SELF-EFFICACY AND ACADEMIC PERFORMANCE AMONG COLLEGE STUDENTS: ANALYZING THE EFFECTS OF TEAM-BASED LEARNING

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Abstract

of

SELF-EFFICACY AND ACADEMIC PERFORMANCE AMONG COLLEGE STUDENTS: ANALYZING THE EFFECTS OF TEAM-BASED LEARNING

by

Barbara Joan Olave

College participation rates are growing among students of lower socioeconomic status and first-generation students (those who are the first members of their families to attend college), however their success rates do not keep pace with students of higher socioeconomic status and those whose family members have attained college degrees. Research indicates that one element impacting college students’ success rates is confidence in their ability to bring about intended outcomes in the face of challenges (self-efficacy). Guided by Constructivist Learning Theory, this study was designed to assess the possible impact of increasing opportunities for successful completion of goals (efficacious actions) in introductory college courses. A total of 159 university students in four introductory sociology courses were either assigned to a control group taught using the conventional lecture style of teaching, or an experimental group which adopted the Team-Based Learning framework. Eligible participants completed pre- and post-tests to assess possible changes in self-efficacy levels, and final course grades were monitored to
assess differences in final grades. It was hypothesized that adding opportunities for efficacious actions into lower division introductory college courses would increase both self-efficacy and grades among first-generation college students and therefore narrow the achievement gaps.

_______________________, Committee Chair
Dr. Aya Kimura Ida

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Date
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CHAPTER

INTRODUCTION

Increasing numbers of high school graduates are realizing their goal of entry into colleges and universities in pursuit of a four-year college degree. Universities are seeing increases in part-time and full-time students, at both degree-granting and non-degree-granting institutions, and among both males and females. The percentage of U.S. college students who are Hispanic, Asian/Pacific Islander and Black has also been increasing. Between 1976 and 2015, the percentage of college students who are White has decreased from 84 percent to 58 percent, proportions that roughly mirror the group’s decrease in representation in the general population across the time period (U.S. Department of Education 2018a).

The total enrollment in universities and colleges rose from 17.5 million in 2005 to 20.0 million in 2015. While total enrollment in universities and colleges has increased in the past decade, graduation and attrition rates are not necessarily painting a picture of success for many of these students. Only about 60 percent of students completed their four-year bachelor’s degree within six years from the start of the program (U.S. Department of Education 2018b), however it is important to note that completion rates varied based on selectiveness of the university or college. While close to nine out of 10 students who attended a more selective university or college which had less than 25% acceptance rate graduated in six years, only one in three students graduated in six years at a less selective university or college which had open admission policies.
This thesis investigates factors influencing students’ sense of self-efficacy in academics and impacts on their final grade in introductory college courses. More specifically, whether and how first-generation college students would be different from continuing-generation students in self-efficacy and grades earned in an introductory college course. For the purposes of this study, I have defined first-generation as the college student where no member of the immediate family has previously obtained a college degree and continuing-generation students as those who have at least one parent with a bachelor’s degree. In this study, social class status is conceptualized in relation to parents’ educational attainment. Therefore, whether one has at least one parent with a bachelor’s degree is used as a proxy for their social class.

While increases in access to higher education for previously excluded and marginalized groups indicate progress for working class families and toward achieving greater measures of equal opportunity for the children of poor and working class families (Pryor et al. 2007), a troubling achievement gap still exists between continuing-generation and first-generation students. Research has well documented that first generation college students, who represented one third of all college students enrolled in U.S. universities in the year 2011-2012 (Skomsvold 2015), face more difficulties completing the requirements for a bachelor’s degree than their counterparts – continuing-generation students (Cataldi, Bennet, and Chen 2018; Collier and Morgan 2008; Farley 2002; Ishitani 2003; Spady 1970; Tinto 1975). In their synthesis of three longitudinal studies on first-generation students, Cataldi and colleagues found that within three years of first enrollment attrition rates for students whose parents had no college experience
was 33 percent, compared to 26 percent for students whose parents had some college experience, and 14 percent for students with at least one parent who had earned a four-year college degree (Cataldi et al. 2018). The authors however, determined that disadvantage was likely to be overcome for students who persisted, having found no statistically significant difference in full-time employment rates of first- and continuing-generation students four years after graduation with a bachelor’s degree. The study also failed to find any significant difference in median income between the same groups four years following degree attainment (Cataldi et al. 2018). Therefore, the greatest disadvantage first-generation students face is the likelihood of dropping out, since the data suggest that for students who persist such disadvantages are overcome. More specifically, the likelihood of dropout within this population is twice as high as that of traditional students (Ishitani 2003).

One reason why first-generation students have higher attrition rates than continuing-generation students is that they experience challenges specific to their first-generation status which lead to lower levels of success in college (Farley 2002; Ishitani 2006; Stephens et al. 2012). In addition to the lack of experiences passed down from parents to do well in college, “first-generation students often possess other demographic and enrollment characteristics (low socioeconomic status and lower enrollment intensity, among others) that are associated with dropping out.” (Cataldi et al. 2018:2). Thus, lending justification for using first generation status as a proxy for social class in this research.
Research indicates that a key factor active in the production of unequal outcomes for college students is social class (Hamilton and Armstrong 2015; Lareau 2003; Terenzini et al. 1996; Vuong, Brown-Welty, and Tracz 2010). College participation rates are growing among students of lower socioeconomic statuses. Although college enrollment rates remain highest for students from families in the top quintile of the income distribution, the gap between enrollment among the top and bottom quintiles is narrowing (83 percent and 67 percent respectively). For comparison, in 1986 college participation rates for these two groups were 73 percent and 37 percent respectively, and recent data suggests a surprising trend may be developing, in that participation rates for students in the lowest quintile, at 67 percent, have now surpassed those for students in the middle three quintiles at 64 percent (NCES 2017). These findings indicate that an increasing proportion of lower-income students attend colleges/universities while slightly fewer children from the wealthiest families are enrolling. Hamilton and Armstrong (2015) also argue that social class status is an “organizationally produced” factor that at least partially explains the potential success of college students (Hamilton and Armstrong 2015:384-389). Thus, although more lower income and first-generation students attend colleges/universities nowadays, it is important to remember that they remain disadvantaged in terms of completing the degree.

Self-efficacy is shown to be a personal resource to thrive in higher education (Chemers, Hu, and Garcia 2001; Majer 2009; Vuong, Brown-Welty, and Tracz 2010; Zajacova, Lynch, and Espenshade 2005), yet evidence suggests students from lower socioeconomic backgrounds and those from lower socioeconomic classes have a
disadvantage in accumulating self-efficacy in academics compared to their counterparts (Gecas 1989; Majer 2009; Vuong et al. 2010). Self-efficacy refers to individuals’ beliefs in their ability to successfully complete tasks that present as especially challenging and or/stressful (Bandura 1977). Research suggests that self-efficacy is increased primarily through experiences where mastery can be achieved through practice (efficacious actions) (Bandura 1977) and has been linked to academic success. Therefore, higher self-efficacy would be associated with a higher likelihood of success in higher education because it provides one the confidence to complete tasks required for passing courses and attaining a bachelor’s degree.

The disadvantages first-generation students have compared to their continuing-generation counterparts perpetuates inequality and aids in the reproduction of social class at the societal level. That is, more difficulties in earning a bachelor’s degree for the first-generation student means more difficulties for them to attain a higher status and a higher paying occupation which would contribute to their upward mobility in society. Higher educational attainment has been associated with higher employment rates (U.S. Department of Education 2018). More specifically, 86 percent of bachelor’s or higher degree holders were employed in 2017, compared to only 80 percent of those with some college experience, 72 percent of high school diploma holders, and 57 percent of individuals who did not complete high school were employed in 2017. The reduced chance of earning a college degree among first generation students, therefore, would have a lasting impact on their and their family’s lives. For these reasons, it is essential to identify the potential ways to close the achievement gap between first-generation students
and continuing-generation students. This study seeks to address this gap through the introduction of alternative teaching strategies, and one such strategy is a transition to active rather than passive learning.

**Team-Based Learning**

Team-Based Learning (TBL) is a pedagogical framework in which students participate in active learning by working as assigned team members over the duration of the semester, engaging in a variety of team activities wherein they develop critical thinking skills which they apply to the integration of newly obtained information with existing beliefs and knowledge, through problem solving and collaborative application with their team members (Michaelsen and Sweet 2011). In a typical TBL course, a semester/quarter is divided into multiple modules that represent essential topics and content students should acquire by taking the course, and students are assigned to “teams” by the instructor in the first week. In each of the modules, TBL first requires students to prepare on their own (using the assigned readings) to get ready for deeper engagement in the team-based application activities, which are designed to help students’ basic knowledge and understanding reach higher order skills, such as application, analysis, and evaluation through collaborations with their team members. Additionally, the pedagogy incorporates a “flipped” teaching strategy, wherein tasks which traditionally have taken place in the classroom now occur elsewhere, and “homework” takes place in class, where the teacher facilitates the learning and is available as a guide and to answer questions (Herreid and Schiller 2013). The goal of TBL is to achieve improved learning outcomes using a student-centered approach, in a collaborative
environment, where the instructor functions as a facilitator and the locus of control for learning resides with the learner.

