemembers with PTSD, TBI, or major depression will seek treatment (Hawn, 2011).

The last unique challenge is retention issues despite the large percentage of servicemembers enrolled in postsecondary institutions, increased spending, and resource support since the Post-9/11 GI Bill (Cass & Hammond, 2015; Ford & Vignare, 2015; Gibson, Kupczynski, & Ice, 2010; Olsen et al., 2014; Whikehart, 2010; Wilson et al., 2013). Military students have higher semester-to-semester persistence rates but lower rates to degree completion and a greater dropout risk, especially above the associate's level, than traditional students (Ford & Vignare, 2015; Gibson et al., 2010; Mentzer et al., 2015; Olsen et al., 2014; Wilson et al., 2013). Some of this risk can be contributed to military students often being part-time students, a group of students with much higher dropout rates then their full-time peers (Lee, 2018; Molina & Morse, 2015). In addition, current veterans have lower graduation rates (51-54%) than veterans of past wars (68-80%) and have lower educational attainment, as measured by GPA, then traditional students (Cate et al., 2017; Durdella & Kim, 2012; Ford & Vignare, 2015; Gibson et al., 2010; Jenner, 2019; Mentzer et al., 2015; Olsen et al., 2014).

There are numerous possible reasons for the lack of persistence to earning a credential. Some possible reasons are the absence of social integration since fulfillment of needs occurs somewhere other than on campus, faculty and staff are not interacting meaningfully, issues with deployment and special scheduling needs, or minimal school resources devoted to ensuring their success (Cass & Hammond, 2015; Gibson et al., 2010; Olsen et al., 2014). Without increased financial, academic, and educational support, military students' persistence to earning a credential may be impacted (Gibson et al., 2010; Mentzer et al., 2015), similar to the financial, academic, and personal needs of part-time students (Lee, 2018) or community college students

(Hart, 2019) that impact persistence to degree completion. Durdella and Kim (2012) specifically found a lower family income level, less extracurricular activities, working during college, and choosing majors with negative effects on GPA as other possible reasons. GPA is important as Ann Clovis and Chang (2021) found a one-point higher GPA in a student's first year increased degree attainment 1.65 times. Porchea, Allen, Robbins, and Phelps (2010) found an increase in likelihood to graduate a community college then transfer to a 4-year institution directly related to an increase in high school GPA, and Shea and Bidjerano (2019) found both higher GPAs and a greater probability of graduating or transferring for students enrolled in online courses full-time.

Finally, "military education policies successfully incentivize college participation, but not degree completion" (Wilson et al., 2013, p. 640). Even with increased spending and resource support since the Post-9/11 GI Bill, research does not have an established method to collect military student data and has not provided a thorough data collection, tracking, and examination of retention rates to provide exact steps of how a higher education institution can increase credential earning rates, or if an increase is even needed (Cate, 2014; Cate et al., 2017; Ford & Vignare, 2015; Gibson et al., 2010; Olsen et al., 2014; Persky & Oliver, 2011). Part of the reason for insufficient data is tracking military students is difficult as they have high geographic mobility, irregular enrollment patterns, or take a temporary leave known as a stop-out (NASPA, 2013).

Active Military Students

Approximately 300,000 active-duty military students attend college each year using tuition assistance benefits (Ford & Vignare, 2015) out of the 1.3 million active-duty servicemembers (Pulkkinen, 2021). Active-duty military servicemembers move an average of every three years and can deploy at any time, both of which can have major impacts on being a

student (Military.com, n.d.). They commit to the military first and often enroll at higher education institutions for reasons other than earning a degree (Wilson et al., 2013). These students try to maintain both student and servicemember identities, leading to an issue of role confusion (Renn & Reason, 2013). Due to required military duties, including temporary duty assignments and deployments, active-duty military students also pursue their credentials part-time (Evans et al., 2015; Ford et al., 2009; Molina & Morse, 2015). Many enroll for incentives, such as promotion points, and because it is becoming the cultural norm within the military; in fact, many students do not have a desire to attend college but felt pressure to take courses (Mentzer et al., 2015; Wilson et al., 2013).

Active-duty servicemembers are supported by multiple government programs. First, the Uniformed Services Employment and Reemployment Act of 1994 requires employers to reemploy the servicemember into the job they would have attained if they were not absent, including providing any education needed to perform the job (McGrevey & Kehrer, 2009). Second, the Higher Education Relief Opportunities for Students (HEROES) Act of 2003 furnishes financial protection for active-duty, guard, and reserve servicemembers receiving federal aid. In essence, HEROES protects servicemembers from financial aid difficulty when duty calls by providing some flexibility through regulatory provisions of policies (McGrevey & Kehrer, 2009; U.S. Department of Education, 2012).

The final, and most widely known, is active-duty servicemembers can receive funding to pursue a college credential when off-duty through the DoD's Tuition Assistance program. Between October 2019 and September 2020, approximately 237,000 active military students used tuition benefits (Pulkkinen, 2021). However, active military student enrollments fell 14.5% from 2014 when DoD started tracking Tuition Assistance usage until 2019 (Altman, 2019). The

COVID-19 pandemic caused a rise in program use (Pulkkinen, 2021) despite the various military branches already restricting education benefits (the Air Force reversed this after complaints; Altman, 2019; Pulkkinen, 2021).

The Post-9/11 GI Bill increased benefits for student veterans and tuition assistance funds for active-duty students (McGrevey & Kehrer, 2009; Persky & Oliver, 2011; Starr-Glass, 2013); however, it is possible to deplete these funds without earning a credential (Molina & Morse, 2015). Active military students often receive at least one source of financial aid: over half used military education benefits, roughly half used grants, and only nine percent incurred loan debt (Molina & Morse, 2015). At the community college level, 91% of active military used military education benefits (Queen & Lewis, 2014). While an increasing number of servicemembers are enrolling in four-year public institutions, 30% of servicemembers enrolled in a two-year college or a vocational/technical degree program (VA, 2021). Community colleges provide greater participation in higher education, especially for individuals with limited opportunities, and have seen a rapid grown in enrollment in the past century that is expected to continue to grow (Fong et al., 2017). Military students also prefer distance or online education over traditional in-person courses (Evans et al., 2015; Persky & Oliver, 2011); in March 2019, 90% of servicemembers using any military education benefit took online or blended courses (MilitaryBenefits.info, 2022). The reasons are the diversity, open-access, and low tuition rates of community colleges, as well as the flexibility of distance, especially online, education meets their needs both as a servicemember and student (Bates, 2012; Evans et al., 2015; Johnson, Mejia, & Cook, 2014; Selber, Biggs, Chavkin, & Wright, 2015; Starr-Glass, 2013). In addition, military students are ideal for this type of learning environment since the military has used distance and online education for decades to train servicemembers (Artino, 2009a).

All military students are diverse demographically and economically, including active military students. One in five active military students in higher education are female and the average age upon entry is 22 (Molina & Morse, 2015). They are most likely to enroll online (59%) and part-time (61%) (Molina & Morse, 2015). Unfortunately, over sixty percent have four or more risk factors associated with not completing college (Molina & Morse, 2015). For example, nearly half are racial/ethnic minority or multiracial, 57% have at least one dependent, and most work full-time (70%); while this number is expected to be all students, certain military programs allow active military to pursue a college education with limited, or zero, employment time (Molina & Morse, 2015). Unfortunately, the effect of these diverse characteristics on the college experience remains incomprehensible by institutions (Molina & Morse, 2015).

Online Courses

The military has encouraged and practiced distance learning for many decades. Distance learning includes online education and lower-tech offline or hybrid methods, such as videos and recorded lectures played without the use of the internet. The earliest distance-type training occurred in the Army around the mid-1970s and the advanced distributive learning (ADL) initiative was introduced in the early 1990s (Downs & McAllen, 2014; Duncan, 2005; Friesen, 2009). ADL's mission remains "to provide the highest-quality education, training, informal learning, and just-in-time support, tailored to individual needs and delivered cost-effectively, anytime and anywhere" (2015, n.p.). It provides educational opportunities for location, time, and situationally challenged populations, including deployed military servicemembers (Bates, 2012). However, issues can arise for deployed military servicemembers, such as education institutions not serving an overseas military facility or deployed ship in the middle of the ocean, as it is not a priority (Pulkkinen, 2021). The history of the military using distance and online learning for

servicemembers created a learning comfort zone for military students (Artino, 2009a) and approximately ninety percent of military education benefits are used to enroll in online or hybrid educational programs (Kirchner & Pepper, 2020).

When properly implemented, distance education has many benefits for active-duty servicemembers. First, the courses can be asynchronous: courses without a scheduled meeting time for class but with due dates for homework and a discussion board for interaction between students. These courses provide flexibility to work around internet access issues and deployment cycles (Bates, 2012; Evans et al., 2015; Starr-Glass, 2013). The flexibility also allows servicemembers to juggle work, family, and studying (Ford & Vignare, 2015) and helps many students achieve their educational goals (Johnson et al., 2014). Second, distance learning allows easier experience customization for the student by the institutions, including altering the semester to work for the student's deployment or rotation schedule (Bates, 2012; Ford & Vignare, 2015). The student feels a higher level of support, and thus satisfaction, which leads to increased persistence and graduation rates (Ford & Vignare, 2015). Finally, despite the challenges of taking courses in a war-zone, some servicemembers find it easier than taking courses while home and feel it helps pass the downtime. They cite limited entertainment options, no family obligations, and minimum daily living chores as reasons studying is easier during deployment (Peter, 2011).

With increased internet capabilities worldwide, a shift from distance learning to online education occurred for all students in the late 1990s and early 2000s, not just military-related learning, and is quickly becoming a trend (Gibson et al., 2010; Kirchner & Pepper, 2020; Prokes & Housel, 2021; Thor & Moreau, 2016). Online education reduces infrastructure costs, eliminates overcrowded classrooms, and lessens instructor shortages for the institution while

providing flexibility, autonomy, and reduced travel times for the student (Armstrong, Tudor, & Hughes, 2021; Hart, Friedmann, & Hill, 2017; Kirchner & Pepper, 2020). Online courses were offered at 96% of large institutions (over 15,000 enrolled students) in 2006 (Artino & McCoach, 2008); institutional culture and philosophy drives the decision to embrace online instruction (Hart, Alonso, Xu, & Hill, 2021).

In 2010, 20% of all United States' students took at least one online course (Gibson et al., 2010) and that number rose to 43% by the 2015-2016, with almost 11% exclusively enrolled online (National Center for Education Statistics [NCES], 2021). Many of these online courses were at the community college level (Armstrong et al., 2021; Hart et al., 2017; Shea & Bidjerano, 2016, 2019), showing their willingness to innovate using existing distance education infrastructure to establish successful new technologies (Johnson et al., 2014). Of the students enrolling in online programs, 80% were post-traditional students over 25 years old (Postsecondary National Policy Institute, 2021) and likely to be employed and/or have dependents (Edmunds, Gicheva, Thrift, & Hull, 2021; Shea & Bidjerano, 2019).

In 2011, the DoD reported that 60% of active-duty military students, including those deployed, took online courses versus traditional courses, compared to 15% just ten years' prior (Peter, 2011). Also, during the 2011-2012 school year, 18% of all undergraduate military students took all of their courses online, compared to 12% of non-military students, and 16% were enrolled in an online educational program (Radford et al., 2016). Institutions compete for military students, especially for-profit schools promoting flexible and fast degree options, and some schools were established just to serve the military student population (Altman, 2019; Meine & Dunn, 2017). The Department of Veterans Affairs (VA, n.d.) stated 19 out of the 20

institutions receiving the highest military education benefit dollars were either entirely online schools or heavily promoted their online educational programs.

Two recent changes in higher education institutions are the increase in popularity of online programs and increasing numbers of post-traditional students; one contribution to these trends is the increase of military students. The DoD reported proportionally higher tuition assistance expenditures for online education compared to the traditional classroom style of learning (Ford & Vignare, 2015). Some of the reasons for this increase are military students deploy to areas without colleges, move often, have schedules too demanding for on-campus course schedules, and feel the pressure to have a college degree (Downs & McAllen, 2014; Machuca, Torres, Morris, & Whitley, 2014; NASPA, 2013; Wang, Elder, & Spence, 2012). Another possible reason is an institution must offer significant commitment to distance learning to be attractive to military students needing to take courses anywhere in the world (MilitaryBenefits.info, 2022). The DoD created a policy requiring schools to meet certain criteria to become a Servicemember Opportunity College (Bates, 2012; Evans et al., 2015) after a DoD task force found distance learning was not always held up to the same standards as traditional courses (Meine & Dunn, 2017). This program was sunset in March 2019 because 90% of servicemembers using any military education benefit were taking online or blended courses, higher education intuitions have an awareness of military student needs, and it was time to focus on other initiatives (MilitaryBenefits.info, 2022).

Success in Online Courses

Enrolling in online programs does not guarantee success and inconsistent findings of success rates are common. Researchers agree the learning outcomes for online courses are similar to traditional courses and that retention is the problem with exclusively online learning

(Armstrong et al., 2021, James, Swan, & Daston, 2016; Prokes & Housel, 2021; Shea & Bidjerano, 2016; Thor & Moreau, 2016). For example, a study by Downs and McAllen (2014) found veteran status had a positive, statistically significant relationship with academic performance in the online classroom and these students had a mean GPA of 3.77, 0.6 higher (Downs & McAllen, 2014) and the National Veteran Education Success Tracker found veteran GPA in all classroom settings to be 0.4 higher their non-veteran counterparts (Cate et al., 2017). Yet, other research indicates all military students, not just veterans like the Downs and McAllen (2014) study, lag behind their non-military counterparts in terms of GPA and cite a negative correlation (Ford & Vignare, 2015; Prokes & Housel, 2021).

Conflicting information also exists for all students in online courses. Hart et al. (2017) found student performance in online courses was weaker than traditional courses when college-course, student, or instructor fixed effects were tested and the results were consistent with various performance measures, among different student characteristics, and across subject areas. James, Swan, and Daston (2016) found online learners attempted less credit hours per semester yet Shea and Bidjerano (2016, 2019) found online learning accelerates the time-to-degree process contrary to prior research. The later study also found degree completion increases at a rate of 1.72 for every unit of successful online coursework when other predictors were held constant (Shea & Bidjerano, 2019). After all, extending the time to "complete a credential making online learning less efficient and thus costlier for degree attainment" (Shea & Bidjerano, 2016, p. 15).

Three main factors affect success for all students in online courses: getting behind and finding it too hard to catch up (19.7%), personal problems (14.2%), and the student could not handle combined study plus work and family responsibilities (13.7%) (Fetzner, 2013). Sorensen

and Donovan (2017) also found personal problems and time management contributing factors, along with financial issues or loss of internet access. Learning new online course management software and limited interaction with the instructor and peers, thus more self-motivation, also create challenges for online learning (Armstrong et al., 2021; Hart et al., 2021; Kirchner & Pepper, 2020). Military students are also faced with other potential problems: working around military obligations, internet interruptions, no internet access, and security issues prohibiting accessing certain websites (Bates, 2012; Machuca et al., 2014).

Improving Success in Online Courses

To improve the chances of success in online courses, according to several studies, higher education institutions should implement a mandatory online orientation for all students (Fetzer, 2013; Glazer & Murphy, 2015; Kranzow, 2013; Lee, 2018). This can be enhanced by connecting students to resources and support services in the online environment, preferably before the course officially begins (Glazer & Murphy, 2015; Hart et al., 2017; Kranzow, 2013) and making students aware of the systematic lower success rates of online courses so they can make informed decisions (Hart et al., 2017). Glazer and Murphy (2015) found a required orientation to the online learning platform provides students the skills to persist and increases student success while Kirchner and Pepper (2020) found military students acclimated to the institution easier with an add-on course coordinated by the military office and recommended these strategies be used for other post-traditional learners in online educational programs. A course is also helpful for first time college students, it improves their confidence to find information, including in the library, regardless of demographic or academic backgrounds, and improves their overall literacy skills creating a positive influence in all aspects of their lives, including work and personal (Margarit & Kennedy, 2019). This type of online orientation is

directly in line with Persky and Oliver's (2011) recommendation of an orientation that informs veterans how the school operates and about available resources and support.

Accessibility and usability are critical for student success and must be considered when designing online courses (Betts et al., 2013). This is particularly important for students with disabilities, including the many military students who do not disclose their disability but benefit from universally designed courses (Betts et al., 2013; Burnett & Segoria, 2009). Course design is also important for military students who are deployed without consistent and reliable internet access, especially in terms of making content downloadable and printable (Machuca et al., 2014).

As online programs expand, improvements such as online orientation and accessibility are becoming the norm. The online learning environment is positively changing with the diversification of teaching methods and enrichment of the curriculum by faculty. For example, faculty are bringing in guest speakers, students are doing a real-life project, and groups of students are cooperating on an assignment using online technology such as video conferencing (Selber et al., 2015). Also, the online environment is becoming a safe place, allowing students to express concerns and have open discussions (Starr-Glass, 2013). These discussions are creating new knowledge and increasing the dialogue between civilian and military learners (Hawn, 2011; Starr-Glass, 2013). The increase of dialogue is enriching the classroom experience and decreasing the isolation or divide previously felt by servicemembers (Hawn, 2011).

Community Colleges

Community colleges are designed to serve their surrounding area and facilitate an educational opportunity to all students with open-access (Fong et al., 2017; Hart, 2019; Margarit & Kennedy, 2019), often providing workforce training (Bulman & Fairlie, 2021). They "play a fundamental role in providing access for students from diverse backgrounds" (Margarit &

Kennedy, 2019, p. 97). Students enroll to take courses for personal and professional

development, and they might persist to transfer to another institution, obtain a certificate, or earn

a two-year associate's degree (Ann Clovis & Chang, 2021; Bulman & Fairlie, 2021; Hart, 2019;

Johnson et al., 2014; Margarit & Kennedy, 2019; Porchea et al., 2010; Tinto, 2006b, 2017b), the

highest degree granted by a community college (Horn, Horner, & Lee, 2019). In 2018-2019,

687,277 associate degrees and 532,313 certificates were earned in the United States (NCES,

2021). Eighty-five percent of all undergraduates are considered post-traditional (Postsecondary

National Policy Institute, 2021), many at community colleges, and have characteristics similar to

military students (Evans et al., 2015; Fong et al., 2017; Ford & Vignare, 2015; James, Swan, &

Dastan, 2016; Johnson et al., 2014; McGrevey & Kehrer, 2009; Persky & Oliver, 2011).

Community college students have an average age of 28, 60% of all students work part- or full-

time (Fong et al., 2017), and only 35% of students attend full-time (AACC, 2021).

These colleges serve 40-45% of all U.S. undergraduates (Ann Clovis & Chang, 2021;

Martin, Galentino, & Townsend, 2014; Scott-Clayton, 2015) and growth is expected (Edmunds

et al., 2021). However, only 16-20% of students earn a certificate or graduate within the three-

year federal benchmark (150% of the normal time of two years) (Margarit & Kennedy, 2019;

Martin et al., 2014; Scott-Clayton, 2015). After six years, the earning rate amount doubles to 43-

45% (Margarit & Kennedy, 2019; Scott-Clayton, 2015), showing the true nature of this part-time

population. Although some students remain enrolled after six years, most leave without earning

a credential (Hart, 2019). One possible reason for this is some students, particularly at

community colleges, enroll with a goal of completing some classwork, earning a certificate, or

transferring (Tinto, 2017b; Porchea et al., 2010). They leave without a credential but consider

themselves successful, although the institution might disagree and consider them to lack

retention (Tinto, 2017b). Some students transfer because community colleges are often a gateway to a bachelor's degree for minority, low-income, and first-generation college students (Ann Clovis & Chang, 2021; Bulman & Fairlie, 2021; Hart, 2019; Porchea et al., 2010; Tinto, 2006b). In 2010, 31% of students transferred to a 4-year college and in the 2015-2016 academic year, 49% of all students earning a bachelor's degree enrolled at a community college sometime in the previous ten years (Ann Clovis & Chang, 2021).

However, community college students are often overwhelmed in the number of choices to be made (Hart, 2019; Scott-Clayton, 2015; Tinto, 2017b) and "for many students at community colleges, finding a path to guide completion is the equivalent of navigating a shapeless river on a dark night" (Scott-Clayton, 2015, p. 102). Also, motivating community college students to completion is more complex than traditional four-year students since they have multiple responsibilities outside of school (Fong et al., 2017; Hart, 2019; Molina & Morse, 2015; Tinto, 2017b). Because of this, community colleges must provide effective support systems to improve persistence to completion (DiRamio & Jarvis, 2011; DiRamio & Spires, 2009; Liao, Edlin, & Cuttita Ferdenzi, 2014; Scott-Clayton, 2015; Tinto, 2017b).

Community Colleges and the Military

In terms of servicemembers, many community colleges currently support them by providing classes at nearby military institutions and providing a military student services office on campus (Bates, 2012; Evans et al., 2015). Some also provide classes on overseas military bases and war-zone communities (Evans et al., 2015). This gives community colleges an advantage over other schools. Community colleges can keep this advantage by further improving military student services, addressing the needs of all military students, and advancing their mission of open-access (Persky & Oliver, 2011). In return, military students bring federal

dollars from the various educational benefits they receive as servicemembers (Persky & Oliver, 2011).

Eighty percent of community colleges that responded to the American Association of Community College survey implemented, or have plans to, programs and services for military students, such as PLAs (Evans et al., 2015). However, there is a wide disparity of services offered and a lack of research on support for military students in community colleges (Evans et al., 2015; Ford & Vignare, 2015). Both enrollment and completion rates are increasing at community colleges but "very little data [have] been collected on a large-scale, consistent basis" for enrolled military students (Evans et al., 2015, p. 47). NASPA (2013) stated "there are no accurate counts of [military students and] … there is very limited information regarding the success rates of these individuals" (p.1). Many community colleges do not even know the exact number of military students they serve due to students not self-identifying and the college not asking (Evans et al., 2015) but instead assuming by looking at students using military funding for their education (Cate et al., 2017; NASPA, 2013). Community colleges also lack the data to determine if their online programs are successful, and why or why not, for military students; yet the military has data showing servicemember success in distance or online education (Ford & Vignare, 2015; NASPA, 2013).

However, community colleges struggle to improve services to military students without proper data (Evans et al., 2015; Ford & Vignare, 2015; NASPA, 2013), although most institutions are making an effort to understand and serve the military student population (NASPA, 2013). This, in turn, limits the college's ability to increase both enrollment and graduation rates, two key items on Obama's college completion agenda (Evans et al., 2015; Ford & Vignare, 2015; Hayward & Williams, 2015). Since there is not a one-size-fits-all approach to

working with this special population, each college needs to evaluate the existing research discussed and determine the unique needs of their military student population to become a more servicemember friendly community college (Evans et al., 2015). And by projecting this military friendliness, community colleges will be an attractive option for servicemembers for many more years (Persky & Oliver, 2011).

Student Characteristics and Success in Community Colleges

According to the American Association of Community Colleges (AACC, 2021), the United States has 936 public, 73 independent, and 35 tribal, for a total of 1,044 community colleges in 2021. The students identify as 43% male and 57% female, and 44% of students are 22 or older with an average age of 28 (AACC, 2021). Credit earning students make up most of the population at 58%, although 42% of noncredit enrolled students is a significant number accounting for five million students (AACC, 2021). Tuition averages $3,770 and 59% of students receive some sort of financial aid (AACC, 2021), a positive effect on access, persistence, and completion, especially among low-income or racial/ethnic minority students (Margarit & Kennedy, 2019; Molina & Morse, 2015).

Roughly half of all undergraduates in the United States failing to persist to degree completion (Bergman et al., 2014) and some characteristics of these post-traditional students contribute to this lack of completion. Due to the open-access policy of community colleges, the majority of students are economically, socially, and/or academically disadvantaged, often needing at least one remedial course in their first year (Margarit & Kennedy, 2019) and overall being less academically prepared, making them more likely to fail to persist to completion (Horn et al., 2019; Porchea et al., 2010; Shea & Bidjerano, 2019). This includes first-generation college students (29% of current community college students), students with disabilities (20%)

(AACC, 2021), and low-income students, as defined as households earning 185% of the poverty line or less (Carnevale, Rose, & Hanson, 2012) whether they are low-income themselves (55%) or come from a low-income family (25%) (Armstrong et al., 2021; Bergman et al., 2014; Margarit & Kennedy, 2019; Porchea et al., 2010). Of note is studies on persistence related to gender show conflicting results; some found similar persistence, others found females are more likely to persist (Bergman et al., 2014), including in online courses (Shea & Bidjerano, 2019), and no studies were found discussing persistence among students who do not identify as male or female.

Community college students are enrolled predominantly part-time (65%) (AACC, 2021), twice as many as other undergraduate institutions (Porchea et al., 2010). Of these part-time students, 72% work, and 62% of full-time students also work (AACC, 2021). The majority of these students work at least twenty hours a week and when work is maintained out of necessity, work responsibilities can navigate students away from college success (Margarit & Kennedy, 2019; Molina & Morse, 2015; Porchea et al., 2010). In addition to working, many students have family demands that may also navigate them away from college success (Bergman et al., 2014; Porchea et al., 2010), although positive familial support improves persistence among adult students (Bergman et al., 2014). Multiple responsibilities requiring a student's attention may pose a substantial challenge for a student that otherwise possess the strength and aspiration to persistent to completion (Molina & Morse, 2015).

Adult students, those over 25 years old, are likely to enroll part-time and experience a lack of persistence for the similar reasons (Bergman et al., 2014; Margarit & Kennedy, 2019; Molina & Morse, 2015; Porchea et al., 2010), although entry characteristics related to their high school years often become irrelevant (Bergman et al., 2014). Margarit and Kennedy (2019)

found adult students were more likely to drop out from community colleges although an earlier study by Porchea et al. (2010) found adult students were more likely to earn an associate's degree instead of dropping out or transferring. Veterans often fall into this population and represent 5% of the current community college population (AACC, 2021). As with veterans and other military students, a supportive campus environment can help these students obtain a credentials (Bergman et al., 2014).

Minority students represent 60% of students at community colleges, a disproportionate amount compared to the 21% in higher education (Margarit & Kennedy, 2019). Racial diversity includes 27% Hispanic, 44% White, 6% Asian/Pacific Islander, 13% Black, and the remaining 11% are Native American, two or more races, other/unknown, or nonresident alien (AACC, 2021). Black and Hispanic groups tend to underperform other groups, including in community colleges (Armstrong et al., 2021; Bergman et al., 2014; Horn et al., 2019; Margarit & Kennedy, 2019; Porchea et al., 2010), online courses (Shea & Bidjerano, 2019), and, more specifically, online courses within California Community Colleges (Armstrong et al., 2021).

Online courses at the community college often reflect the diverse population of students, although variations of characteristics or success are important to note. Armstrong et al. (2021) found age to be the strongest predictor in online course success with rates consistently improving as age increases. Within California Community Colleges, students over 25 were more likely to take online courses, citing job schedules and family commitments as their reason of enrolling online (Johnson et al., 2014). Online courses are also more popular for females (46%) than males (40%) because females tend to have a stronger intrinsic motivation to enroll in online courses (Armstrong et al., 2021), including in California Community Colleges (Johnson et al., 2014). Comparable percent of White (46%), Black (43%), and Hispanics (39%) take at least one

course online (Armstrong et al., 2021). Again, the range of rates are similar in California

Community Colleges and Johnson et al. (2014) cites Hispanics being the least likely to enroll in

online courses or have the necessary broadband internet access at home to do so, a concept

known as the digital divide.

In terms of community colleges and online courses, research also shows inconsistent

findings. This time online learning retention rates range from 60% to 95% at community

colleges and dropout rates are six to seven times higher in online learning than traditional course

rates of 10% to 20% (Fetzner, 2013; Kranzow, 2013; Sorensen & Donovan, 2017; Stevenson,

2013), although Shea and Bidjerano (2016) state this is typical for community college students as

a whole. Some research found the likelihood of completing or passing a course is lower for

exclusively online then traditional courses (Hart et al., 2017; James et al., 2016; Johnson et al.,

2014). Other research shows students who took online courses early in schooling are more likely

to earn a community college credential and those taking a blend of online and traditional courses

are more likely to graduate with an associate's degree or successfully transfer to a 4-year

institution slightly more than their traditional classroom-only counterparts (James et al., 2016;

Johnson et al., 2014; Shea & Bidjerano, 2019). In addition, a study by James, Swan, and Daston

(2016) found being over 26 years old, a typical characteristic of a military student, increases the

chance of retention to 33% for online only programs, up from 26% for younger students, and

Shea and Bidjerano (2016) found transfer rates are higher for online learners (27% compared to

23%), congruent with the California Community College system's findings. Johnson et al.

(2014) pointed out online "courses attract students who are less academically able to complete a

course successfully, regardless of delivery type" (p. 8) making a comparison between online and

traditional courses an inadequate assessment. These inconsistent findings show a specific area, success in online education at community colleges, needing more research.

Success Metrics in Community Colleges

Many community college students do not take full course loads and never intend to graduate with a two-year associate's degree, instead focusing on certificates, new skills, or transferring (Ann Clovis & Chang, 2021; Bulman & Fairlie, 2021; Hart, 2019; Johnson et al., 2014; Margarit & Kennedy, 2019; Porchea et al., 2010; Tinto, 2006b, 2017b). While personal interests and skills are the primary reason (46%), students often enroll for more than a single reason (Porchea et al., 2010). Of importance, 35% enroll with a plan to earn an associate's degree and 13% enroll to earn a certificate, leaving 52% enrolling to take courses without a plan to earn any credential (Porchea et al., 2010). In 2018-2019, just under 879,000 associate degrees and 620,000 certificates were earned (AACC, 2021).

The American Association of Community Colleges (AACC, 2021) evaluated student success in reference to two measures of success: the Voluntary Framework of Accountability (VFA) and the traditional Integrated Postsecondary Educations Data System (IPEDS) discussed often in research. It found that the VFA as a more accurate measure since it evaluates all students, allows six years to completion, and looks at nine different outcomes compared to IPEDS that evaluates just first-time, full-time students, only allows three years to completion, and looks at graduation as the only outcome (AACC, 2021). Upon comparing students in a fall 2010 cohort, the VFA revealed a 59% success versus just 25% for IPEDS (AACC, 2021). This justifies the need to consider more than just degree earning when evaluating student success, as certificates "provide the outcomes that degree-seeking students are looking for: gainful employment" (Carnevale et al., 2012, p. 33).

Certificates are practical and often underutilized credentials that provide both postsecondary achievement along with portable skills and knowledge (Bosworth, 2010). They provide graduates with knowledge needed for the workforce and establish a foundation for future academic achievement (Bosworth, 2010). Community colleges issue more than half of all certificates (Bosworth, 2010) and award more certificates for blue-collar work and office work than private institutions (Carnevale et al., 2012). These institutions, as well as federal and state governments, need to ensure certificates are high quality, tailored to the job market, widely available, and able to be completed in a timely manner to be of value to everyone (Bosworth, 2010).

Certificates are available in three categories based on length of study: under one year, one year to two years (30 to 60 credits with an average of 45 credits), and over two years (Bosworth, 2010). Shorter-term certificates can be a stepping stone for lengthier certificate or degree programs (Bosworth, 2010; Carnevale et al., 2012) and one-third of certificates were completed by workers established in their field with an existing college degree to update skills or learn new technology (Carnevale et al., 2012). Earning a certificate can deliver greater income returns than associate's, and even some bachelor's, degrees and the gain in income is directly related to the length of the program (Bosworth, 2010). On average, earning a certificate results in twenty percent higher earnings than a high school diploma (Carnevale et al., 2012).

Most programs are eligible for financial aid, making them easily accessible and attractive to students with postsecondary goals who are not interested in degree programs (Bosworth, 2010). Two-thirds of certificate holders are women, one-third are Black or Hispanic (Bosworth, 2010), and one-third are earned by students over the age of 30 (Carnevale et al., 2012). Certificates are also popular among first-generation and low-income students (Carnevale et al.,

2012). These populations are economically, socially, and/or academically disadvantaged with low persistence to degree completion rates (Carnevale et al., 2012; Shea & Bidjerano, 2019) yet these students are earning certificates (Carnevale et al., 2012). The institutions need to ensure the programs focus on the students' time and economic pressures, providing set course schedules built for completion (Bosworth, 2010).

COVID-19 Pandemic Effect on Community Colleges

While online education continues to flourish, Meine and Dunn (2017) stated online enrollment slowed to an almost stagnate point in 2012, speculating possible market saturation. Yet in 2019, community colleges as a whole were thriving (Floyd, 2021). However, the entire life we knew was thrown into chaos on March 11, in the middle of the 2020 spring semester, when the World Health Organization declared COVID-19 an international pandemic (Bulman & Fairlie, 2021) that affected every continent in the world except Antarctica (Floyd, 2021). Community colleges were instantly challenged to convert their entire system online and use technology to teach their students as well as provide virtual student services (Bulman & Fairlie, 2021; Floyd, 2021; Guth, 2020; Hart et al., 2021; Prokes & Housel, 2021), some doing so in two days (Guth, 2020), and those with higher levels of distance education resources before the COVID-19 pandemic more easily adapted to the entire system going virtual (Hart et al., 2021). Faculty suddenly needed to convert courses and students needed to adapt to online learning (Floyd, 2021), and the importance of training faculty, staff, and students to use an online environment became apparent (Hart et al., 2021; Prokes & Housel, 2021).