TBL is showing promise in increasing self-efficacy, specifically targeting three of four sources of self-efficacy identified by Albert Bandura- mastery experiences, vicarious experiences, and verbal persuasion. First, students are not only accountable to the team, but also for their own learning, and are able to regularly practice synthesizing new information with previously held views and understanding, thereby practicing mastery, the most important source of self-efficacy identified by Bandura (1977). Second, consistent teamwork increases self-efficacy because it promotes a collaborative environment, where each student can benefit regularly from the experiences of others (vicarious, or observation). In addition to increased opportunities for mastery and observation experiences, the TBL model also provides ample opportunity for verbal persuasion by both the instructor-as-guide and other students and teammates. Despite the promising research thus far, little analysis is based in the social sciences generally, and sociology in particular, as the bulk of study has remained in medical and STEM fields. For example, in the major teaching journal published by American Sociological Association, *Teaching Sociology*, there were only a few articles published on TBL in the past 15 years. The vast majority of students who take an introductory sociology course do so in their freshman year of college, thus an ideal opportunity exists to implement the TBL flipped classroom at the beginning of the college experience, and to measure the effects on self-efficacy and grades, given Bandura’s (1977) assertion that self-efficacy is the product of timing and accumulated outcomes of personal experiences. In other
words, self-efficacy is produced over time, thus the earlier one is exposed to environments that promote self-efficacy, the greater their chances of developing efficacious beliefs. Additionally, the introductory sociology course has ordinarily been taught in traditional lecture format, thus this thesis explores the utility of an alternative pedagogy beyond what has been considered “comfortable” for the large class size, which is also typical of the introductory course. This thesis contributes to the body of literature on TBL by evaluating how this pedagogy may be effective in other academic areas and have a similar effect on self-efficacy and student achievement for sociology students. This thesis would also add to the literature by examining how adoption of TBL affects first-generation students compared to their continuing-generation counterparts.

Summary and Research Questions

In this introduction chapter, I described the achievement gap between first-generation students and continuing-generation students and its lasting impact. It is critical to investigate ways to help solve this disparity because education is supposed to be the great equalizer. In other words, society looks to education to equal out the inequalities inherent in our social systems. In the face of evidence that this is not the case, scholastic attention should focus on addressing the issue. Not only does the achievement gap create injustice for some, but also impacts the society as a whole. A system which exhibits sustained patterns of unequal distribution of educational resources deliberately fails to cultivate the untapped potential of all its citizens, and therefore willingly undermines the democratic ideals upon which that culture claims to be founded. As a public, we fund education so it should produce results beneficial to both the student and society. In other words, we
should realize a positive return on our investment. An educational system that fails to cultivate students’ creativity, critical thinking skills, and spirit of collaboration fails to address the needs of the larger social systems in a changing world (Carnevale and Smith 2013, Terenzini et al. 1996).

To examine the utility of this pedagogy in closing the achievement gap, three research questions guided this research. First, this thesis tested whether the well-documented challenges of first-generation students in college is reflected among the students in a lower division Introduction to Sociology course. More specifically, I examine whether first-generation students would have lower self-efficacy in academics and, thus, higher likelihood of attaining a higher grade. Second, this study investigated possible moderating effects of Team Based Learning (TBL) in reducing the aforementioned achievement gap in self-efficacy and grades. Ultimately, a goal of this research is to assess the role of TBL as an intervention to increase student retention and performance.
CHAPTER 2
LITERATURE REVIEW

In this chapter, I further explain the gap that exists between the success rates of first-generation and continuing-generation college students and the driving forces that maintain the gap. I then demonstrate that the use of Team-Based Learning as an active learning teaching strategy leads to improved academic achievement through increased self-efficacy and receipt of higher grades, but especially for first generation college students. Finally, I present constructivist learning theory as the theoretical framework and hypotheses that guided this study.

Exploring Factors Related to the Achievement Gap

Understanding why first-generation students struggle more than continuing-generation students is crucial because identifying the sources of the problem will help guide possible solutions. Research consistently shows an association between social class and educational achievement (Bandura 1977; Lane, Lane, and Kyprianou 2004; Pajares and Schunk 2001; Schunk and Parajes 2002; Terenzini et al. 1996; Vuong et al. 2010; Zajacova, Lynch, and Espenshade 2005; Zimmerman 2000). One of the reasons first-generation students have more struggles in college/university is because they are more likely to have a lower socioeconomic background than continuing-generation students (Cataldi et al. 2018). The Postsecondary National Policy Institute reported that first-generation students had a lower median household income and more unmet financial need compared to students whose parents attended college. Of all first-generation
students, 27% come from households making $20,000 or less, compared to 6% of non-first-generation freshmen (PNPI 2017). This means that many first-generation students are exposed to challenges associated with lower socioeconomic status. Those challenges could include increased likelihood of holding a full-time job which can be time-demanding and energy-consuming, and difficulty paying tuition and other related fees in addition to buying textbooks and other materials required for coursework, and even struggling securing basic needs such as food and shelter (Phelan, Link, and Tehranifar 2010; Wilbur and Roscigno 2016). Research consistently shows that lower socioeconomic status is associated with more health problems, which means first-generation students are more likely to have poorer health compared to continuing-generation students which would affect their performance in school (Phelan et al. 2010).

Another way in which social class status directly impacts the reproduction of educational inequalities is through differences in cultural transmission (Calarco 2014; Collier and Morgan 2008; Lareau 2003; Willis 1977). Children are most influenced by members of their immediate family, as their experiences are often communicated regularly and impact their future aspirations, college preparedness, and their beliefs in their ability to successfully navigate the college experience themselves. Because cultural norms embedded within the social institution of education align with those of the middle-class, the immediate family where no member has obtained a college degree has fewer potential opportunities for transmission of post-secondary academic capital (Collier and Morgan 2008; Lareau 2003; Stephens et al. 2012; Terenzini et al. 1996; Willis 1977). In other words, first-generation students are more disadvantaged because continuing-
generation students have more readily available access to family members who have gone through college and have the cultural capital or the skills, knowledge, and other resources that can be transferred (Calarco 2014; Wilbur and Roscigno 2016).

Social and human capital play a pivotal role in one’s ability to successfully navigate the educational landscape. By comparing middle- and working-class families, Lareau (2003) found that middle-class parents promote what she calls “concerted cultivation,” in which parents actively foster children’s talents, opinions, and skills. This may include enrolling their children in organized activities, reasoning with children, or developing their children’s communication skills. In contrast, within working-class and poor families, parents promote what she calls “the accomplishment of natural growth” whereby working-class and poor parents allow their child/children to grow spontaneously outside the formal organizations or activities in which middle-class children often participate. While there are benefits and drawbacks to each child-rearing method, Lareau found that middle-class children’s social upbringing aligns itself with the expectations associated with being successful in school such as listening to an authority figure and responding to questions eloquently, giving middle-class children an advantage when it comes to succeeding in our educational system. Additionally, Lareau found that working-class family's natural growth techniques contrasted with the skills schools deemed as important for developing a "successful student.” For example, middle-class students were more successful in a dialog with an authority figure and were better able to formulate their point of view in an articulate manner.
The social class gap also impacts college students’ academic behaviors and the feelings they have relative to engaging in the classroom. Students are not passive recipients in the cultural transmission process, but rather learn class-based strategies outside of the classroom that they later activate within the classroom. These class-based differences in cultural transmission in turn lead to differences in the way parents and students engage and feel about what they are entitled to in terms of education. For example, a sense of entitlement leads middle class students to engage with teachers in ways that reflect they have a right to pursue information, assistance, and the teachers’ time, while working class students activate a “no excuses” strategy reflective of the expectation that they “soldier on”, not disrespecting the teacher by seeking additional attention and assistance, as if it would be perceived as stealing. Once activated in the learning environment, the competing strategies work to advantage middle-class students while disadvantaging their working-class counterparts, therefore research suggests that academic outcomes are tied directly to feelings students have about their “rights” to actively engage in the pursuit of their educational aspirations (Calarco 2014:1016; Farley 2002; Lareau 2003).

Collier and Morgan (2008) argued that the struggles of first-generation students in navigating through college could be due to a lack of cultural capital, that is, an understanding of the expectations associated with being a college student (i.e., student roles). Understanding the student role and being able to perform it satisfactorily constitute resources vital to successfully navigating the college experience. Cultural capital may be shared or passed down to children by a parent who has attended college,
thus the experiences of the parent are vicariously transferred and then can be drawn upon by the student in order to align their expectations with those of their professors. Cultural capital then acts as a rich resource that helps to ensure students are prepared for the postsecondary experience both academically and socially. In summary, by producing a “cultural mismatch” in academia, the education system that we look to as the “great equalizer” contributes to the reproduction of the very inequalities it professes to address (Stephens et al. 2012:1179).

As shown above, research on academic achievement focuses on both characteristics students bring with them into the college environment (such as previous experiences, transmission of cultural attitudes, beliefs and behaviors) and factors experienced during their academic careers (such as stress, motivation, social support and opportunities for strengthening their confidence in academic settings) (Braxton, Milem and Sullivan 2000; Lane et al. 2004; Terenzini et al.1996; Vuong et al. 2010; Zajacova et al. 2005). Research clearly shows that both types of characteristics are contributors to the linkages between first-generation students and lower academic success rates. In this study, student grade is used to better understand the documented gaps in achievement between first-generation students and continuing-generation students. Successful college completion demands that students complete all required coursework with passing grades. Additionally, student’s grade point average (GPA) is scrutinized when evaluating a student’s fitness for acceptance into academic programs and receipt of scholarships and has been linked to student’s motivation to persist. Therefore, a closer look at grades earned among college students is vital in order to assess overall success rates.
Research results are mixed regarding grade achievement and first-generation students (Ishitani 2006), however several studies have found that first-generation students earn lower overall grades in college than do continuing-generation students (Banks, Banks-Santilli, 2014; Engle, 2007; Pascarella et al. 2004; Stephens et al. 2012). Students’ grades are a commonly used and reasonable measure of academic achievement, and lower academic achievement can result in higher attrition rates and students taking longer to graduate (Ishitani, 2003). This is important because non-passing grades do not allow for the students’ return on investment of time and financial resources for those courses and could also be an indication that the education system is failing to meet the needs of its students. In this thesis, I propose that Team-Based Learning might help college students develop the skills and confidence needed to be successful. To add to the achievement outcome, I now introduce a potential gap in a psychosocial outcome of college students, self-efficacy.