Some challenges experienced during the COVID-19 pandemic highlight challenges some community college students experienced before the COVID-19 pandemic; while community colleges rose to the challenges, it showcases needed improvements. Colleges reported students

using their library's free wi-fi to access classes using their mobile device (Guth, 2020; Prokes & Housel, 2021), including one college that designated a card-accessed garage as a free wi-fi spot for students to keep out of the hot sun (Guth, 2020), as many students had internet issues at home (Guth, 2020; Hart et al., 2021; Prokes & Housel, 2021). They also leant out hardware such as laptops or monitors for students to access classes (Guth, 2020; Hart et al., 2021; Prokes & Housel, 2021) as not every student owned a reliable device capable of accessing online instructional technology other than a smartphone, which almost 100% of students reported owning (Hart et al., 2021; Prokes & Housel, 2021). While some students benefited from the COVID-19 pandemic, stating they were less distracted by social events, grading was easier, and the COVID-19 pandemic relief aid paid for schooling while jobs were limited (Bulman & Fairlie, 2021), others reported difficulty with employment, household responsibilities, and lack of a peer network (Hart et al., 2021; Prokes & Housel, 2021). Despite these challenges, many students who would never have otherwise taken an online course are embracing the opportunity to continue online learning, and some are now more comfortable with it then traditional courses (Guth, 2020).

Challenges by faculty and staff are evolving into new best practices (Guth, 2020). Faculty already using online learning platforms, either just to post syllabi and course materials or already teaching online, noted an easier and more efficient transition (Guth, 2020; Hart et al., 2021; Prokes & Housel, 2021). Tech specialists switched roles to training faculty, staff, and students, including a call-in help desk (Guth, 2020). Virtual access to tutoring and counseling went from sixty percent of campuses offering these services to a hundred percent (Hart et al., 2021). In-depth instructional material is starting to become more accessible via a smartphone;

before the COVID-19 pandemic, only 30% of courses were smartphone accessible for material beyond announcements and grades (Prokes & Housel, 2021).

Community colleges have progressed, yet the environment remains fluid, and only time will tell of the long-term effects on the COVID-19 pandemic (Prokes & Housel, 2021). Unfortunately, 79-90% of community colleges stated their enrollments declined and funding shifted (Floyd, 2021), causing a struggle that will have looming budgetary consequences (Bulman & Fairlie, 2021). California lost revenue from 250,000 students in their community college system (Bulman & Fairlie, 2021), a 14.8% decline (Weissman, 2021). But the COVID-19 pandemic highlighted the need for an expanded number of online or blended courses and flexibility in support services, including disability services, library resources, tutoring, advising, and counseling including mental health (Hart et al., 2021; Prokes & Housel, 2021). As Floyd (2021) stated "as we learn more about the impact of COVID-19 on community colleges, this knowledge sparks more questions than answers" (p. 4).

California Community Colleges

The California Community College system is the largest community education system in the country with 2.1 million students at 116 colleges in 73 districts (California Community College Chancellor's Office [CCCCO], 2021) and enrollment will rise with the predicted eleven million more people moving to California by 2025 (Seaberry, 2006). Within the United States, one in four community college students attend a California Community College; it is the largest provider of workforce training (CCCCO, 2021) and produces the largest number of certificates of any institution (Bosworth, 2010). In 2018-2019, 158,840 associate degrees and 103,404 certificates were earned at higher education institutions in California (NCES, 2021).

California is home to many servicemembers. It has the nation's largest number of veterans: the 2013 Census found ten percent of 21.8 million veterans were in California (2.18 million; CCCCO, 2021) and the 2020 Census found a total of 1.8 million veterans lived in California (California Census, 2020). Although California is leading the nation in the number of veterans today, it is predicted that it will fall to second behind Texas by 2027 and to third behind Texas and Florida by 2037 as the total veteran population declines from 20 million in 2017 to 13.6 million in 2037 (VA, 2016). Over half of California's veterans receiving GI Bill benefits attend a community college (Community College League of California [CCLeague], 2020). In addition to veterans, an estimated 8,000 to 10,000 active military students enroll annually in California Community Colleges (CalVet, 2021) for a total of over 89,000 military students. The California Community College system's mission and vision are simple: put students first (CCCCO, 2021).

The system was built so most students were within a thirty-minute drive, providing 78 outreach centers and online education for those with difficult or impossible geographic access (CCLeague, 2020; Seaberry, 2006). In fact, the system has provided some form of distance education for over fifty years (Thor & Moreau, 2016) using correspondence courses at first then television and audio or video cassettes (Johnson et al., 2014). One college, Coastline Community College, was established as a distance learning college primarily for military servicemembers and currently has over 60% of their students enrolled in online courses (Johnson et al., 2014). California Community Colleges offer more online credit courses than any other higher education institution in the United States and most of the overall enrollment increase from 2002 to 2012 occurred in online courses (Johnson et al., 2014). In the 2011-2012 school year, 56 of the then 113 colleges offered at least one certificate or degree completely online, totaling 291

and 296 respectively (Hart et al., 2017; Johnson et al., 2014). In 2012-2013 school year, the system offered over 41,000 online courses serving over 620,000 students (Thor & Moreau, 2016), about eleven percent of total enrollment (Johnson et al., 2014). Most colleges in the system require training for instructors to teach online and incentivize this by providing professional development or salary schedule credit (Hart et al., 2017).

Since 2000, California has made several advancements in providing access to all state residents. First, the California governor directed all publicly-funded postsecondary institutions, the California Community College system, University of California, and California State University, to make education more accessible and veteran-friendly to significantly increase the number of veterans using their educational benefits in 2006 (Burnett & Segoria, 2009). The "Troops to College" Oversight Committee was found to discuss best practices and develop common goals with measures between postsecondary institutions and the military (Burnett & Segoria, 2009). Second, also in 2006, the community colleges developed a course numbering system to identify similar courses between the community college system and the two four-year universities to ease student transfer with the system (Hanley & Bonilla, 2016). Third, the three postsecondary institutions were tasked by the state legislature with creating an online library of open educational resources to encourage the use of free or affordable textbooks and other course materials to reduce skyrocketing costs of public higher education in 2012 (Hanley & Bonilla, 2016). It determined the most highly-enrolled courses in the three systems and identified open textbooks suitable for those courses (Hanley & Bonilla, 2016).

In addition to changes at the state level, the CCCCO funded $57 million for the creation of the California Virtual Campus-Online Education Initiative to provide resources to improve online learning and teaching systemwide in 2014 (Hart et al., 2021; Johnson et al., 2014; Thor &

Moreau, 2016). The primary goal was to improve student completion and transfer rates by improving instructional and support services, including a common course management system, course design standards, and support for online learning for students and online teaching for faculty (Johnson et al., 2014; Thor & Moreau, 2016). Even with this initiative, only 13% to 22% of courses at each college was taught online before the COVID-19 pandemic (Bulman & Fairlie, 2021). Yet the Initiative was greatly valued when the COVID-19 pandemic started in spring semester 2020, one college admitting they "would have been lost without the help and resources" (Hart et al., 2021, p. 59), especially with enrollment declining by 15% in fall 2020 relative to the prior year, a change larger than any of the prior two decades (Bulman & Fairlie, 2021).

However, only a small percentage of students are completing their studies within four years at California Community Colleges and although there was a slight increase from the prior year, the system is still lagging behind both the national average and many other state's community college systems (Weissman, 2021). Only 36% are completing within six years, compared to 40% at all community colleges, with the lowest rates being Hispanic (14%) and Black (9%) (Weissman, 2021), two populations known to struggle to persistence. As seen in many higher education institutions, the COVID-19 pandemic caused an enrollment decline of 14.8%, particularly among male students, racial/ethnic minority students, and older adult learners (Weissman, 2021). However, the California Community College system reported it struggled to gauge the exact number due to data collection and student classification challenges (Weissman, 2021), two challenges presented in this study in regard to gathering proper data about military students. On the upside, the Vision for Success program was initiated in 2017 with a systemwide set of goals aimed at increasing persistence to credential earning and job skills (Weissman,

2021). One goal was to increase these rates by twenty percent before 2022, and the goal was met in 2020 (Weissman, 2021).

Student Persistence

Goals lead students to enroll in college and motivation allows them to persistent (Tinto, 2017b). In traditional face-to-face courses, instructors control the learning process and monitor the students closely; but in online courses, students must motivate themselves to reach their goals (Artino & McCoach, 2008; Hart et al., 2021). This motivation can be intrinsic, such as wanting to learn or develop, or extrinsic, such as the benefit of college coursework or credential on income or occupation (Tinto, 2017b). However, student motivation and outcome in online courses can be impacted by their instructors. The perception of instructors by the student and timely feedback from instructors to the student are both positively related to motivation and learning outcomes (Artino, 2008; Kranzow, 2013). Instructional immediacy, defined as the student feeling psychologically closer to the instructor due to the instructor's communicative behavior, is also positively related to student motivation and learning in an online classroom (Artino, 2008; Fall, Kelly, & Christen, 2011). One example of how instructors can increase immediacy with military students is to check-in after any discussion involving the military or the war, especially if other students have negative attitudes (Hawn, 2011).

Several student characteristics also contribute to the likelihood students persist to completion in community colleges. For example, Artino (2009a) found that learning and knowledge development require a continuous cycle of cogitative, motivational, and behavioral activities. This cycle represents motivation for learning, an important characteristic for access, success, and retention among students (Artino, 2009a, 2009b; Fong et al., 2017). In fact, Fong et al. (2017) found the cycle "to be highly predictive of postsecondary student success" (p. 390).

Students who find a learning activity interesting, important, and useful (task-value characteristics), and are confident in their capabilities to achieve goals (self-efficacy), are more motivated and obtain higher academic achievements (Artino, 2007, 2008, 2009a, 2009b). In their studies, both Armstrong et al., (2021) and Artino (2009b) found task-value beliefs and self-efficacy for learning online as two moderately strong predictors of continuing motivation to learn and to persist in school. Tinto (2017b) found self-efficacy, a sense of belonging, and perception of the curriculum influence motivation which then leads to persistence. Liao et al. (2014) also found self-efficacy for learning, as well as extrinsic motivation, as predictors of persistence in community colleges. Contributing factors to extrinsic, or external, motivation include rewards, punishments, social pressure, and the desire to be responsible for one's career (Liao et al., 2014). In addition, instructors rely on students' "extrinsic motivation as an essential strategy in teaching" (Fong et al., 2017, p. 392).

Another example is from Martin et al. (2014) who discuss how student entry characteristics, such as motivation and self-efficacy, positively affect students' persistence in college, very similar to the findings of Tinto (2017b). Fong et al.'s (2017) mega-analysis found the same two characteristics to be "the most influential predictors for both achievement and persistence outcomes" (p. 412). In terms of persistence, Fong et al. (2017) mentioned the two predictors had comparable effects in Robbins et al.'s 2004 mega-analysis. This is true even among students with poor academic preparation, a characteristic common to many servicemembers and community college students, as they have clear goals and are motivated to succeed (Cass & Hammond, 2015; Martin et al., 2014; Osborne, 2014; Tinto, 2017b). Martin et al. (2014) based this finding on Tinto's 1975 model, two other significant studies of the time, and their own study. They found motivation to succeed was mentioned by every one of the graduates

they interviewed as a reason for success (Martin et al., 2014). Graduates mention motivation

coming from within, having a desire to succeed against all odds, and being "motivated by the

opportunities education affords them in the future" (Martin et al., 2014, p. 231). Most graduates,

especially post-traditional ones, also mention the sacrifices they made to return to school as a

motivator to reach their goal of completion (Martin et al., 2014), although a decision to persistent

or not can also impacted by outside factors (Tinto, 2017b).

Other examples of student persistence exist although they were not extensively discussed

in the research reviewed. These include prior experience with online courses, confidence with

technology, a sense of community, and the student's choice of course and method, online versus

traditional classroom (Artino, 2007, 2009b; Kranzow, 2013; Lee, 2018). Lee (2018) found over

78% of part-time learners are more likely to remain at their institution and persist to graduation if

they feel a sense of community, something often lost without a brick-and-mortar institution

(James, Swan, & Dastan, 2016). Artino (2007, 2009b) mentioned how these factors are also

positively related to satisfaction, perceived learning, and motivation. They also found that

students who are bored or frustrated with an online course were found to be less motivated to

learn and to persist in school (Artino 2009b). Tinto (2006a, 2006b, 2017b) and Liao et al. (2014)

mention an effective support system for all community college students that would help students

reach their goals. Because community colleges are open-access, new students might not realize

the amount of academic work needed to succeed (Liao et al., 2014)   This system is similar to the

military student support suggestions discussed by DiRamio and Jarvis (2011), DiRamio and

Spires (2009), and Kirchner and Pepper (2020).

Institutional Support

Higher education institutions must remember that "no single model for support is sufficient to meet each unique student's needs, a [community-based] team approach… is required to ensure success" (DiRamio & Spires, 2009, p. 87). This team approach needs strong institutional leaders who lead by example. The leaders treat servicemembers as individuals, allow for flexible policies, such as prior learning assessment, and help develop institution-wide plans to deal with deployment and retention of military students (Persky & Oliver, 2011; Starr-Glass, 2013). In fact, California Community Colleges recognize these needs and wants to strengthen transition assistance programs, better assist students with navigating military benefits, implement strong, uniformed policies on prior learning assessments, and overall continue to improve support to military students (CCCCO, 2021). In addition to improving support to students, a study by NASPA in 2013 revealed nearly two-thirds of all institutions surveyed offered professional development to staff, faculty, and administrators focused on these unique needs of military students. It also found institutions are starting to track retention for military students and are creating initiatives to improve retention (NASPA, 2013).

Team Approach

One part of this team approach is strong senior management who demonstrate intentional efforts and, in return, create a model for all faculty and staff (Bauman, 2009; Whikehart, 2010). The senior management should regularly hold open forums for faculty and staff to learn about military culture, discuss military students' concerns, examine best practices, research areas of need, create support plans, dedicate appropriate resources, coordinate services, form a working group across campus departments, and ensure availability hours for military students, some of whom may be around the world (Ackerman et al., 2009; Bauman, 2009; Burnett & Segoria,

2009; Ford et al., 2009; Hitt et al., 2015; Kirchner, 2015; Osborne, 2014). This is an area in great need of improvement, an average of only one-third of community colleges offer training and under ten percent make it mandatory (Queen & Lewis, 2014).

Another part of the team approach is the institution needs a mission to support military students that is "sustainable, focused, and designed for flexibility and rapid response" (p. 921) as military students' locations change constantly and sometimes suddenly (Whikehart, 2010). The team should create a transitioning program for military students that awards credit for experience, teaches necessary academic skills, discusses social nuances they may encounter, assists with benefits navigation, connects to other financial resources, helps secure housing, and arranges a meeting with disability services, if wanted (Cass & Hammond, 2015; Hitt et al., 2015; Olsen et al., 2014; Osborne, 2014; Persky & Oliver, 2011; Wilson et al., 2013). However, only 37% of postsecondary institutions provided a transition program for new military students despite seeing a growth in military students (Starr-Glass, 2013). In the past, only 43% of community colleges assist with benefits navigation (Queen & Lewis, 2014); today, the Forever GI Bill requires training for school certifying officers (SCOs) administering benefits for over twenty students (Dortch, 2018).

The team and institutional directors need to work together to create flexible policies, improve resources, and a structured path for military students, a strategy Lee (2018) suggests for part-time learners and Scott-Clayton (2015) suggests for community college students. This includes providing priority registration, adjusting curriculum plans to part-time study, eliminating or reducing the red tape, increasing the coordination of services, extending academic service hours, simplifying credit transfers, and assisting when students deploy and return (Burnett & Segoria, 2009; Church, 2009; Cunningham et al., 2014; DiRamio & Jarvis, 2011;

Ford et al., 2009; Ford & Vignare, 2015; Hitt et al., 2015; Lee, 2018; Persky & Oliver, 2011; Vance & Miller, 2009). NASPA (2013) recommends strategies of data-driven decision making, coordination across boundaries, and proactive support to the military students. The Forever GI Bill will help institutions gather data by requiring benefit entitlement information be provided via a secure system unless a participant opts out (Dortch, 2018). Kirchner and Pepper (2020) discussed the use of an optional add-on course coordinated by the military office that focuses on three key engagement strategies, similar to those recommended by NASPA: information sharing, community building, and professional development. Although students are initially reluctant due to the additional time commitment, they are more engaged and have overwhelmingly positive comments about their experience acclimating to the institution (Kirchner & Pepper, 2020).

Instructors

Instructors are a part of the team that regularly interact with students and play an important role in student learning. Instructors need to have mindful practice to effectively engage students (Starr-Glass, 2013). Mindful practice requires instructors to be actively present, critically aware, and genuinely open while engaging with students by listening, encouraging, and empowering (Persky & Oliver, 2011; Starr-Glass, 2013). An important aspect of mindful practice is appreciating the military learner and not falling into the trap of negatively stereotyping servicemembers (Hawn, 2011; Persky & Oliver, 2011; Starr-Glass, 2013). Being open to new things, aware of both what is said and unsaid, and actively engaging with servicemembers provides a more informed understanding of the cultural differences (Hawn, 2011; Starr-Glass, 2013). This allows instructors to see all students as authentic individuals and accept servicemembers for who they are in the classroom, which are serious, adult learners (Persky & Oliver, 2011; Starr-Glass, 2013). Instructors must show they believe in the value on

ongoing dialogue by consistently participating in online conferences and discussions; in other words, "if the instructor is not present, then neither is the learner" (Starr-Glass, 2013, p. 359). This is especially important to military students since they expect timely responses and frequent follow-ups, a trait learned during their time in the military (Kirchner & Pepper, 2020).

Servicemember Disabilities

Institutional leaders must remember that disabilities can "have a temporary or chronic impact on [military students'] living, working, learning, and relationship functions" and proactively help these students (Church, 2009, p. 44). Those who support returning members of the military must not generalize about abilities and limitations as the wide array of disabilities, diagnoses, and contributing factors make that impossible (Church, 2009). One example is the disability services office. It typically works well for the general student population, but most are not prepared to support the specific needs of military students with disabilities due to lack of funding and training (Vance & Miller, 2009). Therefore, higher education institutions must find other ways to reach these students, such as redesigning courses to accommodate all learning styles (known as Universal Design for Learning), being proactive instead of reactive, and an overall more welcoming campus with flexible policies (Burnett & Segoria, 2009; Church, 2009; Starr-Glass, 2013; Vance & Miller, 2009). As DiRamio and Spires (2009) urged, "lead the way as exemplars for working with disabled [military students]" and "provide a focal point for rebuilding a shattered life… that occurs beyond the hospital setting" (pp. 82 & 87).

Prior Learning Assessment (PLA)

One way to support military students is to offer credit for prior learning, including military experience and training (Evans et al., 2015; Persky & Oliver, 2011). Too often, required coursework repeats "lengthy and comprehensive military classes" (Persky & Oliver, 2011, p.

113) and lengthens the time and money required for a degree or certificate (Brigham & Klein-Collins, 2011). PLA removes redundant learning, shortens time to completion, and improves persistence and graduation rates (Evans et al., 2015; Hayward & Williams, 2015; Soares et al., 2017). One study by Hayward and Williams (2015) on four community colleges found "adult PLA learners graduated at 2.4 times the rate of adult non-PLA learners" (p. 50). Queen and Lewis (2014) found 93% of community colleges state they award academic credit for military training. Institutions typically have restrictions on the percentage of courses required to be completed at the school in order to obtain the credential; however, it is recommended institutions reevaluate this requirement for servicemembers due to the expansive knowledge gained in the military (Evans et al., 2015; MilitaryBenefits.info, 2022; Persky & Oliver, 2011). Fees paid by military students for PLA are reimbursable under the Forever GI Bill (Dortch, 2018), further showing the government values the prior learning and knowledge servicemembers gain in the military.

Prior learning credit, including the recognition of the American Council on Education (ACE) guidelines and reasonable transfer credits, are also part of the Servicemember Opportunity College (SOC) program's requirements for member schools (Evans et al., 2015). The SOC program was created by the DoD for a more consistent college opportunity for all military students (Evans et al., 2015; MilitaryBenefits.info, 2022). It was sunset in March 2019 due to a greater awareness about military student needs and online education mostly eliminating the need to transfer credits (MilitaryBenefits.info, 2022). However, the SOC program concepts evolved into the DoD Voluntary Education Partnership Memorandum of Understanding (MOU; MilitaryBenefits.info, 2022). In order to receive federal education funds, such as the GI Bill, institutions must agree to the MOU (MilitaryBenefits.info, 2022). Institutions must reevaluate

their credit restrictions as the MOU requires institutions to calculate applicable transfer courses and credit from ACE's PLA guides for military students before determining the courses needed for completion (MilitaryBenefits.info, 2022).

There are three ways a college can perform PLA for credit: the American Council on Education (ACE) guides, standardized tests either at the college or a nationally recognized exam, and portfolio assessments (Brigham & Klein-Collins, 2011; Evans et al., 2015; Hayward & Williams, 2015). First, the ACE guides match military courses and tasks with college courses and vocational duties (Brigham & Klein-Collins, 2011; Evans et al., 2015). Second, the College Board offers a standardized College Level Examination Program to test a student's knowledge is a specific area or the college can create their own (Brigham & Klein-Collins, 2011; Hayward & Williams, 2015). Third, the Council for Adult and Experimental Learning offers portfolio courses and professor evaluations of student portfolios or, again, the college can create their own (Brigham & Klein-Collins, 2011).

In order to provide proper streamlined credit for military students, the institution should provide military-specific credit transfer specialists who understand both the military and the three types of PLAs (Brigham & Klein-Collins, 2011; Persky & Oliver, 2011). Providing a specialist also improves the military friendliness of the college for current and prospective military students (Brigham & Klein-Collins, 2011; Evans et al., 2015). This is an effective way to improve enrollments and graduation rates, both which contribute to meeting the requirements of Obama's college completion agenda (Evans et al., 2015; Ford & Vignare, 2015; Hayward & Williams, 2015).

Deployment

One support higher education institution leaders can provide military students is ensuring employees in the school's military student affairs office help students devise a plan of action, based on their best interest, for deploying and returning (Johnson, 2009). Two ways to assist the military student with a plan of action are for the institutional leaders to regularly simplify student service's processes and create student-centered streamlined policies for deploying and returning (Ackerman et al., 2009; Bauman, 2009; Cass & Hammond, 2015). Upon deploying, financial aid assistance should be provided to help the student avoid penalties or additional costs. Upon returning, assisting the student with re-enrolling and completing military educational benefit paperwork, as well as providing emotional support, will ease servicemembers' minds and make the transition smoother (Ackerman et al., 2009; Bauman, 2009; Johnson, 2009; Kirchner, 2015). If servicemembers feel high social support, especially from their higher education institution, and have high resilience, post-deployment adjustment will be easier than those without support (Cass & Hammond, 2015; Cunningham et al., 2014; Hitt et al., 2015). For long-term deployments, institutional leaders need to spearhead these initiatives; however, for a short-term absence related to military duties, institutions are required to provide support and protection of the military student through the 2012 Federal Principles of Excellence, Executive Order No. 13607 (Kirchner, 2015).

Retention

Lastly, leaders at higher education institutions should focus on improving military students' retention and persistence to completion, primarily through the community-based support team with a dedicated office previously mentioned. Besides providing resources, the team and office should create both a mentorship program for military students with faculty and

staff, as well as a peer network, to help ensure credential completion (Burnett & Segoria, 2009;

Cass & Hammond, 2015; Jenner, 2019; Mentzer et al., 2015; Persky & Oliver, 2011; Tinto,

2017b). Professional relationships of faculty and staff to students "serve as a 'protective factor'

against student" dropout (Olsen et al., 2014, p. 107) and participating in a "mentorship increases

student retention twenty percent" (Cass & Hammond, 2015, p. 86). Peer networks have proven

effective since the Vietnam War and provide a low-cost method of engaging military students

that builds on camaraderie, trust from shared experiences, and the military culture of individuals

relying on another in combat (Burnett & Segoria, 2009; Church, 2009; DiRamio & Jarvis, 2011;

Jenner, 2019). They are the niche military students need to provide for support and structure

during transition into student life, as well as for retention to attain a credential (DiRamio &

Jarvis, 2011; Ford & Vignare, 2015; Mentzer et al., 2015), yet only sixteen percent of

community colleges have such a program in place (Queen & Lewis, 2014).

Specific College Programs

Three community college programs are providing some or all of the institutional support

mentioned as discussed in Guth's 2019 article "Armed with Education". One-third of the

students at Tidewater Community College (TCC) in Virginia are military and TCC provides a

one-stop shop to meet their needs consisting of a military-experienced team that supports new

students into civilian life and through the academic system, helps with paperwork, provides

counseling, and addresses obstacles (Guth, 2019). Saddleback College in California provides

guidance, scholarship assistance, and helps military students readjust to civilian life by hosting

events to create a community (Guth, 2019). About 40-50% of students at Coastal Caroline

Community College in North Carolina are military students, a jump from 600 to 1,400 after the

Post-9/11 GI Bill was passed (Guth, 2019). They offer a success coach, workshops and

programs, PLA through ACE for up to eleven elective credits, a College Level Efficiency

Placement for up to thirty credits, and continue to maintain an office serving approximately

1,350 military students at nearby Camp Lejeune that was started in the 1980s (Guth, 2019).

Summary

Active-duty military students want respect from professors and other students, flexibility

with distance or online courses, proper credit for their military training and experience, and a

military-friendly institution. Many choose to attend a community college and enroll in online

courses. In return, institutions must avoid stereotypes and "treat each [military student] as an

individual with unique needs, aspirations, and talents" (DiRamio & Jarvis, 2011, p. 33). By

viewing themselves as part of a larger social system, higher education institutions are on the right

track to creating the support military students require (Wilson et al., 2013).

However, a gap in the literature exists about active military students. First, some

research has been done on the dropout rate among military students, but there is a lack of studies

on active military students (Ford & Vignare, 2015; Gibson et al., 2010). Along with this, there is

also confusion and inconsistency with the data currently provided. For example, Cate (2014)

found military students completing an associate's degree is under 30% within two years but

almost 70% in six years, doubling the traditional students' rate at six years, while Molina and

Morse (2015) state 59% of veterans remain *without* a credential after six years. Second, instead

of focusing on active military students, research primarily focuses on veterans or all military

students as a whole (Cate et al., 2017; Ford & Vignare, 2015). Third, there is research about

military students and online education, but more research is needed on military students *in* online

education (Gibson et al., 2010; Kirchner & Pepper, 2020). This is "increasingly important as

more [military students] choose to enroll in online instruction made even more vital by the COVID-19 pandemic" (Kirchner & Pepper, 2020, p. 107).

An ongoing problem with existing data on military students is poor or insufficient collection methods. Two major databases have questions leading easily to misclassification of military students while another only looks at first-time, full-time students, not those that are part-time, transfer from another school, or return to school (Cate, 2014; Cate et al., 2017). One existing study is a prime example of confusing classification as the researchers use the term "student veteran" to mean all reserve servicemembers, guard servicemembers, active-duty servicemembers, former military members, and even family members that *might* be eligible for military education programs. Molina and Morse (2015) mention disaggregating the sectors of the military to better understand reserve servicemembers, guard servicemembers, active-duty servicemembers, and former military members, also referred to as veterans, as individual groups instead of a single group. Others broadly define educational benefits and postsecondary academic outcomes, making it difficult to accurately translate the data for meaningful research (Cate, 2014). Finally, some only track enrollment and completion of student servicemembers *if* the student is using DoD related funds, thus creating data gaps (Cate et al., 2017). As Tinto (2017b) stated "understanding persistence as a form of motivation… shaped by student perceptions… [adds] to our understand of the complex process of persistence and completion" (p. 264).

The next chapter, Methodology, describes the methods of this quantitative, non-experimental study using *ex post facto* data. Chapter 4 reports the data found and analysis completed. Finally, Chapter 5 has a discussion on the study's findings, the implications for practitioners, and will provide recommendations for future studies.

CHAPTER 3

METHODOLOGY

There is an increase in active military students in online education but a lack of

persistence and completion among these students (DiRamio & Jarvis, 2011; Evans, Pellegrino, &

Hoggan, 2015; Fetzner, 2013; Ford & Vignare, 2015; Olsen, Badger, & McCuddy, 2014;

Wilson, Smith, Lee, & Stevenson, 2013). Several studies have been conducted looking into the

subjects of active military students, all military students in online education, and all military

students' lack of persistence. However, there is a lack of studies that have researched active

military students in online education as well as their persistence to completion. Therefore, a

quantitative, non-experimental research study using *ex post facto* data was conducted to research

this gap in the literature. The study examined course success of active military students,

compared this course success rate of active military students to non-military students, and

compared the credential earning rate trend of these active military students to veteran students

and non-military students. This chronologically-ordered methodology chapter discusses the

research design, context, data collection procedures, data analysis, and limitations of this

quantitative study.

Purpose Statement

The purpose of this study was to examine the success of active military students within

California Community Colleges. The study examined student course success between online

courses and traditional courses, compared course success of active military to non-military, and

compared active military students, veteran military students, and non-military students credential

earning rates. For the purpose of this study, active military students were defined as full-time

active-duty servicemembers, active reserve servicemembers, or any guard servicemembers. The

California Community College Chancellor's Office's (CCCCO) Management Information

Systems (MIS) DataMart defines "Military Total" as "Active Duty, Active Reserve, National

Guard" (CCCCO, 2013).

Research Questions

This study was be guided by the following three research questions:

1. Is there a statistically significant difference between the course success rate for active military students in online courses compared to active military students in traditional courses at California Community Colleges from 2012-2013 until 2018-2019?

2. Is there a statistically significant difference between the overall course success rate for active military students compared to non-military students at California Community Colleges from 2012-2013 until 2018-2019?

   a. Is there a statistically significant difference between the course success rate for active military students compared to non-military students in online courses at California Community Colleges from 2012-2013 until 2018-2019?

   b. Is there a statistically significant difference between the course success rate for active military students compared to non-military students in traditional courses at California Community Colleges from 2012-2013 until 2018-2019?

3. Is there a statistically significant difference between the seven-year trend of active military students, veteran military students, and non-military students who earned a credential at California Community Colleges from 2012-2013 until 2018-2019?

The study produced descriptive data describing course success and persistence to earning a credential for active military students. Course success for this study was receiving a passing grade of A, B, C, P, IA, IB, IC, or IPP, as defined by the DataMart (CCCCO, 2013), as opposed

to failing, dropping, or withdrawing from the course (Bulman & Fairlie, 2021). Earning a credential is defined as a degree or certificate completion, which in this study is defined as the students who successfully earned enough credits to be awarded a California Community College Chancellor's Office approved certificate (CCCCO, 2013). After analyzing this descriptive data, the following three hypotheses were expected:

1. There would be a statistically significant difference between the course success rate for active military students in online courses compared to active military students in traditional courses at California Community Colleges from 2012-2013 until 2018-2019.

2. There would be a statistically significant difference between the overall, online, and traditional course success rates for active military students compared to non-military students at California Community Colleges from 2012-2013 until 2018-2019. All three course categories will also show a slight increase in success rates over time.

3. There would be a statistically significant difference the seven-year trend for the credential earning rate of active military students, veteran military students, and non-military students at California Community Colleges from 2012-2013 until 2018-2019. All three student categories will also show a slight increase in credential earning rates over time.

Research Design

A quantitative study was chosen for three reasons. First, the research used standardized data collection representative of a larger sample (Leedy & Ormrod, 2016). Active military students in online courses within California Community Colleges are a sample of the overall population of these students in the entire United States. Second, the data were used to explain

and predict a generalized outcome (Leedy & Ormrod, 2016). The generalized outcomes

expected to be predicted by this study were course success rates and completion rates of active

military students. Third, the research was detached and performed in a shorter-term setting

(Leedy & Ormrod, 2016). The study compared data over seven school years, from 2012-2013

until 2018-2019.

This quantitative, non-experimental study used *ex post facto*, or after the fact, data from

the MIS DataMart produced by the CCCCO. Non-experimental research does not change or

modify a situation under investigation (Leedy & Ormrod, 2016). Students' military status and

course formats are pre-determined, and the research will not alter these variables. These existing

variables also make it impossible to randomly assign participants into either a control or

experimental group. In studies where a true-experimental or quasi-experimental design are not

possible, *ex post facto* research designs, or causal-comparative designs, are used (Leedy &

Ormrod, 2016).

Despite using existing conditions, *ex post facto* designs have clearly defined independent

and dependent variables just like experimental research designs (Leedy & Ormrod, 2016). In

this study, each research question had its own set of independent and dependent variables. The

variables for each research question were:

1. The independent variable was the course format, online or traditional, that the active

   military student chose and the dependent variable was the course success rate, defined

   in the DataMart as the "number of enrollments with grade of A, B, C, P, IA, IB, IC,

   or IPP" (CCCCO, 2013).

2. The independent variable was the student group, active military or non-military, and

   the dependent variable was the overall, online, or traditional course success rate,

defined in the DataMart as the "number of enrollments with grade of A, B, C, P, IA, IB, IC, or IPP" (CCCCO, 2013).

3. The independent variable was the students' military status (active, veteran, or non-military) and the dependent variable was the credential earning rate.

Context

The California Community College system is the largest provider of workforce training in the United States, has many colleges close to multiple different military bases, and 25% of all community college students in the United States attend a school in the California system (CCCCO, 2021). It is the largest community education system in the country with 2.1 million students at 116 colleges in 73 districts (CCCCO, 2021) and enrollment will rise with the predicted eleven million more people moving to California by 2025 (Seaberry, 2006). It offers more online credit courses (Johnson, Mejia, & Cook, 2014) and produces more certificates (Bosworth, 2010) than any other higher education institution in the United States. California has the nation's largest number of veterans with a total of 1.8 million veterans reported in the 2020 Census (California Census, 2020). Over half of California's veterans receiving GI Bill benefits attend a community college (Community College League of California [CCLeague], 2020). It is estimated 8,000 to 10,000 active military students enroll annually (CalVet, 2021) for a total of approximately 89,000 active military, veterans, and dependents enrolled in California Community Colleges (CCCCO, 2021). The majority (> 90) of the colleges have a military resource center, offering military students priority registration and other specialized services, and a state-level Veterans Sensory Advisory Committee works with the colleges to identify needs and discuss best practices (CCCCO, 2021).