*Self-Efficacy*

One characteristic that some students bring with them into the college experience is their faith in their own abilities, a characteristic known as self-efficacy. *Self-efficacy* refers to “people’s beliefs about their capabilities to exercise control over events that affect their lives” (Bandura 1989:1175), which also refers to the individual’s confidence in their ability to successfully complete given behaviors in the face of challenging or stressful situations (Bandura, 1986, 1997). The concept of self-efficacy can be examined from either a motivational or cognitive approach (Gecas 1989). Based on the motivational approach, self-efficacy is conceptualized as a motivation for performance
Bandura (1977) maintains that whether people will put forth effort, how hard and for how long, when confronting challenging, threatening, or stressful experiences (initiation and persistence) depends on how efficacious they feel. Self-efficacy beliefs are the product of the accumulated outcomes of our experiences with successes and failures that result from challenging situations. Thus, our future behavior is driven more by the generalized feedback that we have gotten over our lifetimes than our assessments of the immediate consequences of our action (Zimmerman 2000).

Bandura’s theory of self-efficacy also posits that the response mechanism can be strengthened, much like a muscle, to build up the response in a way that embraces rather than rejects the challenging environment (Bandura 1977). Perceived self-efficacy can be a better predictor than actual ability of positive attitudes toward academic subjects (Bandura 1993).

Bandura’s Social Cognitive Theory (within which his self-efficacy theory resides) focuses on “beliefs and perceptions of causality, agency and control” as hallmarks of the Social Learning theories branch of the cognitive theories (Gecas 1989:293). The processes through which efficacy operates relate directly to goal setting, commitment, motivation, and persistence in the face of challenges. In short, people are predisposed to react to challenging circumstances with the “fight or flight” response. Importantly, Bandura’s self-efficacy theory does not focus specifically on individuals’ beliefs about whether or not they can bring about particular outcomes (“outcome expectations”), but rather on their expectations (“efficacy expectations”) with regard to competence in completing given tasks (Gecas 1982;19). Bandura notes, however that an important
contributor to self-efficacy beliefs is likelihood of the learner to imagine successful outcomes that sets the stage for persistence in the face of challenges. Those with higher self-efficacy beliefs also perceive competency as fluid rather than fixed. This means higher self-efficacy leads people to see ability as an attribute that can be developed, rather than preexisting as an inherent capacity. Self-efficacy is a social element of academic competency because one’s confidence in their ability to perform under a variety of conditions transcends academic knowledge. In other words, the learner must be able to put their knowledge to use, as the academic experience requires regular evaluation of the acquired competencies, thus the social context within which learning takes place is vital for the development of self-efficacy (Bandura 1977).

Self-efficacy is developed through four mechanisms (Bandura 1977). First, individuals need experiences to practice self-efficacy. Mastering or accomplishing tasks is known as efficacious action. Bandura (1977) points out that opportunities for efficacious actions and increased self-efficacy share a linear relationship, as efficacy beliefs build (or contract) over the life course as the result of outcomes of challenging experiences, therefore personal history and the accumulation of successful experiences are vital to self-efficacy growth (Bandura 1986). Second, one could develop self-efficacy by observing others master a task. Individuals learn from both their own experiences and those of others, as we observe their behaviors and the associated consequences. Behaviors that result in positive outcomes are likely to be modeled by others observing the actions. Third, one’s sense of self-efficacy can be improved by verbal and other forms of persuasion by others. Positive feedback that encourages the individual in their
capabilities can lead to increased self-efficacy, provided the necessary resources to act efficaciously are accessible (Bandura 1977). Finally, one’s own physiological responses such as “fight or flight” could influence their levels of self-efficacy. Feelings of fear or dread, or the inability of an individual to imagine they can successfully accomplish a task, can lead to avoidance of the task. Such physiological reactions to one’s experiences and environment can be overcome through repeated efficacious actions. Increased successes also reduce the magnitude of impact of failures experienced by the individual, thereby further reducing reactions of fear and stress.

**Academic Self-Efficacy**

Academic self-efficacy refers specifically to students’ beliefs that they can successfully perform academic tasks (Schunk 1991). Self-efficacy beliefs are task-specific, meaning the strongest results in self-efficacy outcomes are found in comparable situations but can transfer to dissimilar settings. For example, one may have positive self-efficacy beliefs with regard to public speaking or a particular sport, yet hold very low self-efficacy beliefs about their ability to make friends or to succeed in a math class. The purpose of this study is to examine the impact of adding opportunities for efficacious actions specifically within introductory sociology classes. Self-efficacy has been found to be predictive of students’ choice of career or college major, their level of effort produced in completing academic tasks, and the duration of persistence (Gore 2006), thus the study of self-efficacy beliefs is particularly well-suited to the academic experience. My research will focus on what Badura terms “enactive mastery experiences” in the contexts of an introductory level sociology college class, the mechanism argued to be
most strongly positively correlated to self-efficacy development (Artino 2012:76-85; Bandura 1977). Enactive mastery experiences are those in which individuals successfully accomplish given tasks.

Experiences where mastery is performed repeatedly are especially impactful for three important reasons. First, this mechanism requires practice, thereby providing the learner with an increased number of experiences tackling challenging situations. At the same time, the increase in such experiences help to reduce fears commonly associated with engaging difficult or demanding circumstances. Finally, because they involve establishing a routine of overcoming failures, such performance accomplishments strengthen self-efficacy through the reinforcement of a belief that challenges can be overcome through persistence (Bandura 1977:95). Underscoring the importance of the order in which mastery experiences take place lends support for implementing opportunities for efficacious actions early in the academic career. Thus, Bandura’s argument that self-efficacy beliefs are the outcome of an accumulation of mastery experiences is particularly important to my research because introducing increased opportunities for efficacious actions among incoming students in lower division college courses would have the greatest impact on increasing their self-efficacy beliefs. Furthermore, Artino (2012) posits that low self-efficacy stifles the development of self, buttressing Bandura’s assertion that since beliefs about self-efficacy are task-specific, low self-efficacy can lead to avoidance of tasks. Learners possessing high efficacy beliefs however, are found to seek out tasks toward which they feel high self-efficacy, as well as expending more effort and persistence to accomplish those tasks (Artino 2012).
Family environment is an important factor in academic outcomes, including self-efficacy development (Bennett et al. 2013; Schunk and Parajes 2002). Families in the lower socioeconomic statuses tend to spend a disproportionate amount of their resources securing basic needs and thus have less to spend on resources and activities that encourage intellectual and social growth (Lareau 2003). As a result, individuals from lower social class backgrounds typically are not able to access those resources that help to build self-efficacy, and therefore enter college/university with lower self-efficacy beliefs than do continuing-generation students.

Time is a critical resource in the family environment, and lower social class status often leads to limited time for interactions between parents and children due to the necessity to spend more time working or traveling outside of one’s own community to secure other vital resources such as fresh foods or health care. Such time constraints put limits on opportunities for practicing self-efficacy (Schunk & Parajes 2002). Difference in educational outcomes for lower income families also plays a role in explaining why working-class students come to college with less self-efficacy. Given that a main source of funding for education is property taxes, the quality of education in poorer neighborhoods is notoriously low, when compared to schools in middle- and upper-class neighborhoods. In other words, the education system justifies and reproduces social inequalities (Bennett et al. 2013; Friere 1968; Kozol 1992; Lareau 2003). There is little doubt that social class directly affects education outcomes. In 2009, the United States ranked 14th and 25th on the PISA test on educational performance for math and English,
however after controlling for poverty these rates shrink by about half (Carnoy and Rothstein 2013).

Given that mastery experiences are the element most strongly associated with increased self-efficacy (Artino 2012; Bandura 1977), and the evidence that the social class positions we hold are predictive of our environments and the kinds of mastery experiences to which we are exposed (Calarco 2014; Lareau 2003; Willis 1977), this study’s focus is on the usefulness of manipulating the college classroom environment by creating conditions where students can practice acting efficaciously, specifically as these strategies impact their self-efficacy beliefs. Team-Based Learning would contribute to students’ academic self-efficacy.