The system was built so most students were within a thirty-minute drive, providing 78 outreach centers and online education for those with difficult or impossible geographic access (CCLeague, 2020; Seaberry, 2006). In 2012-2013 school year, the system offered over 41,000 online courses serving over 620,000 students (Thor & Moreau, 2016) although this only represents 13% to 22% of courses at each college (Bulman & Fairlie, 2021). Most colleges in the system require training for instructors to teach online (Hart et al., 2017) and the CCCCO funded $57 million for the creation of the California Virtual Campus-Online Education Initiative to provide resources to improve online learning and teaching systemwide in 2014 (Hart et al., 2021; Thor & Moreau, 2016) to improve student completion and transfer rates.

Within California Community Colleges, the students identify as 44.52% male, 54.10% female, and 1.38% are non-identifying (CCLeague, 2020). Part-time students make up most of the population at 62.3%, followed by 28.6% full-time, and 9.1% noncredit (CCLeague, 2020). Racial diversity includes 44.5% Hispanic, 25.9% White, 11.6% Asian, and the remaining 18% are Black, American Indian/Alaska Native, Filipino, Multi-Ethnic, Pacific Islander, or Unknown (CCLeague, 2020). Over 42 percent of students are age 25 or older and 43% are first-generation college students (CCLeague, 2020). Tuition is $1,380 and average grant aid is $5,800 with 2/3 of students receiving a tuition waiver or financial aid (CCLeague, 2020).

Data Collection Procedures

The current research study utilized the MIS DataMart that operates out of the California Community College's Chancellor's Office (CCCCO, 2021). The CCCCO was established by legislation in 1967 and is charged with providing leadership, advocacy, and support to the California Community College system (CCCCO, 2021). The DataMart provides information about students, courses, outcomes, services, and faculty and staff "to answer the questions of

administrators, educators, parents, students, state leaders, and professional organizations"

(CCCCO, 2013). It collects term and annual data from the 73 districts and 116 colleges and the

CCCCO reports these data to state and federal agencies (CCCCO, 2021). The DataMart supplies

information freely online at https://datamart.cccco.edu/ with an easy-to-use interface and query

explanations to ensure the data are end-user friendly (CCCCO, 2013). The specific steps used to

collect the data can be found in Appendix A: Data Collection Steps. Permission to conduct

research using these data was obtained from Old Dominion University's Institutional Review

Board (IRB), as shown in Appendix B: IRB Exempt Approval.

This study used *ex post facto* data from 2012-2013 until 2018-2019, although the

DataMart provides data as early as 1992-1993 until the prior school year. The earliest school

year, 2012-2013, was the first year significant and reliable data were provided in the DataMart,

despite military student data collection starting in 2011-2012 by CCCCO for military students

(CCCCO, 2013), as discussed in the next section titled *Data Outliers*. The latest school year,

2018-2019, was chosen as the schools physically closed in the spring semester due to the

COVID-19 pandemic, creating a vastly different learning environment difficult to properly

access course success and credential completion rates (Bulman & Fairlie, 2021; Floyd, 2021;

Guth, 2020; Hart et al., 2021; Prokes & Housel, 2021). The final school year was also chosen

because at the time of data collection, the DataMart warned users the following when selecting

Retention/Success for a Special Population/Group. Since this is the key data for Research

Question One, the quote is worth repeating for clarification:

> These data submissions represent a very specific set of processes that have surfaced
>
> known issues with any metric related to headcount as the system shifted course delivery
>
> formats to ensure the continuation of instruction during the pandemic. … In the

meantime, research or reporting using this data for terms starting with Spring 2020 is not currently supported and is not recommended. (CCCCO, 2013, n.p.)

Data Outliers

After downloading the *ex post facto* data from the DataMart into usable spreadsheets, a few data outliers became obvious. While the earliest year CCCCO collected data on military students was 2011-2012, it appears a learning curve on data collection and distribution *might* have existed. As literature has stated, proper data collection on military students is a challenge, and this finding demonstrates it. Table 1 shows the total enrollment count over the eight school years originally included in this study. Between the 2011-2012 and the 2012-2013 school years, active military students show an increase over 7000% and veteran students over 1200% while non-military students *decreased* 7%. The remaining school years show more typical enrollment fluctuations for active military and veteran students similar to their non-military peers. After careful consideration, the outliers were removed from this study. As a result, the first school year in this study changed from 2011-2012 to 2012-2013 and the total number of school years decreased from eight to seven.

Table 1

California Community Colleges Enrollments

School Year	Total	Active Military	Veteran	Non-Military
2011-2012	8,979,260	578	11,075	8,967,607
2012-2013	8,526,882	41,838	148,613	8,336,431
2013-2014	8,717,055	40,549	189,291	8,487,215
2014-2015	8,754,074	40,837	197,090	8,516,147
2015-2016	8,786,535	48,504	199,840	8,538,191
2016-2017	8,720,150	47,515	196,031	8,476,604
2017-2018	8,639,966	34,460	187,967	8,417,539
2018-2019	8,602,762	33,771	194,911	8,374,080

Data Analysis

Once the data were gathered through queries on the DataMart website, the data were analyzed using SPSS and descriptive and inferential statistics described the data. Before starting, the researcher looked at each data-set to get a general overview and to remove any data outliers as described in the previous section, *Data Outliers*. Using a dependent, or paired, samples *t*-test, the data from Research Question One were analyzed to determine if there was a statistically significant difference between course success in online courses and traditional courses for active military students at California Community Colleges from 2012-2013 until 2018-2019. A *t*-test was chosen since the question had two groups, online and traditional

students, and the mean course success rates for each of the groups were compared (Leedy &

Ormrod, 2016). The independent variable was student type, online or traditional course students,

and the dependent variable was course success rate.

Research Question Two also used a *t*-test to analyze the data to determine if there was a

statistically significant difference between course success rate for active military students and

non-military students at California Community Colleges from 2012-2013 until 2018-2019. A *t*-

test was chosen since the question has two groups, active military students and non-military

students, and the mean course success rates for each of the groups were compared (Leedy &

Ormrod, 2016). The independent variable was student type, active military students or non-

military students, and the dependent variable was course success rate. The dependent variable,

course success rate, was analyzed three different ways: overall, online courses, and traditional

courses.

The data for Research Question Three were analyzed using trend analysis implemented as

explanatory multiple regression to determine if there is a statistically significance difference

between the seven-year trend of active military students, veteran military students, and non-

military students who earned a credential. Explanatory multiple regression was chosen since the

data were quantitative with known independent and dependent variable values and multiple

regression tests whether, and to what extent, the individual independent variables, active

military, veterans, and non-military, explain the dependent variable, number of credentials

earned (Salkind, 2010). The independent variables were categorical by student type and the

dependent variables were collected over time on a continuous scale by academic year at

California Community Colleges from 2012-2013 until 2018-2019.

Limitations

The following limitations applied to the current study:

- The research was non-experimental in nature and findings might not be generalizable to the general population.

- The study used *ex post facto* data, thus a true experiment with a control group and manipulation of the independent variable did not occur. Other factors may impact course success and program completion rates.

- Properly defining and classifying military students was a limitation within itself.

Summary

The purpose of this study was to examine the success of active military students within California Community Colleges. The current study adds to the existing literature by examining student course success between online courses and traditional courses for active military students, then compared these course success rates of active military students to non-military students, and finally compared active military students' credential earning rates to veteran military students and non-military students. *Ex post facto* data were collected through the MIS DataMart produced by the CCCCO (2013). The data were exported to SPSS to be analyzed using *t*-tests and trend analysis implemented as multiple regression. The findings of this research are reported in Chapter 4 using narrative text and tables. Finally, Chapter 5 has a discussion on the study's findings, the implications for practitioners, and provides recommendations for future studies.

CHAPTER 4

RESULTS

The purpose of this study was to perform data analysis using *ex post facto* data from California Community College Chancellor's Office's (CCCCO) Management Information Systems (MIS) DataMart to examine the success of active military students. It examined student course success between online courses and traditional courses over seven school years then compared these rates to non-military students. It also compared the credential earning rates of active military students, veteran military students, and non-military students. The results are organized by a general demographic and data overview then each research question is presented with data analysis.

Overview

California Community Colleges' average student demographics over the seven school year timeframe examined in this dissertation are shown in Table 2. The yearly student count averaged 2,485,730. The students identify as 45.10% male, 53.68% female, and 1.22% are unknown. Over 44% of students are age 25 or older. Racial diversity includes 42.24% Hispanic, 27.31% White, 11.43% Asian, and the remaining 19.06% are Black, American Indian/Alaska Native, Filipino, Multi-Ethnic, Pacific Islander, or Unknown.

Table 2

CCC Average Student Demographics

	Student Count	Average Percent	Yearly Average
CCC Total	17,400,107	100.00 %	2,485,730
Female	9,341,013	53.68 %	1,334,430
Male	7,845,658	45.10 %	1,120,808
Unknown Gender	213,436	1.22 %	30,491
24 or Younger	9,739,589	55.96 %	1,391,370
25 and Older	7,656,341	44.01 %	1,093,763
Asian	1,988,310	11.43 %	284,044
Hispanic	7,355,741	42.24 %	1,050,820
White	4,747,298	27.31 %	678,185
Other Race	3,308,758	19.06 %	472,680

The student total, success rate for online and traditional courses, and earned degrees and certificates per school year are shown in Table 3. During the seven years examined in this study, the total student enrollment averaged 8,678,203 with a success rate average of 65.3% in online courses and 72.6% in traditional courses. An average of 134,458 degrees and 64,304 certificates were earned each year.

Table 3

California Community Colleges Totals

	Enrollment	Success Rate		Credentials Earned	
Semester	Total	Online	Traditional	Degrees	Certificates
2012-2013	8,526,882	.6197	.7188	96,777	46,443
2013-2014	8,717,055	.6244	.7163	107,312	48,408
2014-2015	8,754,074	.6312	.7169	115,841	55,356
2015-2016	8,786,535	.6472	.7242	130,944	60,496
2016-2017	8,720,150	.6632	.7323	141,362	64,491
2017-2018	8,639,966	.6878	.7369	161,073	78,397
2018-2019	8,602,762	.6975	.7418	187,900	96,540

Research Question One

Is there a statistically significant difference between the course success rate for active military students in online courses compared to active military students in traditional courses at California Community Colleges from 2012-2013 until 2018-2019? An independent sample *t*-test was performed to examine whether there were differences in the mean course success rate, defined as the total success rate divided by the total enrollment, in online courses compared to traditional courses. Results indicated there was a significant difference between these two groups (t [53.965] = 6.572, $p < .001$) and equal variances were not assumed because Levene's F Test for Equality of Variances was .147. Online courses were lower in success rate ($M = .6878$,

SD = .0427) then traditional courses (*M* = .7637, *SD* = .0438). Statistics and average semester

success rates for online courses and traditional courses are shown in Table 4.

Table 4

Active Military Average Success Rates

	M	*SD*	2012-2013	2013-2014	2014-2015	2015-2016	2016-2017	2017-2018	2018-2019
Online	.6878	.0427	.6655	.6615	.6484	.6660	.6725	.6974	.7126
Traditional	.7637	.0438	.7235	.7235	.7280	.7316	.7294	.7407	.7343

Research Question Two

Is there a statistically significant difference between the overall course success rate for

active military students compared to non-military students at California Community Colleges

from 2012-2013 until 2018-2019?

    a. Is there a statistically significant difference between the course success rate for

       active military students compared to non-military students in online courses at

       California Community Colleges from 2012-2013 until 2018-2019?

    b. Is there a statistically significant difference between the course success rate for

       active military students compared to non-military students in traditional courses at

       California Community Colleges from 2012-2013 until 2018-2019?

An independent sample *t*-test was performed to examine whether there were differences

in the mean course success rate for active military students compared to non-military students for

all courses, online courses, and traditional courses. Results indicated there was not a significant

difference between these two groups for any of the three course delivery methods. All courses (*t*

[54] = .318, *p* = .751) assumed equal variances because Levene's F Test for Equality of

Variances was .003. Active military students (*M* = .7448, *SD* = .0364) did not vary from non-

military students (*M* = .7482, *SD* = .0451) for course success rate for all courses. Second, online

courses (*t* [51.169] = -.536, *p* = .594) did not assume equal variances because Levene's F Test

for Equality of Variances was .111. Active military students (*M* = .6878, *SD* = .0427) did not

vary from non-military students (*M* = .6808, *SD* = .0542) for course success rate for online

courses. Finally, traditional courses (*t* [54] = .091, *p* = .928) assumed equal variances because

Levene's F Test for Equality of Variances was .020. Active military students (*M* = .7637, *SD*

= .0438) did not vary from non-military students (*M* = .7645, *SD* = .0510) for course success rate

for traditional courses. Statistics for success rate for active military students and non-military

students among all course delivery formats are shown in Table 5.

Table 5

Active Military Students Compared to Non-Military Students

	Active Military		Non-Military		
	M	*SD*	*M*	*SD*	*p*
All	.7448	.0364	.7482	.0451	.751
Online	.6878	.0427	.6808	.0542	.594
Traditional	.7637	.0438	.7645	.0510	.928

Research Question Three

Is there a statistically significant difference between the seven-year trend of active military students, veteran military students, and non-military students who earned a credential at California Community Colleges from 2012-2013 until 2018-2019? The total number of credentials earned by active military students, veteran students, and non-military students are shown in Table 6. The table also shows these numbers adjusted using annual student count to determine a credentials earned rate.

Table 6

Credentials Earned and Credentials Earned Rate

School Year	Military		Veteran		Non-Military	
	Earned	Rate	Earned	Rate	Earned	Rate
2012-2013	1,789	0.1500	2,725	0.0643	138,706	0.0584
2013-2014	1,849	0.1624	3,885	0.0731	149,986	0.0630
2014-2015	1,775	0.1550	4,365	0.0790	165,057	0.0691
2015-2016	2,016	0.1466	5,186	0.0915	184,238	0.0761
2016-2017	2,080	0.1516	5,408	0.0956	198,365	0.0811
2017-2018	2,016	0.1995	6,316	0.1146	231,138	0.0937
2018-2019	2,353	0.2372	7,234	0.1264	274,853	0.1117

A trend analysis implemented as a multiple linear regression of credentials earned rate, defined as a degree or certificate and adjusted to a percent of approximate annual student count, on military status, defined as active military, veteran, and non-military, and time, defined as the seven school years from 2012-2013 until 2018-2019, explained a significant 91.6% of the variance in number of credentials earned: F (3, 17) = 73.691, MSE = 0, $p < .001$. Specifically, school year was a significant predictor of earning a credential ($b = .010$, $p < .001$, 95% CI [.007, .013]), which indicates a .010 increase in credentials earned rate after controlling for military status (military and active). After controlling for school year and military status, the effect of being active duty led to a .080 increase in credentials earned rate over veterans ($b = .080$, $p < .001$, 95% CI [.064, .096]). The effect of being in the military was not a significant predictor in credentials earned rate after controlling for school year and active military status ($b = .013$, $p = .101$, 95% CI [-.003, .029]). Statistics for credential earned rate are shown in Table 7.

Table 7

Credentials Earned Rate

	b	p	95% CI	
			Low	High
School Year	.010	< .001	.007	.013
Active Duty	.080	< .001	.064	.096
All Military	.013	.101	-.003	.029

Summary

The purpose of this study was to examine the success of active military students within California Community Colleges. The study analyzed *ex post facto* data from the MIS DataMart produced by the CCCCO (2013) using a *t*-test and trend analysis implemented as multiple regression performed in SPSS. First, a positive statistically significant correlation was found for active military students between online course success rates and traditional course success rates. Second, there was no statistically significant correlation comparing active military students to non-military students for course success rate for all courses, online courses, nor traditional courses. Finally, there was a positive statistically significant correlation over time by school year and for active military students compared to veteran students but not for all military students compared to non-military students. The final chapter, Chapter 5, has a discussion on the study's findings, the implications for practitioners, and provides recommendations for future studies.

CHAPTER 5

CONCLUSIONS AND RECOMMENDATIONS

Almost every higher-education institution in the United States has military students (Ford & Vignare, 2015). In 2020, $11.5 billion was spent on over 875,000 eligible military students (U.S. Department of Veterans Affairs [VA], 2021). Military students often prefer online courses at community colleges (Evans, Pellegrino, & Hoggan, 2015; Hawn, 2011; Persky & Oliver, 2011) as online courses provide flexibility around their military career (Downs & McAllen, 2014; Machuca, Torres, Morris, & Whitley, 2014; Wang, Elder, & Spencer, 2012) and community colleges provide flexibility, open-access, and affordability (Bates, 2012; Evans et al., 2015; Margarit & Kennedy, 2019; Selber, Biggs, Chavkin, & Wright, 2015; Starr-Glass, 2013).

Yet, there are few studies that examine active military servicemembers alone, often grouping active military students in with veteran military students (Cate, 2014; Ford & Vignare, 2015; Gibson, Kupczynski, & Ice, 2010; Molina & Morse, 2015; Olsen, Badger, & McCuddy, 2014). Existing research also lacks thorough data collection, tracking, and examination of retention (Cate, 2014; Cate, Schmeling, & Bogue, 2017; Ford & Vignare, 2015; Gibson et al., 2010; Olsen, Badger, & McCuddy, 2014; Tinto, 2006b). Thus, this research focused on active military students in online education in California Community Colleges. It examined their success in online courses and their persistence to earning a credential, defined as a degree or certificate completion. A certificate indicates a completion of a specific program of study (Bosworth, 2010), in this study it was students who earned a California Community College Chancellor's Office approved certificate (CCCCO, 2013).

Purpose Statement

The purpose of this study was to examine the success of active military students within California Community Colleges. The study examined student course success between online courses and traditional courses, compared course success of active military to non-military, and compared active military students, veteran military students, and non-military students credential earning rates. For the purpose of this study, active military students were defined as full-time active-duty servicemembers, active reserve servicemembers, or any guard servicemembers. The California Community College Chancellor's Office's (CCCCO) Management Information Systems (MIS) DataMart defines "Military Total" as "Active Duty, Active Reserve, National Guard" (CCCCO, 2013).

Research Questions

This study was guided by the following research questions:

1. Is there a statistically significant difference between the course success rate for active military students in online courses compared to active military students in traditional courses at California Community Colleges from 2012-2013 until 2018-2019?

2. Is there a statistically significant difference between the overall course success rate for active military students compared to non-military students at California Community Colleges from 2012-2013 until 2018-2019?

    a. Is there a statistically significant difference between the course success rate for active military students compared to non-military students in online courses at California Community Colleges from 2012-2013 until 2018-2019?

b. Is there a statistically significant difference between the course success rate for active military students compared to non-military students in traditional courses at California Community Colleges from 2012-2013 until 2018-2019?

3. Is there a statistically significant difference between the seven-year trend of active military students, veteran military students, and non-military students who earned a credential at California Community Colleges from 2012-2013 until 2018-2019?

Methodology

This quantitative, non-experimental study used *ex post facto*, or after the fact data; therefore, the students' military status and course formats were pre-determined. Non-experimental research does not change or modify a situation under investigation (Leedy & Ormrod, 2016). Each research question had its own set of independent and dependent variables. The variables for each research question were:

1. The independent variable was the course format, online or traditional, that the active military student chose, and the dependent variable was the course success rate.

2. The independent variable was the student group, active military or non-military, and the dependent variable was the overall, online, or traditional course success rate.

3. The independent variable was the students' military status (active, veteran, or non-military) and the dependent variable was the credential earning rate.

Ex post facto data were collected through the MIS DataMart produced by the CCCCO (2013). The California Community College system was chosen as 25% of all community college students in the United States attend a school in the California system (CCCCO, 2021). It offers more online credit courses (Johnson, Mejia, & Cook, 2014) and produces more certificates (Bosworth, 2010) than any other higher education institution in the United States. Also, it has

many colleges close to multiple different military bases and approximately 89,000 active

military, veterans, and dependents enrolled in California Community Colleges (CCCCO, 2021).

The majority (> 90) of the colleges have a military resource center, offering military students

priority registration and other specialized services, and a state-level Veterans Sensory Advisory

Committee works with the colleges to identify needs and discuss best practices (CCCCO, 2021).

Data were collected from 2012-2013 until 2018-2019. 2012-2013 was the first year

reliable data for military students were available, as discussed in the *Data Outliers* section, and

2018-2019 was the last full school year before the COVID-19 pandemic that created a vastly

different learning environment with unreliable data. The data collection process is described in

Appendix A: Data Collection Steps. Once collected, the data were formatted for analysis using

t-tests and trend analysis implemented as multiple regression in SPSS.

Results

Analyzing the data in SPSS produced three major results. First, a *t*-test found a

statistically significant correlation between online course success rates and traditional course

success rates for active military students. In other words, as military students' success rate in

online courses improved, their success rate in traditional courses also improved. However,

military students in online courses ($M = .6878$, $SD = .0427$) had a lower success rate than those

in traditional courses ($M = .7637$, $SD = .0438$). Second, three different *t*-tests did not find any

statistically significant correlation between active military students and non-military students

course success rates for all courses, online courses, nor traditional courses. Third, trend analysis

implemented as multiple regression found a positive statistically significant correlation for

students' credential earned rates over time by school year ($b = .010$, $p < .001$, 95% CI [.007,

.013]) and for active military students' credential earned rates ($b = .080$, $p < .001$, 95% CI [.064,

.096]) but not for all military students' credential earned rates compared to non-military students' credential earned rates ($b = .013$, $p = .101$, 95% CI [-.003, .029]). In other words, the seven school years from 2012-2013 until 2018-2019 account for a .010 increase in students' credentials earned rate after controlling for military status (military and active). After controlling for school year and military status, the effect of being an active military student led to a .080 increase in credentials earned rate over veterans' credential earned rate. However, the effect of being a student in the military was not a significant predictor in credentials earned rate after controlling for school year and active military student status.

Relation to the Literature

First and foremost, both Cate et al. (2017) and Ford and Vignare (2015) discussed the lack of data collected about military students and this proved true upon starting the research. The original plan was to analyze a different community college system. However, there was no publicly available data and the main office stated they were unable to provide data about military students. Also, the majority of individual colleges within the system close to military bases refused to give out a survey to their students or provide data about their military students. Luckily, the CCCCO MIS DataMart provided free, available summary data about military students, *mostly* contradicting data about military students lacking collection. It appears the CCCCO possibly struggled with properly collecting and distributing data during the first year, 2011-2012, on military students, as discussed in the *Data Outliers* section, but made adjustments on their collection and distribution of data to access more of their population correctly by the next school year, 2012-2013. Data were collected on military students including course success in both online and traditional courses, including breaking down online courses into seven different distance learning methods, and credential earning, including breaking down certificates

and degrees earned into over a dozen different categories, eleven which were relevant to the current study. Also, the definition of military students was surprising in that it included reserve and guard members but this supports research by Cate et al. (2017), Ford and Vignare (2015), and Gibson et al. (2010) which all find researchers define military students differently. Finally, the current study supported Tinto's (2006b) findings that data lacked complexity and detail, including providing information about students of different gender, race, ethnicity, and socio-economic status.

Next, the current study found a statistically significant correlation for active military students between online course success rates and traditional course success rates. These data contradict Ford and Vignare's (2015) finding that community colleges lack data for military students but supports their finding that it does not discuss the reasoning behind any success in online courses. It also supports NASPA's (2013) findings that the military has data on their students in online courses. In terms of success, it supports the research that found passing online courses to be lower than traditional courses by Hart, Friedmann, and Hill (2017), James, Swan, and Daston (2016), and Johnson et al. (2014).

Multiple researchers discussed active military students lacking persistence to degree completion (Evans et al., 2015; Fetzner, 2013; Ford & Vignare, 2015; Olsen et al., 2014; Wilson et al., 2013). However, California Community Colleges' military students are steadily increasing in the number of degrees and the number of certificates earned each year, showing they are persisting to completion. There was also a positive statistically significant correlation over time by school year active military students compared to non-military students, contradicting prior research by Evans et al. (2015), Fetzner (2013), Ford and Vignare (2015), Olsen et al. (2014), and Wilson et al. (2013).

Data Limitations

The biggest unexpected finding was the limited data about military students in community colleges in general. The other surprising finding dealt with the data found within the *Special Populations* section of the DataMart. First, while the section is helpful for analyzing special populations, including military students, this section does not provide overall data of California Community Colleges, leaving that output line blank. Instead, the user is required to run a different query to get overall data about the system as a whole. Second, there was a lack of demographic data that is often provided with data sets, or gathered when doing survey research through an optional survey section. The DataMart provides demographic data for the system overall but does not provide it for any of the special populations, including military students, making thorough research using these data difficult. Demographic information on these students about gender, age, race, part-time versus full-time, first generation or not, etc. would have provided further insight to these special populations.

Discussion and Conclusions

The current study of the success active military students in California Community Colleges built upon existing literature of active military students. This includes student course success between online courses and traditional courses, course success of active military to non-military, and a comparison of active military students, veteran military students, and non-military students credential earning rates. The results of multiple statistical tests addressed the three research questions and reveals active military students in California Community Colleges are improving over time, including course success rates and credential earning rates.

Showing military students are successful creates a positive return on investments, making the time and money into various programs worthy, including Department of Defense and the

state of California. The Department of Defense programs include Tuition Assistance funded by the individual military branches and the GI Bill used by some active military students and many veteran students. Programs for military students within California's public higher education system focus on improving the veteran military student experience, not the active military student experience. Research also shows us that programs and studies in the United States usually focus on veteran students, possibly a reason why veteran students continue to have higher rates than active military students. Active military students might have residual benefit from this program as college practitioners, including leaders and professors, have learned more about the military culture overall and the college created a more welcoming environment towards *all* military students. This research hopes to pave the way for larger scale, more detailed studies that would better determine more exact return on investments for the various programs benefiting military students.

Course success rates are improving in online courses for both active military students and non-military students. Unfortunately, without individual data points, it is impossible to evaluate the data by demographics or determine if individual students are consistently improving over their time in school, especially with the known learning curve with online courses. However, these rate improvements still show that college practitioners, including leaders, instructional design teams, and professors, are figuring out what is working, what areas need improvements, and probably changing policies and practices that lead to the improved online course success rates.

Although the current study ended before the COVID-19 pandemic started, being forced into all online teaching during the COVID-19 pandemic made practitioners spend more time and resources on what works and does not work. The California Virtual Campus-Online Education

Initiative, implemented before the COVID-19 pandemic, should have provided valuable help and resources to practitioners during the abrupt switch to all online courses. Hopefully the online course success rates continued to improve as choosing to take, or teach, an online course was no longer an option and there is a known learning curve for students and faculty alike.

Examining the data for certificates and degrees, all groups improved their credential earning rates and increased the number of certificates and degrees earned over time. The majority of certificates were earned in the "30 to less than 60 semester units" certificate group, followed by "18 to less than 30 semester units" certificate group. There is only one certificate group with more semester units, but three certificate groups with less semester units, possibly indicating that students are choosing Chancellor-approved certificates requiring more time and effort to improve their skills to further their career or transferring these certificates into a degree. The majority of degrees were associate degrees not meant for transfer, meaning the students were earning the associate's degree in California Community Colleges and not planning to transfer it to a bachelor's degree. Very few degrees earned were bachelor's degrees, probably because most students enter a community college to earn a certificate or associate's degree.

Policies at the state and local level, implementation at the college level, and resource investment for California students appears to be working. While this research focused on active military students, seeing an increase in course success rates and credential earning rates should be something California Community Colleges should be proud to report.

Implications for Practice

First and foremost, this study shows that active military students are earning credentials, often at a rate higher than their non-military peers, and are increasing their course success rate

over time for both course formats. Therefore, it is recommended that the individual military

branches reconsider their latest restrictions on Tuition Assistance education benefits that active

military students rely on to take courses and earn credentials. It is also recommended that in

order to show support for military students, the Department of Defense (DoD) needs to

encourage the individual military branches to remove the restrictions (e.g., maximum dollar

amounts; maximum credits allowed by semester/year). Finally, the DoD and the individual

military branches should encourage these students to earn more certificates and degrees, not just

take courses, by improving incentives and increasing resources.

In the past, many schools invested money into veteran resources but not always resources

for active military students as well. Yet when evaluating credential earning rates, active military

students improved at a statistically significant higher rate than veteran students, showing that

both populations are important. Active military students deserve to have practitioners, including

military and veteran services, student services, academic affairs, and higher-level community

college leaders, invest more money for resources and more time to provide assistance to improve

active military students' successes in all courses and with earning credentials.

State and college leaders should continue to improve students' online course success rates

as it continues to lag behind students' traditional course success rates. In California, $57 million

was invested into the California Virtual Campus-Online Education Initiative with a goal of

providing the right resources to improve online learning and teaching systemwide. State leaders

should ensure regular evaluations, both at the state and college level, are performed in order to

improve students' online course success rates; otherwise, the investment could be considered a

waste of state resources. At the individual college level, a thorough evaluation of online courses

including course design, accessibility, and instructor knowledge about best practices for teaching

online should be regularly completed to show weaknesses to make improvements. Leaders

should also implement a mandatory orientation for all students taking online courses, or make

improvements if an orientation exists, to get students' success rate for online courses aligned

closer to their rate in traditional courses.

Finally, it is recommended practitioners compare information on military students to non-

military students on a semester and yearly basis; in fact, *all* special populations should be

compared to the student body that is not part of the particular special population. Through

regular evaluations, practitioners can evaluate if all students are struggling with important

markers, such as course success or earning credentials, and evaluate the issue to hopefully make

improvements over time. Since the current study shows military students have higher success

rates and credential earning rates than their non-military peers, practitioners could apply

strategies used to help military students to other struggling special populations. Practitioners

should consider staffing specialized offices, creating peer groups for studying, educating

professors about any special considerations, and other institutional support measures discussed in

the current study to improve student success.

Recommendations for Future Studies

The biggest recommendation for future studies is to repeat this study with individual data

points and ensure demographic information is included. This will provide a greater

understanding to the research questions and deeper data analysis could be performed. Evaluating

the same research questions, especially Research Questions One and Three, with demographic

data would provide insight supporting or contradicting prior research presented in the literature

review. This would include demographics such as gender, race, age, part-time or full-time, etc.

Evaluation could also include the preference for online versus traditional courses, persistence

semester-to-semester, and/or persistence to a certificate, a degree, or a combination of credentials.

Another recommendation is to find individual data points to repeat this study but *include* the time after the implementation of the California Virtual Campus-Online Education Initiative and ten years after the 2019-2020 school year when the COVID-19 pandemic started. This will provide seven years of data before the COVID-19 pandemic started (similar to the current study) AND seven years of data after schools opened back up for both online and traditional courses as a study comparison. It would be of interest to see the rate of success for online courses after the initiative was introduced and after all courses were forced online then returned to a choice of online versus traditional courses, especially for military students by themselves and also compared to non-military students. It would also be of interest to evaluate if course load increased or decreased for students previously taking online courses, if their success rates improved or not, and if they were more likely to persist to credential earning or not. Comparing before, during, and after could reveal some interesting data to improve our community colleges, as well as if military students are affected by the current enrollment cliff encountered by higher education institutions across the country.

It would also be of interest to understand more about the students. This could be accomplished in multiple ways. First, a random qualitative survey of students reflected in this study about their thoughts on course success, including online and traditional course formats, and credential completion could be performed. Second, completing a cross-sectional quantitative study using a survey instrument with Likert-type interval scales will provide a snapshot of active military students' perceptions about their course success and credential completion. An optional section asking some further insight qualitative questions could be added. Third, a qualitative

study would question students about their experiences in their courses and about their thoughts on earning credentials. All of these would provide a greater understanding about what students felt worked for them, what their motivations were, and where they thought improvements could be made.

Finally, repeating this study nationwide would be of interest to practitioners including taxpayers, the military, and community college leaders. The steps to this research study were laid out and, as previously stated in the *Professional Significance* section, these steps should allow the research to be replicated by others to expand knowledge about these active military students and continually provide new research about these military students to practitioners. A nationwide study would be representative of the general United States' population, something that this study lacked. If the right summarized data were used, it could compare military students among all community college systems. It would provide an overall picture of military students in online education and their persistence to earning a credential, allowing individual systems the ability to compare how they are performing compared to the national level. Hopefully this would encourage discussion among key players about how to improve the college environment for this important student population.

<div align="center">**Summary**</div>

Knowledge regarding active military students related to course success, course delivery methods, and credential earning rates was advanced by this study. Active military students are improving over time, including online, traditional, and overall course success rates as well as certificate and degree earning rates in California Community Colleges. Veteran and non-military students are also improving in course success and earning credentials but often at rates *less than* active military students. In addition, online course success rates continue to lag behind

traditional course success rates for all groups, active military students, veteran students, and non-military students.

The current study supports, and sometimes contradicts, previous research. The DataMart provided data about military students, including course success and credentials earned, *mostly* contradicted discussions about the lack of data available by both Cate et al. (2017) and Ford and Vignare (2015). Yet the data collected supported Tinto's (2006b) findings that data lacked complexity and detail as it failed to provide demographic information about active military students. Finally, the current study's results showed California Community Colleges' military students are steadily increasing in the number of degrees and the number of certificates earned each year, showing persistence to completion and contradicting multiple research studies by Evans et al. (2015), Fetzner (2013), Ford and Vignare (2015), Olsen et al. (2014), and Wilson et al. (2013).