Team-Based Learning

This thesis investigated the effectiveness of Team-Based Learning (TBL) in teaching a college-level introductory sociology course. TBL is “an evidence based collaborative learning teaching strategy designed around units of instruction, known as ‘modules,’ that are taught in a three-step cycle: preparation, in-class readiness assurance testing, and application-focused exercises” (Team-Based Learning Collaborative 2018). With ample opportunities provided to practice applying the concepts and collaborating with other students in the team, research suggests that TBL could help to close the achievement gap between first- and continuing-generation college students. In the following sections, I review the key pedagogical approaches that influenced TBL and explain how TBL is implemented in a course.
Active learning. TBL fosters active learning among students because students are encouraged and supported to take responsibility for their learning, with the instructor available as a facilitator rather than a lecturer (Braxton et al. 2000; Herreid and Schiller 2013; Michaelsen and Sweet 2011). Active Learning incorporates a “guide on the side” approach to addressing some of the problems associated with the traditional lecture style pedagogy (King 1993), including students’ lack of engagement, poor attendance, and a “banking” model of education, whereby information is transferred from “expert” teacher to passive learner (Hamlin and Jansen 1987; Hourigan 2013; Prince 2004). The term “guide on the side” represents a teaching strategy where the instructor facilitates the formation of new knowledge in an active and collaborative learning environment and which replaces the professor-as-expert- the “sage on the stage”- filling the heads of students with pre-selected knowledge (King 1993:30).

College courses are overwhelmingly taught using a traditional lecture style, where students are passive recipients of knowledge, as content is delivered and out-of-class homework is assigned (Carmichael 2009; Lammers and Murphy 2002). However, scholarship of teaching and learning has demonstrated many benefits of an active approach. For example, active learning improves student outcomes by increasing student engagement, as well as offering opportunities for efficacious actions. In other words, the transformation to a collaborative learning environment, and activities that supplement or replace the traditional lecture format, are showing promise as strategies to improve academic achievement (Heyborne & Perrett 2016; Hourigan 2013; Michaelson and Sweet
2011; Prince 2004). Importantly, both academic and social outcomes are found to be improved through an active learning approach (Carmichael 2009).

Hamlin and Janssen (1987) argue that incorporating active learning is uniquely suited to introductory sociology courses, as the approach is reflective of a key sociological concept: that elements of our social worlds are socially constructed. That is to say that our understanding of what is true and real depend on cultural context, as well as the time and place in which we exist. The understandings we form about the world are not universal and invariable. Additionally, a vital skill that must be developed in order to “do” sociology is that of learning to situate the personal within the context of the larger social structure. Sociologist C. Wright Mills maintained that without understanding both the personal and larger social structure, we could understand neither – what he termed the “sociological imagination” (Mills 1959). In other words, Hamlin and Janssen maintain that the active learning environment is conducive to the development of a “sociological imagination” (Hamlin and Janssen 1987). Similarly, McKinney’s (2004) focus group study of honors sociology majors noted an active learning pedagogy enhanced development of critical thinking and the social construction of knowledge (McKinney 2004).

The Application, Response, Collaboration (ARC ) model identifies application, response, and collaboration as the main contributors to improved learning outcomes. Application refers to the practice of incorporating newer information into existing understandings. This approach enables students to take the active role in their learning through increased opportunities to practice integrating new concepts with previously held
information. Reaction and reflection compose the responses component of ARC. Opportunities to act efficaciously include those experiences where students are motivated to reflect upon new knowledge in order to see how sociological forces work in their individual lives as they practice connecting lived experience with broader social themes. Additionally, reflection encourages students to embrace the active role in learning. Finally, the ARC model considers the role collaboration plays in the active learning environment. A collaborative learning environment can help to prevent feelings of isolation, increases opportunities to act efficaciously, and can contribute to the development of critical thinking (Hourigan 2013). This type of active learning is particularly useful for larger class sizes where a traditional lecture style pedagogy inhibits active engagement and development of critical thinking skills (Hourigan 2013). Engagement is accomplished primarily through active group work. Within the teaching and learning literature, advocacy for the division of large classes into smaller working groups is strong (Brooman and Darwent 2013; Carmichael 2009; Michaelsen and Sweet 2011; Petty 2006).

Six best practices derived from the Evidence–Based Teaching (EBT) framework identified by Petty (2006) include many of these same components, such as cooperative learning and reciprocal teaching, feedback, whole class interactive teaching and the requiring of concept-driven decisions. Team-Based Learning (TBL) is one such pedagogy that encourages instructors to take the “guide on the side” approach (King 1993), while expecting students to take more active control in their own learning process.
**Flipped Classroom.** TBL is a form of the “flipped” classroom whereby instructors assign activities traditionally completed in class to be undertaken at home, and activities traditionally known as “homework” are completed in class to encourage active learning in the classroom. This teaching pedagogy is known as “flipping” the classroom (Heyborne & Perrett 2016). Since a student’s exposure to the basic content is undertaken by the student at home, a strength of the flipped classroom is that numerous practices of problem-solving take place in the classroom, where the instructor is available as a guide to facilitate that process. This is possible because instructors no longer give lectures on the basic content, as students are expected to gain the basic knowledge to bring to class for its practical applications. This model provides the student with additional sources of support in the classroom and problem-solving activities which enhance the critical thinking process through engagement with multiple perspectives (Hourigan 2013). This is important for my research because critical thinking is a key area in which first-generation students are at a disadvantage upon college entry (Terenzini et al. 1996). Additionally, the experiences of first-generation students often vary from traditional students in ways that further disadvantage them. For example, first-generation students often have additional responsibilities which can limit their academic and social experiences on campus -experiences that could operate as opportunities for efficacious actions, participation in which has been associated with improved academic outcomes (Terenzini et al. 1996). Thus, adding opportunities for efficacious actions within the classroom would provide opportunities for such students where few other such opportunities are available. Increasing opportunities for first-generation students to act
efficaciously might help to decrease the self-efficacy gap between first-generation students and their continuing-generation counterparts.

*Implementation of TBL.* There is considerable overlap between the ARC (Application, Response, Collaboration), Evidence-Based Learning, and Team-Based Learning teaching approaches. Team-Based Learning (TBL) is an active learning teaching pedagogy developed by Larry Michaelsen in 1979 and was designed to incorporate a small-group problem solving pedagogy into larger college classes. TBL is a stand-alone approach to active learning, meaning that the primary components of TBL are not designed to be incorporated into a traditional lecture format, but rather operate within a collection of clearly define and organized lessons for the semester or quarter, which are called modules. Modules are prepared in advance based upon learning objectives for the course and may build on each other as the course progresses. Within each module the four essential elements of TBL are implemented to fulfill the best practices of evidence-based teaching (EBT) (Michaelsen & Sweet 2011).

TBL fulfills the collaborative learning criteria using teams, which are strategically formed and assigned in the first week of the course, to ensure the greatest possible degree of heterogeneity, and to which students are assigned for the duration of the academic term. Assignment to permanent teams that are strategically formed by the instructor serves some important purposes. First, research suggests that both attendance and participation increase when students understand that not only do they have some responsibility to their team members, but they are also evaluated by them over the span of the semester (Hamlin et al. 1987; Stein, Colyer, and Manning 2016).
A second criteria of TBL, readiness assurance, is achieved through the use of two mechanisms. First, students are to complete assignments outside of class in preparation for a readiness quiz at the beginning of the learning module. Such assignments can include reading or researching written material, or social or other forms of media. Readiness quizzes are designed to ensure that students have mastered material sufficiently to correctly answer basic questions relating to course content for the assigned chapter or module. The multiple-choice individual readiness assurance test (iRAT) is taken first by students individually at the onset of class, and once completed, the same readiness quiz – team readiness assurance test (tRAT) is taken by the team together. An important aspect of the team readiness quiz is the immediate feedback students receive. Using scratch-off cards known as Immediate Feedback Assessment Technique (IF-AT) cards, which are similar to lottery scratchers, student teams collaborate to agree on the correct answers to quiz questions, and a star is revealed when the correct answer is scratched off. If the correct answer is not guessed the first time, students continue to work out their answers and scratch the card until the star is revealed, therefore the instructor has the option of awarding partial credit for those questions answered correctly on the second or subsequent attempts. Benefits of immediate feedback include the opportunity students have for reflection, feelings of success or persistence in revealing the correct answer and gaining the information necessary to compose new understandings as they incorporate the new knowledge with previously held beliefs.

Following the completion of the team quiz, students are encouraged to challenge a quiz question they feel is unfair or unclear. Challenges must clearly state the reason for
the challenge and be supported by content taken directly from the reading. This practice helps students to develop in their dual roles as teacher and learner, as well as developing critical thinking skills through critique of new content, development of clear arguments, a search of the literature for supporting evidence, and negotiation and selection of the “best” response, given input from all team members (Michaelsen & Sweet 2011). Students play the active role and are facilitators in the learning process, although these roles develop organically – they are not imposed. Research demonstrates that learning is enhanced under these conditions (Michaelsen & Sweet 2011). Taken together, the student’s individual preparation outside of class, the iRAT, the tRAT, and the challenge question compose the readiness assurance process (RAP). Following this process, the instructor may provide addition clarifications as needed. Following the RAP and instructor clarification, the class together engage in application exercises. Similar in theme to the ARC model’s application component, these are intended to help students connect knowledge they already posses with new information, blending the perspectives of their fellow teammates with their own, and applying concepts to “real life” dilemmas. Application exercises are designed to promote critical thinking and team development (Michaelsen and Sweet 2011). Finally, peer evaluation is a vital element of the TBL model. A strength of TBL is that students feel accountable not only to themselves, but to the team. This important characteristic of the model is reinforced through the use of peer evaluation. At least twice during a semester, student are asked to evaluate their teammates. Because the evaluations are anonymous (only the instructor knows the source of each evaluation) students are free to respond openly and honestly. Evaluations
typically ask teammates to offer one thing they “appreciate” and one thing thing they “would ask” of each other team member, thus in this way the surveys encourage constructive rather than judgemental or threatening feedback to the learner. Peer evaluations serve as an additional form of feedback to students, which contributes to increased successful academic outcomes (Petty 2006).

Through its four main elements, TBL incorporates at least five of the six best practices of Evidence-Based Teaching identified by Petty (2006). The first two best practices, cooperative learning and reciprocal teaching, are accomplished through the established team structure of the pedagogy, while immediate feedback on the team quiz satisfies the requirement of the third best practice, feedback or assessment for learning. Finally, the best practices of whole-class interactive teaching and requiring concept-driven decisions are met through the application exercises, into which visual presentations and graphic organizers can also be incorporated and are encouraged.

In conclusion, through their participation in the TBL learning environment, students develop critical thinking skills which they apply in an interactive setting that encourages thoughtful dialogue, application of new concepts, critique of opposing viewpoints, and collaboration in working toward shared goals. Students are always constructing knowledge through interactions, and through these experiences they continually practice the development of their world-view (Hrynchak and Batty 2012).

*Theoretical Framework: Constructivist Learning Theory*

The overarching theme which subtends constructivist learning theory begins with understanding that knowledge does not exist separate and apart from the individual
learner. Rather, knowledge is an interactive social process whereby learners receive new information which they consider, reflect upon and synthesize, and ultimately construct new meanings within the context of their own reality, experiences and worldview. Once we understand learning as an interactive process, our pedagogical focus shifts to the learner, who is no longer perceived as a passive receptacle into which we “deposit” knowledge. These shifts in understanding and focus then act as a springboard to adopting student-based teaching strategies. In other words, the role of instructor transitions to one of supplying academic content, and an environment that facilitates this process.

According to this theory, learners learn best when the learning environment provides opportunities for conversation, interaction with others, and practical application of newly acquired information. This theory is the basis of the key tenets of active learning in general and Team-Based Learning more specifically. There are four important assumptions under constructivist learning theory. First, the *locus of control resides within the learner* rather than the instructor (Hrynchak and Batty 2012). Within this framework, the teacher acts as a facilitator, providing opportunities for the processing, reflection, and critique of new information as it is incorporated into previous beliefs the learner holds (Hrynchak and Batty 2012). This process, when coupled with critical evaluation of the viewpoints encountered in collaborative efforts with other learners, could reasonably be expected to strengthen task-specific self-efficacy beliefs. Michaelsen et al (2008:80) assert, “The extent to which a person accomplishes this process defines his or her competency in a given field.”
Second, the constructivist learning theory emphasizes the importance of activities that necessitate problem solving. These would be synonymous with opportunities for efficacious actions, which could reasonably be expected to strengthen self-efficacy beliefs (Hrynchak and Batty 2012). Through the practice of applying new information to real-world scenarios the learner establishes relationships with both the new information and the process. In other words, in addition to constructing new meanings relative to the material being studied, the student is “learning to learn” (Hein 1991). Additionally, students are not likely to retain information for later application unless they perceive the information as meaningful. Practical application of course content through the use of problem-solving exercises helps the student to understand the practical purpose of the material.

The third important assumption of constructivist learning theory is collaboration. This assumption emphasizes that true learning springs from interactive environments, where students collaborate and learn from each other. In other words, learning is a social activity. This focus on interaction with others is also central to Bandura’s (1977) social learning theory which emphasizes the collaborative and active environment for learning, as students not only take control of their own learning but learn from each other in the process.

Finally, reflection is a critical important assumption according to constructivist learning theory. Reflection requires students to apply developing critical thinking skills as they thoughtfully consider how new information fits with existing beliefs and knowledge (Hrynchak and Batty 2012). The construction of knowledge is a cognitive activity. The
mind processes new information through reflection, as learners contemplate new meanings, thus reflective activity guides the learner as new information is integrated into existing understandings and viewpoints. In other words, all students in a classroom are exposed to the same content, however because each individual possesses a unique combination of lived experience, beliefs, value systems and relationships to larger societal factors, they individually reflect on the new information in ways that fit with their own viewpoints and understandings. This reflection moves the learner into higher order thinking.

Incorporating TBL as a pedagogy for adding opportunities for efficacious actions to the introductory college experience is supported in all of the key foundational aspects of constructivist learning, and therefore the pedagogical approach is theoretically sound. Additionally, approaches such as TBL that promote active learning promote the kind of cognitive work identified as necessary for learning by constructivist learning theory as well as social learning theory. Success in college requires students to meet difficult challenges with the belief that the tasks can be successfully completed through persistence. The most effective way to instill and strengthen these beliefs is through practice. The more opportunities a learner has to successfully meet challenges, the stronger his or self-efficacy beliefs will become (Artino 2012; Bandura 1977).

Incorporating a Team-Based Learning teaching pedagogy increases student academic success because it introduces opportunities for student to act efficaciously. Also, because there is a positive relationship between self-efficacy and grades, increases in self-efficacy will be accompanied by higher grades for college students.
Introducing opportunities for efficacious behaviors in the introductory college class will be especially beneficial for first-generation students. On the one hand, it is true that self-efficacy beliefs lie along a continuum – such beliefs are strengthened over time and do increase. On the other hand, there must be a “tipping point” – the point at which a student determines to tackle a problem that presents as challenging, rather than retreating. Continuing-generation students are hypothesized to enter college/university already having established feelings of self-efficacy, thus opportunities for efficacious actions would help to strengthen such beliefs. First-generation students however, who are more likely to come from a lower social class background, enter postsecondary education not feeling efficacious. For this reason TBL will help these students to acquire self-efficacy beliefs and therefore begin to persist in the face of challenges rather than giving up.

Summary & Hypotheses

In summary, the past literature indicated that there was an achievement gap between first-and continuing-generation college students due to disparities in the characteristics students bring with them into a college (such as previous experiences, transmission of cultural attitudes, beliefs and behaviors) and experiences during their academic careers (such as stress, motivation, social support and opportunities for efficacious actions) (Braxton et al. 2000; Lane et al. 2004; Terenzini et al. 1996; Vuong et al. 2010; Zajacova et al. 2005). Research also suggests that self-efficacy is important for higher academic achievement (Artino 2012; Bandura 1977; Gore 2006; Pajares 1996; Schunk and Parajes 2002). In light of this background research I argue that Team-Based Learning could be useful in helping students, especially those who do not have parents
who have a college degree, achieve higher academic performance by increasing their academic self-efficacy by evaluating the following hypotheses:

\[ H_1: \text{First generation college students have lower academic self-efficacy than non-first-generation students.} \]

\[ H_2: \text{First generation college students have a higher likelihood of earning lower grades than non-first-generation students.} \]

\[ H_3: \text{Academic self-efficacy is positively associated with receipt of higher grades.} \]

\[ H_4: \text{Students in Team-Based Learning class are more likely to receive higher grades than students in traditional lecture-based class.} \]

\[ H_5: \text{Students in Team-Based Learning class have higher academic self-efficacy at the end of the semester than students in traditional lecture-based class.} \]

\[ H_6: \text{First generation college students in Team-Based Learning class are more likely to receive higher grades than first generation college students in traditional lecture-based class.} \]
First generation college students in Team-Based Learning class have higher academic self-efficacy at the end of the semester than first generation college students in traditional lecture-based class.

CHAPTER 3

METHODS

In this chapter, I explain the quasi-experimental design used to investigate the effects of adopting TBL in college classes on self-efficacy and final grades. More specifically, the chapter describes the sample and sampling methods, data collection methods, measures, and an overview of the analytical strategies.

Quasi-Experimental Design

This study utilized a quasi-experimental design in which two sections of Introduction to Sociology classes were taught in a traditional lecture format while two other sections of the same course were taught with Team-Based Learning (TBL). Students’ self-efficacy level and final grades were compared between the two types of pedagogical approaches to determine the impact of adopting TBL in the introductory sociology courses.

Sample characteristics. All students who were enrolled in the four sections of Introduction to Sociology courses at a public university in California were invited to participate in this study on the first day of class in Fall 2018. The participants had to be at least 18 years old to be eligible. All four classes were taught by the same instructor at a state university in Northern California in the fall of 2018. The resulting sample consisted of 71 undergraduate students in a control group receiving traditional lecture-
based instruction in two introductory sociology courses and 88 undergraduate students who were in an experimental group receiving instruction incorporating the Team-Based Learning approach in another two introductory sociology courses. Of all surveys where both a completed pre- and post were received, surveys of participants under the age of 18 years old were removed, giving a sample size of 71 for the experimental group and 88 in the control group.

The sample consisted of a high proportion (80%) of first-generation students. 56% of the participants were in a TBL class and 44% were in a traditional class. Among the whole sample, females accounted for 72% of the sample, while 28% of students were male. 25% of students in the study were White, with 75% reporting a racial category other than White. The number of Latinx students was also high, at 72%, while 28% of students reported being of non-Latinx descent. Just under half (43%) of students in the study were freshmen, while 57% were of other class levels. The proportion of first-generation college students was roughly equivalent between the groups, at 82% for students in lecture-based classes, and 80% for TBL students. Representation of female students was not varied much between TBL (70%) and non-TBL classes (73%). The proportion of White and non-White students was consistent between the two groups, with 24% in lecture-based, and 25% in TBL classes. The percentage of Latinx students varied only slightly between the classes, at 74% in lecture classes, and 70% for TBL students. Representation of freshman students in the sample was considerably higher in lecture-based classes (53%) than in TBL classes (35%). Work hours reported for pay was equally low across groups, with students in lecture-based classes at 2.44 (on a scale of 1-
6, representing less than five hours weekly to more than 40) and 2.25 for TBL students. Student groups were similar in the distance of their housing from campus, with scores of 2.57 (on a 1-3 scale) for students in lecture-based classes, and 2.33 for students in TBL classes.