The results of the current study lead to implications for practice. First, the Department of Defense and individual military branches should remove the current restrictions on Tuition Assistance, improve incentives, and increase resources. Second, practitioners, including military and veteran services, student services, academic affairs, and higher-level community college leaders, should invest money and time into active military students, similar to the investments currently made for veteran students. Third, state and college leaders should continue to improve institutional support for online courses so *all* students' success rates improve. Finally, it is recommended practitioners compare *all* special populations to the student body that is not part of the particular special population, similar to how the current study was performed, and provide the necessary institutional support to hopefully improve student success.

REFERENCES

Ackerman, R., DiRamio, D., & Garza Mitchell, R. L. (2009). Transitions: Combat veterans as college students. *New Directions for Student Services, 126*, 5-14. doi:10.0002/ss.311

Advanced Distributive Learning (ADL). (2015). About us. https://www.adlnet.gov/about-adl/

Aikins, R. D., Golub, A., & Bennett, A. S. (2015). Readjustment of urban veterans: A mental health and substance use profile of Iraq and Afghanistan veterans in higher education. *Journal of American College Health, 63*(7), 482-494. doi:10.1080/07448481.2015.1068173

Altbach, P.G. (2011). Harsh realities. In P. G. Altbach, P. J. Gumport, & R. O. Berdahl (Eds.), *American higher education in the twenty-first century: Social, political and economic challenges* (3rd ed., pp. 227-253). Baltimore, MD: John Hopkins University Press.

Altman, G. (2019, July 23). Fewer troops are using tuition assistance benefits. *Military Times.* https://www.militarytimes.com/education-transition/2019/07/23/fewer-troops-are-using-tuition-assistance-benefits/

American Association of Community Colleges (AACC). (2021). Fast facts 2021. https://www.aacc.nche.edu/researchtrends/fast-facts/

Ann Clovis, M., & Chang, M. (2021). Effects of academic momentum on degree attainment for students beginning college at 2-year institutions. *Journal of College Student Retention: Research, Theory & Practice*, *23*(2), 322–336. doi:10.1177/1521025119826245

Armstrong, V. O., Tudor, T. R., & Hughes, G. D. (2021). Course retention in community colleges: Demographics, motivation, learning style, and locus of control. *American Journal of Distance Education, 35*(1), 33–48. doi:10.1080/08923647.2020.1825893

Artino, A. R. (2007). Online military training: Using a social cognitive view of motivation and self-regulation to understand students' satisfaction, perceived learning, and choice. *Quarterly Review of Distance Education*, *8*(3), 191-202. https://www.learntechlib.org/p/106651/

Artino, A.R. (2008). Motivational beliefs and perceptions of instructional quality: Predicting satisfaction with online training. *Journal of Computer Assisted Learning*, *24*(3), 260-270. doi:10.1111/j.1365-2729.2007.00258.x

Artino, A. R. (2009a). Online learning: Are subjective perceptions of instructional context related to academic success? *Internet and Higher Education, 12,* 117-125. doi:10.1016/j.iheduc.2009.07.003

Artino, A. R. (2009b). Think, feel, act: Motivational and emotional influences on military students' online academic success. *Journal of Computing in Higher Education, 21*, 146-166. doi:10.1007/x12528-009-9020-9

Artino, A. R., & McCoach, D. B. (2008). Development and initial validation of the Online Learning Value and Self-Efficacy Scale. *Journal of Educational Computing Research, 38*(3), 279-303. doi:10.2190/EC.38.3.c

Bates, R. A. (2012). Distance learning for special populations. *Online Journal of Distance Learning Administration 15*(2), n.p. https://www.learntechlib.org/p/76557/

Bauman, M. (2009). The mobilization and return of undergraduate students serving the National Guard and Reserves. *New Directions for Student Services 126*, 15-23. doi:10.1002/ss.312

Bergman, M., Gross, J. P. K., Berry, M., & Shuck, B. (2014). If life happened but a degree didn't: Examining factors that impact adult student persistence. *Journal of Continuing Higher Education, 62*(2), 90–101. doi:10.1080/07377363.2014.915445

Betts, K., Welsh, B., Pruitt, C., Hermann, K., Dietrich, G., Trevino, J. G., Watson, T. L., Brooks, M. L., Cohen, A. H., & Coombs, N. (2013). Understanding disabilities & online student success. *Journal of Asynchronous Learning Networks, 17*(3), 15-47. https://www.learntechlib.org/p/154165/

Bok, D. (2015). *Higher education in America* (Rev. ed.). Princeton, NJ: Princeton University Press.

Bosworth, B. (2010). *Certificates count: An analysis of sub-baccalaureate certificates*. Washington, DC: Complete College America. https://completecollege.org/wp-content/uploads/2017/11/Certificates-Count-FINAL-12-05.pdf

Brigham, C., & Klein-Collins, R. (2011). Going online to make learning count. *International Review of Research in Open and Distance Learning 12*(1), 111-115. doi:10.19173/irrodl.v12i1.940

Bulman, G., & Fairlie, R. (2021). The impact of COVID-19 on community college enrollment and student success: Evidence from California Administrative Data. EdWorkingPaper No. 21-385. *Annenberg Institute for School Reform at Brown University*. https://files.eric.ed.gov/fulltext/ED613647.pdf

Burnett, S. E., & Segoria, J. (2009). Collaboration for military transition students from combat to college: It takes a community. *Journal of Postsecondary Education and Disability, 22*(1), 53-58. https://files.eric.ed.gov/fulltext/EJ844251.pdf

California Census. (2020). Veterans. https://census.ca.gov/resource/veterans/

California Community Colleges Chancellor's Office (CCCCO). (2013). *Management Information Systems (MIS) DataMart: Outcomes* [data file]. https://datamart.cccco.edu/Outcomes/Default.aspx

California Community Colleges Chancellor's Office (CCCCO). (2021). California Community

    Colleges. https://www.cccco.edu/

CalVet. (2021). California Community Colleges. https://www.calvet.ca.gov/VetServices/

    Pages/CA-Community-Colleges.aspx

Carnevale, A. P., Rose, S. J., & Hanson, A. R. (2012). *Certificates: Gateway to gainful

    employment and college degrees.* Washington, DC: Center on Education and the

    Workforce, Georgetown University. https://repository.library.georgetown.edu/bitstream/

    handle/10822/559297/Certificates.FullReport.061812.pdf

Cass, D., & Hammond, S. (2015). Bridging the gap: Technology and veteran academic success.

    Online Learning, 19(1), 83-91. doi:10.24059/olj.v19i1.517

Cate, C.A. (2014). *Million Records Project: Research from Student Veterans of America*.

    Washington, DC: Student Veterans of America. https://studentveterans.org/wp-

    content/uploads/2020/08/mrp_Full_report.pdf

Cate, C. A., Lyon, J. S., Schmeling, J., & Bogue, B. Y. (2017). *National Veteran Education

    Success Tracker: A report on the academic success of student veterans using the Post-

    9/11 GI Bill.* Washington, DC: Student Veterans of America.

    https://www.luminafoundation.org/files/resources/veteran-success-tracker.pdf

Church, T. E. (2009). Returning veterans on campus with war related injuries and the long road

    back home. *Journal of Postsecondary Education and Disability, 22*(1), 43-52.

    https://files.eric.ed.gov/fulltext/EJ844250.pdf

Community College League of California (CCLeague). (2020). Fast Facts 2020.

    https://ccleague.org/sites/default/files/pdf/state-advocacy/2020_fast_facts.pdf

Congressional Budget Office. (2019, May). *The Post-9/11 GI Bill: Beneficiaries, choices, and cost.* https://www.cbo.gov/publication/55179

Cunningham, C. A., Weber, B. A., Roberts, B. L., Hejmanowski, T. S., Griffin, W. D., & Lutz, B. J. (2014). The role of resilience and social support in predicting the postdeployment adjustment in otherwise healthy Navy personnel. *Military Medicine, 179*, 979-985. doi:10.7205/MILMED-D-13-00568

Defense Activity for Non-Traditional Education Support (DANTES). (2022). Use it or lose it. https://www.military.com/education/gi-bill/use-it-or-lose-it.html

DiRamio, D., & Jarvis, K. (2011). What matters to veterans? Peer influences and the campus environment. In special issue: Veterans in higher education -- When Johnny and Jane come marching to campus. *ASHE Higher Education Report, 37*(3), 21-33. doi:10.1002/aehe.3703

DiRamio, D., & Spires, M. (2009). Preparing to assist disabled veterans in transition. *New Directions for Student Services, 126*, 81-88. doi:10.1002/ss.319

Dortch, C. (2018). *Harry W. Colmery Veterans Educational Assistance Act of 2017 (PL 115-48). CRS Report R45205, Version 3*. Washington, DC: Congressional Research Service. https://crsreports.congress.gov/product/pdf/R/R45205

Downs, G. H., & McAllen, D. K. (2014). Exploring the relationship between military service and performance in online classes. *Online Journal of Distance Learning Administration, 17*(4), n.p. https://www.westga.edu/~distance/ojdla/winter174/downs_mcallen174.html

Duncan, S. (2005). The U.S. Army's impact on the history of distance education. *Quarterly Review of Distance Education*, *6*(4), 397-404. doi:10.1080/10646170590915826

Durdella, N., & Kim, Y. K. (2012). Understanding patterns of college outcomes among student veterans. *Journal of Studies in Education, 2*(2), 109-129. doi:10.5296/jse.v2i2.1469

Edmunds, J. A., Gicheva, D., Thrift, B., & Hull, M. (2021). High tech, high touch: The impact of an online course intervention on academic performance and persistence in higher education. *The Internet and Higher Education, 49*. doi:10.1016/j.iheduc.2020.100790

Evans, J. J., Pellegrino, L., & Hoggan, C. (2015, Spring). Supporting veterans at the community college: A review of the literature. *The Community College Enterprise,* 47-65. https://home.schoolcraft.edu/cce/21.1.47-65.pdf

Fall, L. T., Kelly, S., & Christen, S. (2011). Revisiting the impact of instructional immediacy: A differentiation between military and civilians. *Quarterly Review of Distance Education*, *12*(3), 199-206.

Fetzner, M. (2013). What do unsuccessful online students want us to know? *Journal of Asynchronous Learning Networks, 17*(1), 13-27. doi:10.24059/olj.v17i1.319

Floyd, D. L. (2021). 2020, the year none of us predicted: COVID-19 and community colleges. *Community College Journal of Research and Practice, 45*(1), 1-7. doi:10.1080/10668926.2020.1841649

Fong, C. J., Davis, C. W., Yughi, K., Won Kim, Y., Marriott, L., & Kim, S. (2017). Psychosocial factors and community college student success: A meta-analytic investigation. *Review of Educational Research, 87*(2), 388-424. doi:10.3102/0034654316653479

Ford, D., Northrup, P., & Wiley, L. (2009). Connections, partnerships, opportunities, and programs to enhance success for military students. *New Directions for Student Services, 126*, 61-69. doi:10.1002/ss.317

Ford, K., & Vignare, K. (2015). The evolving military learner population: A review of the literature. *Online Learning, 19*(1), 7-30. https://www.learntechlib.org/p/183816/

Friesen, N. (2010). Ethics and the technologies of empire: E-learning and the US military. *AI & Society, 25*(1), 71-81. http://dx.doi.org/10.1007/s00146-009-0244-z

Gibson, A. M., Kupczynski, L., & Ice, P. (2010). Student success in top 20 courses of an online institution: Demographic differences in a multi-semester cross-curricular study. *Journal of Education Technology, 7*(2), 18-27. https://files.eric.ed.gov/fulltext/EJ1098329.pdf

Glazer, H. R., & Murphy, J. A. (2015). Optimizing success: A model for persistence in online education. *The American Journal of Distance Education, 29*, 135-144. https://doi.org/10.1080/08923647.2015.1023093

Golden, D. (2010, January 7). Online schools market to the military: But critics say they offer minimal education on U.S. tab. *Bloomberg Businessweek.* http://www.nbcnews.com/id/34733974/ns/business-personal_finance/t/online-schools-market-military/#.Va7ko_lViko

Gumport, P. J. (2011). Graduate education and research. In P. G. Altbach, P. J. Gumport, & R. O. Berdahl (Eds.), *American higher education in the twenty-first century: Social, political and economic challenges* (3rd ed., pp. 365-408). Baltimore, MD: John Hopkins University Press.

Guth, D. J. (2019). Armed with education. *Community College Journal, 90*(2), 24–28. https://www.ccjournal-digital.com/ccjournal/october_november_2019/MobilePagedArticle.action?articleId=1528619

Guth, D. J. (2020). High-tech, high-touch: IT and distance ed departments work together to deliver curriculum during the pandemic. *Community College Journal*, *91*(1), 24–28. https://www.ccjournal-digital.com/ccjournal/august_september_2020/ MobilePagedArticle.action?articleId=1609057#articleId1609057

Hanley, L. F., & Bonilla, D. (2016). Atolls, Islands, and Archipelagos: The California OER Council and the new landscape for open education in California. *Open Praxis*, *8*(2), 131–142. doi:10.5944/openpraxis.8.2.284

Hart, B. A. (2019). Hanging in, stopping out, dropping out: Community college students in an era of precarity. *Teachers College Record*, *121*(1). doi:10.1177/016146811912100105

Hart, C. M. D., Friedmann, E., & Hill, M. (2017). Online course-taking and student outcomes in California Community Colleges. *Education Finance and Policy*, *13*(1), 42–71. doi:10.1177/2332858419832852

Hart, C. M. D., Xu, D., Hill, M., & Alonso, E. (2021). COVID-19 and community college instructional responses. *Online Learning, 25*(1), 41-69. doi:10.24059/olj.v25i1.2568

Hawn, H. (2011). Veterans and veteran families in general education. *The Journal of General Education, 60*(4), 248-264. doi:10.1353/jge.2011.0022

Hayward, M. S., & Williams, M. R. (2015). Adult learning graduation rates at four U. S. community colleges by prior learning assessment status and methods. *Community College Journal of Research and Practice, 39*, 44-54. doi:10.1080/10668926.2013.789992

Hendrickson, R. M., Lane, J. E., Harris, J. T., & Dorman, R. H. (2013). Federal engagement in higher education. In *Academic Leadership and Governance of Higher Education: A Guide for Trustees, Leaders, and Aspiring Leaders of Two- and Four-Year Institutions* (pp. 87-112). Sterling, VA: Stylus Publishing.

Hitt, S., Sternberg, M., Wadsworth, S. M., Vaughan, J., Carlson, R., Dansie, E., & Mohrbacker, M. (2015). The higher education landscape for US service members and veterans in Indiana. *Higher Education, 70,* 535-550. doi:10.1007/s10734-014-9854-6

Horn, A. S., Horner, O. G., & Lee, G. (2019). Measuring the effectiveness of two-year colleges: a comparison of raw and value-added performance indicators. *Studies in Higher Education, 44*(1), 151–169. doi:10.1080/03075079.2017.1349741

James, S., Swan, K., & Daston, C. (2015). Retention, progression and the taking of online courses. *Online Learning, 20*(2), 75-96. doi:10.24059/olj.v20i2.780

Jenner, B. M. (2019). Veteran success in higher education: Augmenting traditional definitions. *Journal of Ethnographic & Qualitative Research*, *14*(1), 25–41. https://www.academia.edu/42262974

Johnson, H., Cellular Mejia, M., & Cook, K. (2014). *Online learning and student outcomes in California's Community Colleges*. San Francisco, CA: Public Policy Institute of California. https://www.ppic.org/wp-content/uploads/content/pubs/report/R_514HJR.pdf

Johnson, T. (2009). Ensuring the success of deploying students: A campus view. *New Directions for Student Services, 126*, 55-60. doi:10.1002/ss.316

Karp, M. M., & Klempin, S. (2016). *Improving student services for military veterans*. New York, NY: Columbia University, Teachers College, Community College Research Center. doi:10.7916/D8VH5P04

Kirchner, M. J. (2015). Supporting student veteran transition to college and academic success. *Adult Learning, 26*(3), 116-123. doi:10.1177/1045159515583813

Kirchner, M. J., & Pepper, S. (2020). Student veteran engagement in online education. *New Directions for Adult & Continuing Education*, *2020*(166), 95–109. https://doi.org/10.1002/ace.20386

Kranzow, J. (2013). Faculty leadership in online education: Structuring courses to impact student satisfaction and persistence. *MERLOT Journal of Online Learning and Teaching, 9*(1), 131-139. https://jolt.merlot.org/vol9no1/kranzow_0313.pdf

Lee, N. E. (2017). The part-time student experience: Its influence on student engagement, perceptions, and retention. *The Canadian Journal for the Study of Adult Education, 30*(1), 1. https://cjsae.library.dal.ca/index.php/cjsae/article/view/5392

Leedy, P. D., & Ormrod, J. E. (2016). *Practical research: Planning and design.* Boston, MA: Pearson.