**Data collection methods.** Data collection on self-efficacy and demographic information was conducted using a questionnaire (see Appendix A) on the first day of the semester and during the final week of the semester in both experimental and control groups to capture the possible changes over the semester. After first recording their student ID number, students were asked to respond to 18 measures of self-efficacy on a 10-point scale. Next, 18 closed-ended demographic questions were asked to determine factors such as sex, gender, race, age, working status, and whether students were first generation or continuing-generation college students.

Students in both groups were taught the same content of *Introduction to Sociology* courses. At the beginning of the semester students in the TBL classes (experimental group) were assigned to one of nine teams, each team having six to seven members. Considerations for strategic assignment to teams included sex (male/female), class year (freshman, sophomore, etc.), and major. Due to the unequal distribution of males and females in each class, sex became the main consideration and teams were formed such that each team included at least one male stu. During the semester students in the TBL classes (experimental group) engaged in weekly quizzes first and then problem-solving, application exercises, all of which will require them to work collaboratively as members of a team. Additionally, individual student work consisted of weekly quizzes and
approximately five written assignments. Teams remained fixed for the duration of the semester.

While the content in both the control and experimental classes was the same along with course learning objectives, students in the control group completed work for the most part on an individual, rather than a group, basis. In addition, the main modality of the course delivery was based on traditional lecture style. It is important, however, to note that all work in both types of classes is within the course requirements, and thus, being included in the study did not add any additional work for the student for their grade.

At the close of the semester, students completed their post-test survey (see Appendix A). The researcher did not have access to the raw data until after having submitted the grades and one week after grades were submitted, identifiers were removed (as well as any students who asked to be removed from the research portion of the study) from the survey questionnaires collected at the first and end days of the semester by a research assistant. The research assistant oversaw this de-identifying process to ensure the confidentiality of the participants by generating a case ID for each respondent. Once the questionnaires were de-identified, the researcher entered all the data into SPSS and stored the data securely on the password protected computer. The hard copies of questionnaires were stored in a locked drawer and will be shredded once the study is completed. De-identified data will be stored for three years following completion of the study. Students were assured that all information would remain confidential, that they
would be de-identified, and that all information collected would be kept secured for the duration of the research.

Measures

**Dependent variables.** Grade was measured using students’ final letter grade earned coded on a scale A=8, A-=7, B+=6, B=5, C+=4, C=3, C-=2, D+=1, D and below =0.

Self-efficacy refers to individuals’ confidence in their ability to successfully complete a given task, usually under challenging conditions. Self-efficacy is task-specific, thus, to capture this concept, 18 questions related to self-efficacy were adopted from the College Self-Efficacy Instrument (CSEI) (Solberg et al. 1993). Participants were asked to indicate their confidence level in successfully completing the following 18 different tasks: The first seven questions focus on the academic tasks researching a term paper, writing course papers, doing well on exams, taking good class notes, keeping up to date with schoolwork, managing time effectively, and understanding assigned textbooks. These inquiries are followed by eleven questions that seek to measure efficacy of a more social nature. These tasks include getting along with roommates, dividing space in the students’ apartment or room, dividing chores with a roommate or roommates, participating in class discussions, asking questions in class, getting a date when the student wants one, talking to professors, talking to university staff, asking a professor a question, making new friends at college, and joining a student organization. The participants were asked to rate their confidence on a scale 0=not at all confident to
10=extremely confident. The responses are summed together and divided by 18 which would give the mean level of self-efficacy for each respondent ranging from 0=lower self-efficacy to 10=higher self-efficacy.

**Independent variable.** First-generation student status was used as a proxy for social class (an indirect independent variable). As definitions of first-generation student vary, I define first-generation students as those who are the first in their immediate family to earn a college degree as self-reported in the demographic section of the survey instrument. Students responded to the question, “Have either of your parents or the people who raised you earned a bachelor’s degree (or higher)?” The responses were coded as 0=yes and 1=no (i.e., first generation college student). Additionally, participants reported on whether any sibling, child, aunt, uncle, or cousin had “earned a bachelor’s degree (or higher) before you turned 18?” A focus of this study was to assess differences in some characteristics of college students based upon their status as first- or continuing-generation students with the assumption that students whose parents had previously earned college degrees would be in advantaged positions that typically lead to more successful academic outcomes.

**Moderating variable.** Whether students were in TBL class or traditional lecture style class was hypothesized to be the moderating variable in this study. Students who were in TBL classes were coded as 1 and compared to students in traditional lecture style class (=0).

**Control variables.** In this study, the effects of various demographic statuses were held constant. Age was measured using an ordinal scale: 1=18-25 years old, 2=26-30
years old, 3=31-35 years old, and 4=36 years old and older. Gender and race were analyzed as dummy variables with female and white as zeros. Students selected Race from 7 categories: (1) American Indian or Alaska Native, (2) Asian (including Indian subcontinent and Philippines), (3) Black or African American (including African and Caribbean), (4) Native Hawaiian or Other Pacific Islander, (5) White (including Middle Eastern), (6) Other, and (7) Prefer not to answer. Ethnicity was measured in response to the dichotomous categories 1= Latinx and 0=Non-Latinx. Time students spend weekly at work for pay was ordinally coded as 1=Less than 5 hours, 2=5-9 hours, 3=10-19 hours, 4= 20-29 hours, 5=30-39 hours, and 6= 40+ hours. Marital status was measured on a nominal scale: (1) Single, (2) In a Relationship, (3) Married, (4) Separated, (5) Divorced, and (6) Widowed. Students reported on their living arrangements by indicating based on 1=on-campus (Residence Hall), 2=off-campus housing (within 5 miles of campus), 3=Off-campus (further than 5 miles from campus). Students responded to the question, “Which of the following are applicable to your living situation?” on the nominal scale: (1) Living alone, (2) Living with students, (3) Living with non-student roommates, (4) Living with parents/guardians/relatives, (5) Living with spouse, and (6) Other. Total annual income was measured using an ordinal scale of 1=less than $10,000, 2= $10,000-$19,000, 3= $20,000-$29,000, and 4= $30,000+. Class Level was measured on an ordinal scale containing (1) Freshmen, (2) Sophomore, (3) Junior, (4) Senior, (5) Masters/Doctoral, (6) Professional Student, and (7) Continuing Education Student. Responses were dummy coded as 1=Freshman, 0=non-Freshman.

**Analytical Strategy**
The study uses bivariate correlation analysis to examine the factors influencing the main dependent variables. Ordinary Least Squares (OLS) Regression analyses was used to determine the direct impacts of TBL as a pedagogical approach and first-generation college student status on students’ self-efficacy beliefs.
CHAPTER 4

RESULTS

Univariate Findings

Table 1 presents univariate findings which describe the sample characteristics in this study. The average final course grade earned for the entire sample was 5.89, which is roughly equivalent to a grade of B+. Students reported working very few hours for pay, with 44% percent working five hours or less, and just over 1% working more than 40 hours per week. Regarding housing, with 59% of students living 5 miles or more from campus, and only about 16% living on campus.

For the whole sample, self-efficacy decreased by about 6 points over the semester, or about 3% (on a scale of 0-180). Students’ average level of self-efficacy at the beginning of the semester was relatively high, at an average of 132 and, at semester’s end, the average was 126. In this study, overall change in self-efficacy did vary between the lecture-based and TBL classes, with students in lecture-based classes showing less of a decrease: -1.19 (on a scale of 0-180), compared to students in TBL classes at -10.19. The average level of pre-semester self-efficacy did not vary much between the groups: 131.02 for students in lecture-based classes, and 132.84 for TBL students. Post-semester self-efficacy scores also indicated very little variation between the two types of classes: 126.74 for lecture-based, and 124.84 for TBL students. Final course grades did not vary
much between the groups, with a score of 5.89 (on a scale of 0-8) for students in lecture-based classes, and 5.81 for students in TBL classes.

Bivariate Findings

Table 2 shows the bivariate relationships between the variables. Statistically significant relationships were found between self-efficacy and final grades. Pre-semester self-efficacy and final grade had a weak positive relationship ($r=.179$, $p<.05$), and post-semester self-efficacy and final grade had a weak positive relationship ($r=.265$, $p<.01$). Being in a TBL class was associated with a decline in self-efficacy over the semester. Freshman student status was also associated with a decline in self-efficacy over the semester.

Students reporting lower self-efficacy at the beginning of the semester had overall lower growth in self-efficacy over the course of the semester. Whites reported higher
end-of-semester efficacy than did non-Whites and those of Latinx origin. Freshman students reported feeling more efficacious at the beginning of the semester than Sophomores, Juniors, and seniors. Students who reported more work hours also reported higher self-efficacy feelings on the pre-semester survey. A higher percentage of females than males reported being a first-generation student, and more first-generation than continuing-generation students were of Latinx origin. Slightly fewer freshman students, and those who lived farther from campus, were enrolled in a lecture-based course. In this study, fewer females than males identified as White, and Latinx students were less likely to be White.

<table>
<thead>
<tr>
<th>Table 2. Pearson's Correlations: Whole Sample</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Change in Academic Efficacy</td>
</tr>
<tr>
<td>3. Academic Efficacy (Pre-Semester)</td>
</tr>
<tr>
<td>5. Final Grade</td>
</tr>
<tr>
<td>6. First Generation College Student (1=yes)</td>
</tr>
<tr>
<td>7. TBL (1=yes)</td>
</tr>
<tr>
<td>8. Female (1=yes)</td>
</tr>
<tr>
<td>9. White (1=yes)</td>
</tr>
<tr>
<td>10. Latinx (1=yes)</td>
</tr>
<tr>
<td>11. Freshman (1=yes)</td>
</tr>
<tr>
<td>12. Work Hours</td>
</tr>
<tr>
<td>13. Distance from the Campus</td>
</tr>
</tbody>
</table>

*Significant at P < .05
**Significant at P < .01

Multivariate Findings

Factors Related to Self-efficacy. The hypothesis 1 stated that first-generation college students have lower academic self-efficacy than continuing-generation students.
Results of the OLS regression analysis showed that first-generation student status was not statistically significant in predicting self-efficacy, disconfirming the hypothesis 1 (see Table 3). Being female was associated with lower self-efficacy (p<.10), as were Latinx origin and freshman student status (p<.05). Race, hours worked, and distance lived from campus were not associated with self-efficacy. Comparing female, Latinx origin, and freshman student status, being of Latinx origin was most predictive of lower self-efficacy. The hypothesis 5 stated that students in Team-Based Learning class have higher academic self-efficacy at the end of the semester than students in traditional lecture-based class, but this was not supported by OLS regression analysis. Counter to expectations, students in Team-Based Learning classes had lower self-efficacy scores at the end of the semester than those in lecture-based classes (p<.05, see Table 3). For first-generation students, those in Team-Based Learning classes reported lower self-efficacy post-semester than did students in traditional lecture-based classes. Thus, hypothesis 7- that first generation college students in Team-Based Learning class have higher academic self-efficacy at the end of the semester than first generation college students in traditional lecture based class- is not supported (p<.05, see Table 3).
Table 3. OLS Regression Models Predicting Academic Self-Efficacy

<table>
<thead>
<tr>
<th></th>
<th>Whole Sample</th>
<th></th>
<th></th>
<th>Continuing Generation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>First Generation</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>First Generation (1=yes)</td>
<td>5.522</td>
<td>.083</td>
<td>(5.552 )</td>
<td></td>
</tr>
<tr>
<td>TBL (1=yes)</td>
<td></td>
<td></td>
<td>(3.955 )</td>
<td></td>
</tr>
<tr>
<td></td>
<td>11.212</td>
<td>-.213</td>
<td>(4.08 )</td>
<td>20.422</td>
</tr>
<tr>
<td></td>
<td>(3.955 )</td>
<td></td>
<td>(3.955 )</td>
<td>20.422</td>
</tr>
<tr>
<td>Female (1=yes)</td>
<td>-7.769</td>
<td>-.136</td>
<td>(4.413 )</td>
<td>19.151</td>
</tr>
<tr>
<td></td>
<td>(4.413 )</td>
<td></td>
<td>(4.413 )</td>
<td>19.151</td>
</tr>
<tr>
<td>White (1=yes)</td>
<td>1.761</td>
<td>.030</td>
<td>(4.475 )</td>
<td>.190</td>
</tr>
<tr>
<td></td>
<td>(4.475 )</td>
<td></td>
<td>(4.475 )</td>
<td>.190</td>
</tr>
<tr>
<td>Lantinx (1=yes)</td>
<td></td>
<td></td>
<td>(5.019 )</td>
<td>(7.826 )</td>
</tr>
<tr>
<td></td>
<td>11.476</td>
<td>-.193</td>
<td>(5.019 )</td>
<td>-3.896</td>
</tr>
<tr>
<td></td>
<td>(5.019 )</td>
<td></td>
<td>(5.019 )</td>
<td>-3.896</td>
</tr>
<tr>
<td>Freshman (1=yes)</td>
<td>11.095</td>
<td>-.210</td>
<td>(3.963 )</td>
<td>-1.335</td>
</tr>
<tr>
<td></td>
<td>(3.963 )</td>
<td></td>
<td>(3.963 )</td>
<td>-1.335</td>
</tr>
<tr>
<td>Work Hours</td>
<td>-.969</td>
<td>-.052</td>
<td>(4.395 )</td>
<td>8.907</td>
</tr>
<tr>
<td></td>
<td>(1.461 )</td>
<td></td>
<td>(4.395 )</td>
<td>8.907</td>
</tr>
<tr>
<td>Distance</td>
<td>-1.148</td>
<td>-.033</td>
<td>(1.591 )</td>
<td>-2.23</td>
</tr>
<tr>
<td></td>
<td>(2.729 )</td>
<td></td>
<td>(1.591 )</td>
<td>-2.23</td>
</tr>
<tr>
<td>Academic Efficacy (Pre-</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Semester)</td>
<td>.720</td>
<td>.607</td>
<td>(.093 )</td>
<td>.472</td>
</tr>
<tr>
<td></td>
<td>(2.729 )</td>
<td></td>
<td>(.093 )</td>
<td>.472</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Adjusted R-Square</td>
<td>.392</td>
<td>.406</td>
<td>(.213 )</td>
<td>.470</td>
</tr>
</tbody>
</table>

* Significant at P < .05
† Significant at P < .10

Effects of Team-Based Learning on Final Grades.
Hypothesis 2 stated that first-generation college students would earn lower grades than non-first-generation students and results of the OLS regression analysis showed that being a first-generation student was associated with a lower final grade (p<.10, see Table 4). Living farther from campus was associated with higher final grades, however gender, race, ethnicity, freshman status, and work hours were not statistically significant in predicting final grades. Hypothesis 3 is also supported in that students reporting higher self-efficacy at the end of the semester had higher overall grades. This was especially true for first-generation students (p<.05, see Table 4). Hypothesis 4 predicted that students in Team-Based Learning class are more likely to receive higher grades than students in traditional lecture-based class and hypothesis 6 predicted that first-generation students in Team-Based Learning class are more likely to receive higher grades than first generation college students in traditional lecture-based class. However, neither of these hypotheses were supported by the data, as results of the OLS regression analysis showed that exposure to the Team-Based Learning pedagogy was not statistically significant in predicting student’s final grade, either for first-generation or continuing-generation students (see Table 4).
Table 4. OLS Regression Models Predicting Final Grades

<table>
<thead>
<tr>
<th></th>
<th>Whole Sample</th>
<th></th>
<th>First Generation</th>
<th></th>
<th>Continuing Generation</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>b  (SE )</td>
<td>Beta</td>
<td>b  (SE )</td>
<td>Beta</td>
<td>b  (SE )</td>
<td>Beta</td>
</tr>
<tr>
<td>First Generation (1=yes)</td>
<td>-.952 †</td>
<td>-.160</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TBL (1=yes)</td>
<td>-.061</td>
<td>-.013</td>
<td>.119  .025</td>
<td>-1.369</td>
<td>-.304</td>
<td></td>
</tr>
<tr>
<td>Female (1=yes)</td>
<td>.599</td>
<td>.115</td>
<td>.652  .115</td>
<td>-0.025</td>
<td>-0.006</td>
<td></td>
</tr>
<tr>
<td>White (1=yes)</td>
<td>.534</td>
<td>.099</td>
<td>.967 †</td>
<td>.170</td>
<td>-0.672</td>
<td>-.149</td>
</tr>
<tr>
<td>Lantinx (1=yes)</td>
<td>.159</td>
<td>.030</td>
<td>.481  .077</td>
<td>-0.282</td>
<td>-0.061</td>
<td></td>
</tr>
<tr>
<td>Freshman (1=yes)</td>
<td>-.476</td>
<td>-.100</td>
<td>-.628 -.131</td>
<td>.522</td>
<td>.118</td>
<td></td>
</tr>
<tr>
<td>Work Hours</td>
<td>-.186</td>
<td>-.108</td>
<td>-.194 -.118</td>
<td>.264</td>
<td>.122</td>
<td></td>
</tr>
<tr>
<td>Distance</td>
<td>.621 *</td>
<td>.197</td>
<td>.731 * .224</td>
<td>-.354</td>
<td>-.133</td>
<td></td>
</tr>
<tr>
<td>Academic Efficacy (Post-Semester)</td>
<td>.026 *</td>
<td>.292</td>
<td>.027 * .307</td>
<td>.004</td>
<td>.042</td>
<td></td>
</tr>
<tr>
<td>Adjusted R-Square</td>
<td>.077</td>
<td>102</td>
<td>-.246</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* Significant at P < .05
† Significant at P<.10
CHAPTER 5

DISCUSSION AND CONCLUSION

The purpose of this thesis was to investigate effects of Team-Based Learning on college student’s self-efficacy and academic performance (i.e., final grades). Prior research found first-generation students realize lower overall academic achievement in college compared to students whose parents have a college degree (Cataldi et al. 2018; Collier and Morgan 2008; Farley 2002; Ishitani 2006; Stephens et al. 2012). Research has also established a link between self-efficacy and success in higher education (Artino 2012; Bandura 1977; Chemers et al. 2001; Gore 2006; Pajares 1996; Schunk and Pajares 2002; Vuong et al. 2010; Zajacova et al. 2005). An active-learning teaching approach was shown to lead to higher academic achievement among college students (Heyborne and Perrett 2016; Hourigan 2013; Michaelson and Sweet 2011; Prince 2004). These findings from the previous studies led me to consider 1) whether first-generation college students in introductory sociology courses would report lower self-efficacy and earn lower overall grades than continuing-generation students, 2) whether the Team-Based Learning teaching pedagogy would moderate the achievement gap, and 3) the degree to which Team-Based Learning could play a role in improving academic performance and retention among college students.