Liao, H-A., Edlin, M., & Cuttita Ferdenzi, A. (2014). Persistence at an urban community college: The implications of self-efficacy and motivation. *Community College Journal of Research and Practice, 38*, 595-611. doi:10.1080/10668926.2012.676499

Machuca, A., Torres, K., Morris, P., & Whitley, W. (2014). Challenges faced by undergraduate military students at American Public University System. *International Journal on E-Learning, 13*(4), 441-450. https://www.learntechlib.org/p/39464/

Margarit, V., & Kennedy, J. (2019). Students' variables predicting timely graduation at a community college. *Journal of Higher Education Theory & Practice, 19*(6), 97–117. doi:10.33423/jhetp.v19i6.2308

Martin, K., Galentino, R., & Townsend, L. (2014). Community college student success: The role of motivation and self-empowerment. *Community College Review, 42*(3), 221-241. doi:10.1177/0091552114528972

McCaslin, S. E., Thiede, J., Vinatieri, T., Passi, H., Bull Lyon, K., Ahern, D. A., … Chitaphong, K. (2014). Facilitating veterans' academic success: Veterans Integration to Academic Leadership (VITAL) initiative. *Career Planning and Adult Development Journal, 30*(3), 191.

McGrevey, M., & Kehrer, D. (2009). Stewards of the public trust: Federal laws that serve servicemembers and student veterans. *New Directions for Student Services, 126*, 89-94. doi:10.0002/ss.311

Meine, M. F., & Dunn, T. P. (2017). MPA programs and internet education: Validation of quality and acceptance despite challenges surrounding online delivery. *Journal of Public Affairs Education, 23*(2), 665-676, doi:10.1080/15236803.2017.12002277

Mentzer, B., Black, E. L., & Spohn, R. T. (2015). An analysis of supports for persistence for the military student population. *Online Learning, 19*(1), 31-47. doi:10.24059/olj.v19i1.500

Military.com. (n.d.). Know what you are committing to. http://www.military.com/join-armed-forces/making-commitment

MilitaryBenefits.info. (2022). Servicemembers Opportunity Colleges (SOC). https://militarybenefits.info/soc/

Molina, D., & Morse, A. (2015). *Connected undergraduates exploring the differences between National Guard, Reserve, active duty, and veterans in higher education.* Washington, DC: American Council on Education and NASPA – Student Affairs Administrators in Higher Education. https://www.acenet.edu/Documents/Military-Connected-Undergraduates.pdf

Mumper, M., Gladieux, L. E., King, J. E., & Corrigan, M. E. (2011). The federal government and higher education. In P. G. Altbach, P. J. Gumport, & R. O. Berdahl (Eds.), *American higher education in the twenty-first century: Social, political and economic challenges* (3rd ed., pp. 113-138). Baltimore, MD: John Hopkins University Press.

National Association of Student Personnel Administrators (NASPA). (2013). *Measuring the success of student veterans and active duty military students.* Washington, DC: The Association. https://www.naspa.org/rpi/reports/measuring-the-success-of-student-veterans-and-active-duty-military

National Center for Education Statistics (NCES). (2021). *Degrees and certificates awarded* [data file]. https://nces.ed.gov/ipeds/TrendGenerator/app/trend-table/4/24?trending=column&valueCode=4&rid=33&cid=1

Olsen, T., Badger, K., & McCuddy, M. D. (2014, October-December). Understanding the student veterans' college experience: An exploratory study. *U.S. Army Medical Department Journal,* 101-108. https://www.researchgate.net/publication/274400860

Osborne, N. J. (2014). Veteran ally: Practical strategies for closing the military-civilian gap on campus. *Innovative Higher Education, 39*, 247-260. doi:10.1007/s10755-013-9274-z

Persky, K. R., & Oliver, D. E. (2011). Veterans coming home to the community college: Linking research to practice. *Community College Journal of Research and Practice, 35,* 111-120. doi:10.1080/10668926.2011.525184

Peter, T. A. (2011, November 6). For U.S. soldiers in Afghanistan, online courses fill a valued niche. *The Chronicle of Higher Education*, B17-B19.

Porchea, S. F., Allen, J., Robbins, S., & Phelps, R. P. (2010). Predictors of long-term enrollment and degree outcomes for community college students: Integrating academic, psychosocial, sociodemographic, and situational factors. *The Journal of Higher Education, 81*(6), 680–708. doi:10.1080/00221546.2010.11779077

Postsecondary National Policy Institute. (2021). Factsheets: Post-traditional students in higher education. https://pnpi.org/wp-content/uploads/2021/08/PostTraditional_ Factsheet_Updated_August2021.pdf

Prokes, C., & Housel, J. (2021). Community college student perceptions of remote learning shifts due to COVID-19. *TechTrends: Linking Research & Practice to Improve Learning*, *65*(4), 576–588. doi:10.1007/s11528-021-00587-8

Pulkkinen, L. (2021, September 3). Getting educated while on active duty is getting harder as military rolls back benefits. *The Hechinger Report*. https://hechingerreport.org/getting-educated-while-on-active-duty-is-getting-harder-as-military-rolls-back-benefits/

Queen, B., & Lewis, L. (2014). *Services and support programs for military service members and veterans at postsecondary institutions, 2012–13.* Washington, DC: National Center for Education Statistics. http://files.eric.ed.gov/fulltext/ED544760.pdf

Radford, A. W., Bentz, A., Dekker, R., & Paslov, J. (2016, August). *After the Post-9/11 GI Bill: A profile of military servicemembers and veterans enrolled in undergraduate and graduate education* (NCES 2016-435). Washington, DC: U.S. Department of Education. https://www.luminafoundation.org/files/resources/after-the-post-911-gi-bill.pdf

Renn, K. A., & Reason, R. D. (2013). *College students in the United States: Characteristics, experiences, and outcomes.* San Francisco, CA: Jossey-Bass.

Salkind, N. J. (2010). *Encyclopedia of research design*. Thousand Oaks, CA: Sage Publications. https://dx.doi.org/10.4135/9781412961288.n510

Schuster, J. H. (2011). The professoriate's perilous path. In J. C. Hermanowicz (Ed.), *The American academic profession: Transformations in contemporary higher education* (pp. 1-17). Baltimore, MD: The Johns Hopkins University Press.

Scott-Clayton, J. (2015). The shapeless river: Does a lack of structure inhibit progress at community colleges? In Baum, S., Castleman, B., & Schwartz, S. (Eds.), *Decision making for student success: Behavioral insights to improve college access and persistence* (pp. 114-135). London, UK: Routledge. doi:10.4324/9781315767932-10

Seaberry, B. (2006). Increasing California Community College access through distance education. *JEP: EJournal of Education Policy, 2*. https://in.nau.edu/wp-content/uploads/sites/135/2018/08/Increasing-California-Community-College-Access-through-Distance-Education-ek.pdf

Selber, K., Biggs, M. J. G., Chavkin, N. F., & Wright, M. C. (2015). Online training for working with student veterans: A social work elective course. *Online Learning, 19*(1), 117-128. doi:10.24059/olj.v19i1.480

Serviceman's Readjustment Act, P.L. 78-346, 58 Stat. 284m. (1944).

 https://www.ourdocuments.gov/doc.php?flash=false&doc=76

Shea, P., & Bidjerano, T. (2016). A national study of differences between online and classroom-only community college students in time to first associate degree attainment, transfer, and dropout. *Journal of Asynchronous Learning Networks, 20*(3), 14-25. https://www.learntechlib.org/p/193375/

Shea, P., & Bidjerano, T. (2019). Effects of online course load on degree completion, transfer, and dropout among community college students. *Online Learning, 23*(4), 6-22. doi:10.24059/olj.v23i4.1364

Smith, D. G. (2011). The diversity imperative. In P. G. Altbach, P. J. Gumport, & R. O. Berdahl (Eds.), *American higher education in the twenty-first century: Social, political and economic challenges* (3rd ed., pp. 465-490). Baltimore, MD: John Hopkins University Press.

Soares, L., Gagliardi, J. S., & Nellum, C. J. (2017). *The Post-traditional learners manifesto revisited: Aligning postsecondary education with real life for adult student success.* Washington, DC: American Council on Education. https://www.acenet.edu/ Documents/The-Post-Traditional-Learners-Manifesto-Revisited.pdf

Sorensen, C., & Donovan, J. (2017). An examination of factors that impact retention of online students at a for-profit university. *Online Learning, 21*(3), 206-221. doi:10.2059/olj.v2li3.935

Starr-Glass, D. (2013). Experiences with military online learners: Toward a mindful practice. *MERLOT Journal of Online Learning and Teaching, 9*(3), 353-364. https://jolt.merlot.org/vol9no3/starr-glass_0913.pdf

Stevenson, T. (2013). Online student persistence: What matters is outside the classroom. *Journal of Applied Learning Technology, 3*(1), 21-25.

Thor, L. M., & Moreau, J. (2016). Leveraging technology to create a student-focused environment. *New Directions for Community Colleges*, *176*, 73–78. doi:10.1002/cc.20224

Tinto, V. (2006a). Enhancing student persistence: Lessons learned in the United States. *Enhancing Student Persistence: Lessons Learned in the United States., 24*(1), 7-13. doi:10.14417/ap.148

Tinto, V. (2006b). Research and practice of student retention: What next? *Journal of College Student Retention: Research, Theory & Practice*, *8*(1), 1–19. doi: 10.2190/4YNU-4TMB-22DJ-AN4W

Tinto, V. (2017a). Reflections on student persistence. *Student Success*, *8*(2), 1–8. doi: 10.5204/ssj.v8i2.376

Tinto, V. (2017b). Through the eyes of students. *Journal of College Student Retention: Research, Theory and Practice*, *19*(3), 254–269. doi:10.1177/1521025115621917

U.S. Department of Education. (2012). The HEROES Act - Updated waivers and modifications of statutory and regulatory provisions governing the FSA Programs. *Federal Register 77*(188), 59311-59318. https://ifap.ed.gov/fregisters/FR092712.html

U.S. Department of Veteran Affairs. (2019, October). Verification assistance brief. https://www.va.gov/OSDBU/docs/Determining-Veteran-Status.pdf

U.S. Department of Veterans Affairs (VA). (2021, June). *VBA annual benefits report fiscal year 2020*. https://www.benefits.va.gov/REPORTS/abr/docs/2020_ABR.pdf

U.S. Department of Veterans Affairs (VA). (2016). Veteran population projections 2017-2037.

https://www.va.gov/vetdata/docs/Demographics/New_Vetpop_Model/Vetpop_Infographic_Final31.pdf

U.S. Department of Veterans Affairs (VA). (2022). Yellow Ribbon Program.

https://www.va.gov/education/about-gi-bill-benefits/post-9-11/yellow-ribbon-program/

Vance, M. L., & Miller, W. K. (2009). Serving wounded warriors: Current practices in

postsecondary education. *Journal of Postsecondary Education and Disability, 22*(1), 18-

35.

Wang, L., Elder, G. H., & Spence, N. J. (2012). Status configurations, military service, and

higher education. *Social Forces, 91*(2), 397-421. doi:10.1093/sf/sos174

Weissman, S. (2021, November 22). California Community Colleges suffer low completion

rates. *Inside Higher Ed.* https://www.insidehighered.com/news/2021/11/22/california-

community-colleges-suffer-low-completion-rates

Whikehart, J. (2010). Mission graduation: A student military and veteran organization.

Community College Journal of Research and Practice, 34(11), 920-922.

doi:10.1080/10668926.2010.509261

Wilson, K. B., Smith, N. L., Lee., A. L., & Stevenson, M. A. (2013). When the Army post is the

campus: Understanding the social and academic integration of soldiers attending college.

Journal of College Student Development, 54(6), 628-642. doi:10.1353/csd.2013.0087

APPENDICES

APPENDIX A: DATA COLLECTION STEPS

To collect data for this study, go to the main California Community College Chancellor's Office's (CCCCO) Management Information Systems (MIS) DataMart page at https://datamart.cccco.edu/. Once on the main page, the data for this study is accessed under Queries → Outcomes (https://datamart.cccco.edu/Outcomes/Default.aspx). The following criteria are selected for both research questions:

- State-District-College → Statewide Search

- Program/Special Population → Military (Active Duty, Active Reserve, National Guard, Veteran)

For Research Question One, select Retention/Success Rate under Outcomes, select the blue "click" link after the bold Retention/Success for Special Population/Group on the right, and select the following criteria in addition the above search criteria:

- Term → All semesters from Summer 2012 until Spring 2019, including Summer and Winter

- Program Type → All TOP Codes

- Instruction Method → All (Dist. Ed. & Non-Dist. Ed.)

Once the criteria are selected, click View Report. Below the table, unselect Basic Skills, Degree Applicable, Transfer, and Vocational from Course Status then click Update Report. Under Military (Active Duty, Active Reserve, National Guard) Total, the variables are defined in the DataMart as follows:

- Traditional courses are defined as Non Distance Education Methods.

- Online courses are the sum of the course delivery methods that do not fall under Non Distance Education Methods. These include:

  - Delayed Interaction (Internet Based)

  - Other passive medium

  - Other simultaneous interactive medium

  - Simultaneous Interaction (Internet Based)

  - Text one-way (e.g. newspaper, correspondence, etc.)

  - Two-way interactive video and audio

  - Video one-way (e.g. ITV, video cassette, etc.)

- The number of students enrolled is Credit → Enrollment Count.

- The number of students with course success is Credit → Success Count.

- The rate is Success Count divided by Enrollment Count.

For Research Question Two, the active military students course success rates are determined using the same steps as Research Question One. For non-military students, the course success rates are determined by using the same steps for Research Question One after going to the Retention/Success Rate under Outcomes Program Awards *without* selecting the blue "click" link to go to the Special Population/Group. The variables are defined in the DataMart as follows:

- The non-military student population is the State of California Total minus Military Total and Veteran Total.

- The overall course success for each group is the sum of Traditional Courses and Online Courses.

For Research Question Three, select Program Awards under Outcomes, select the blue "click" link after the bold Program Awards for Special Population/Group on the right, and select the following criteria in addition the above search criteria:

- Academic Year → All Annual semesters from 2012-2013 until 2018-2019

- Award Type → Chancellor's Office Approved Awards

- Program Type → All Programs

Once the criteria are selected, click View Report. The variables are defined in the DataMart as follows:

- The number of credentials is the sum of all Bachelor Degrees, Associate Degrees, and Certificates for each independent variable for each school year.

- Active military students are Military (Active Duty, Active Reserve, National Guard) Total.

- Veteran students are Veteran Total.

- Non-military students are determined by repeating the method for Research Question Three under Program Awards *without* selecting the blue "click" link to go to the Special Population/Group and subtracting out the Military Total and Veteran Total.

APPENDIX B: IRB EXEMPT APPROVAL

OFFICE OF THE VICE PRESIDENT FOR RESEARCH

Physical Address
4111 Monarch Way, Suite 203
Norfolk, Virginia 23508
Mailing Address
Office of Research
1 Old Dominion University
Norfolk, Virginia 23529
Phone(757) 683-3460
Fax(757) 683-5902

DATE: April 18, 2022

TO: Mitchell Williams

FROM: Old Dominion University Education Human Subjects Review Committee

PROJECT TITLE: [1894912-1] Active Military Student Persistence in Online Courses at California Community Colleges

REFERENCE #:

SUBMISSION TYPE: New Project

ACTION: DETERMINATION OF EXEMPT STATUS

DECISION DATE:

REVIEW CATEGORY: Exemption category #4

Thank you for your submission of New Project materials for this project. The Old Dominion University Education Human Subjects Review Committee has determined this project is EXEMPT FROM IRB REVIEW according to federal regulations.

We will retain a copy of this correspondence within our records.

If you have any questions, please contact John Baaki at (757) 683-5491 or jbaaki@odu.edu. Please include your project title and reference number in all correspondence with this committee.

This letter has been electronically signed in accordance with all applicable regulations, and a copy is retained within Old Dominion University Education Human Subjects Review Committee's records.

Generated on IRBNet

VITA

Stephanie E. Gernert

Education

- Ph.D. in Community College Leadership, Old Dominion University, August 2022

- M.Ed. in Special Education, George Mason University, May 2009

- M.B.A. in Public Administration and Information Technology, University of Delaware, May 2003

- B.S. in Entrepreneurial Studies, Fairleigh Dickinson University, February 2001

Professional Experience

- Assistive Technology Coordinator, Northern Virginia Community College, May 2013- September 2016

- Nanny (Infants and School-Aged Children), Carpenter, Mann, Polk, and Davis Families, October 2004- August 2007; July 2010- May 2013

- Special Education High School Mathematics Teacher, Falls Church High School, August 2007- August 2010

- Special Education Middle School Mathematics Teacher, Mark Twain Middle School, June 2007- August 2007

- Special Education Elementary Teacher, Churchill Road Elementary, August 2006- June 2007

- Management Analyst/Presidential Management Fellow, Department of the Navy's Office of the Chief Information Officer, July 2003- August 2004

- Municipal Planning Graduate Assistant, City of Newark, Delaware, August 2002- May 2003