Factors Influencing Academic Self-Efficacy

Based on the data from four Introduction to Sociology classes, I found that first-generation students did not report lower feelings of self-efficacy compared to continuing-
generation students. While this finding was contradictory to my expectation based on past literature (Gore 2006), one explanation could be that first-generation students come to college feeling more determined than students whose parents have college degrees. Although this study did not focus on the role of family, in written assignments first-generation students reported an overwhelming sense that their whole family is “counting on them,” so these feelings might motivate them to persist in the face of the challenging college experience. Therefore, whether students had college educated parents might not have mattered for their self-efficacy level.

Females and Latinx students in the study reported lower self-efficacy than did males, non-freshman, and non-Latinx students. Finding support for the notion that self-efficacy is gendered is not surprising given previous research identifying gender role socialization as a factor that leads to lower self-efficacy in women (Bandura 1997; Gecas 1989). Previous studies have also implied that males tend to be more self-gratulatory than do females when surveyed about their capabilities (Schunk and Parajes 2002). Moreover, the finding that Latinx college students report lower confidence than do non-Latinx students was not surprising given their underrepresentation in academic leadership positions, which gives them access to fewer academic role models throughout the educational experience. These findings indicate that equity issues in college exist not only in grades and academic performances, but also in the distribution of such psychosocial resources.

Freshman students in the study were most likely to experience a decline in self-efficacy over the semester. Interestingly, they also reported feeling more efficacious at
the beginning of the semester than did students in their sophomore, junior, and senior years, implying that students might be most optimistic at the beginning of their academic careers. Furthermore, because this study was conducted during the fall, it is possible that the first-semester experience in particular was more challenging than the newer students had anticipated, thereby amplifying the decline in self-efficacy. This finding implies the need for conscious efforts of universities and colleges in providing resources for the freshman students to successfully navigate through the first semester or year.

Comparing students in Team-Based Learning and lecture classes, the study found an unexpected result that higher self-efficacy was reported by students in lecture-based classes at the end of the semester. One explanation for this finding could be that the Team-Based Learning pedagogy was new to the students, and therefore they might have felt uncomfortable with, or intimidated by, this new format of learning. Hunt and colleagues (2003) found that, despite noted benefits of Team-Based Learning in a college course, a reticence to embrace the technique was observed among their students. Since lecture-based classes are still the norm in schools, this TBL course might have been the first time for these students to have taken such an active role in learning. Thus, it is possible that Team-Based Learning disrupted students’ expectations for learning in college and this unfamiliar format might have challenged their confidence. Future studies should examine the long-term changes in students beyond one semester to see if the self-efficacy will come back to the initial level or would be boosted after taking multiple TBL classes.
Looking at the sample of first-generation students only, those in Team-Based Learning classes reported lower self-efficacy than first-generation students who had taken lecture-based classes, which aligns with the overall trend in this study. The most surprising finding of this study was that student’s self-efficacy declined over the course of the semester, with first-generation students realizing a more notable decline. While the study did not find a significant difference in self-efficacy beliefs reported between first-generation and continuing-generation students, regardless of the teaching pedagogy, results of the analysis indicate that changes in self-efficacy over time had the strongest negative impact on first-generation students.

**Factors Influencing Grades**

Another unexpected finding was that Team-Based Learning was not a statistically significant predictor of students’ grades. This finding was surprising, in light of previous studies indicating positive impacts of the pedagogy on students’ grades (Fatmi et al. 2013; Jafari 2014), however it is important to note that a majority of studies assessing the role of Team-Based Learning on student achievement remains in the medical field, thus continued study within the field of sociology would add to our understanding of these particularities. At the same time, it is important to note that, while adoption of TBL is a drastic course redesign for the instructor and represents overturn of the passive learning habit ingrained in students throughout their schooling, it did not have a negative impact when it comes to their grades. This suggests that a major course design effort does not necessarily risk students’ learning.
First-generation students in the study received lower overall grades than did continuing-generation students. This finding is consistent with previous studies (Banks-Santilli, 2014; Engle 2007), reinforcing the importance of continued study on college achievement among first-generation students and interventions to meet their needs. Another interesting finding was that students who lived further from campus had higher overall grades, and it is suspected that a majority of these students lived with their parents. Thus, my research suggests that it might be fruitful for scholars to look further into variables such as increased sources of emotional or financial support and security that might come with living at home during the college years.

This study shows that students who reported higher self-efficacy also earned higher final grades. This association was found to be especially salient for first-generation students, buttressing Majer’s (2009) finding that self-efficacy is an important resource for predicting first-generation students’ grades in college. This finding, supporting previously cited research, underscores the vital role that self-efficacy plays in college student achievement. In addition to establishing a link between college student’s self-efficacy beliefs and their grades, this thesis contributed to current understandings of the role of active learning in college education by extending research on Team-Based Learning into the field of sociology.

**Limitations and Future Recommendations**

Although this thesis added to the previous literature in significant ways, it is important to note some limitations. First, this thesis was limited by its quantitative approach, thus the findings could not illuminate detailed processes college students
experience in a class. Future studies should consider a mixed methods approach incorporating quantitative methods with participant observation and/or interviews to better understand the experience of being in a TBL class from students’ perspective.

This thesis was also limited by its sampling methods. While using a convenience sample allowed direct observation of students in college courses, such samples cannot be taken as representative of all college students. Additionally, only students who were at least eighteen years of age at the beginning of the study were included in the analysis, so it could be that the age restriction impacted results. Another point to consider is that students self-selected to participate in the study, so it is possible there is a link between students’ self-efficacy beliefs and the likelihood they will participate in such a study.

Another limitation of the study was the researcher’s limited experience implementing TBL in the classroom. Because these courses were the first time that the researcher implemented Team-Based Learning to her courses, the results might change if she continues to use TBL as the adoption of any new teaching strategy could require a period of time to adjust to the redesign and practice in the implementation of TBL. Therefore, future research should focus on how an adoption of TBL impact students’ learning and self-efficacy over the course of several or more semesters to examine the possible long-term effect as the instructor gets used to the new teaching strategy. In addition, the university should provide professional development opportunities for faculty to gain more information, support, training, and experiences to encourage innovations in teaching for further student success.
The adjusted R-squares are also important to take into consideration. The adjusted R-square in the model predicting impacts on self-efficacy was modest, indicating a modest amount of the variance in self-efficacy scores could be explained by the chosen variables in the model. Future studies should consider other independent variables that might be important to college students’ self-efficacy. The main independent variable used in this study was selected to assess the impacts of Team-Based Learning as a teaching pedagogy, but future studies should consider other active learning strategies that might influence self-efficacy in college students. The adjusted r-square for grades was meaningful, indicating a moderate amount of the variance in grades was explained by the chosen variables in the model, so future studies should investigate impacts of these variables with a larger sample size to assess differences in the self-efficacy beliefs of first-generation and continuing-generation students.

**Reflections**

While the focus of this study was to measure student’s self-reported self-efficacy beliefs, the researcher made some interesting observations that developed organically over the course of the semester. Despite the fact that this study found an association between being in a TBL class and lower academic self-efficacy, the most striking and immediate observation was the passion with which the students engaged in collaborative work. Even given their trepidation initially, the forced team environment ultimately resulted in meaningful dialogue and problem-solving that the students undertook with enthusiasm. Given that some resistance to the Team-Based Learning approach was also observed, incorporation of active learning pedagogies in early education might be
beneficial in preparing students for an active learning environment in post-secondary education by increasing their comfort level. Given the vital role of collaboration in increasing student achievement (Heyborne and Perrett 2016; Hourigan 2013; Michaelson and Sweet 2011; Prince 2004), future researchers should investigate effects of active learning pedagogies and Team-Based Learning on student engagement and collaboration and, in particular, differences in the impacts of collective and individualized learning approaches on student confidence and academic achievement. This study adopted the College Self-Efficacy Instrument (CSEI) developed by Solberg and colleagues (1993) to measure self-efficacy, but future studies might consider revisiting and/or modifying the subscales used in this particular instrument. Considering the researcher’s noted improvement in collaborative skills during the study, my anecdotal observations in the classroom suggest that survey measures of self-efficacy should incorporate more collective, rather than individually-targeted questions.

This thesis demonstrated that student’s confidence in their ability to successfully meet difficult challenges impacts their grades in college. While lower self-efficacy beliefs were not specific to first-generation students in the study, there were other sociodemographic statuses that influenced self-efficacy. Females, Latinx, and freshman students had significantly lower self-efficacy beliefs, which underscores the importance of continued study into college success for historically marginalized students. Because first-generation students in the study were more likely than continuing-generation students to earn lower grades, inquiry into factors that contribute to their lower academic achievement continue to be relevant in the study of higher education. Moreover, in light
of research suggesting that lower achievement by first-generation students is likely to be overcome by those who persist (Cataldi et al. 2018), it would be interesting to follow the academic careers of this cohort of students in an effort to evaluate persistence rates and other effects that extend beyond the time constraint imposed by this study.

On a closing note, when conducting research targeted toward improvements in outcomes for a particular group, it is important to be mindful of possible negative impacts on all participants. Because this study sought to improve outcomes for first-generation students, it is important to note that results of the analysis did not indicate negative impacts were realized by continuing-generation students.
APPENDIX A

Introduction to Sociology Student Survey

First, what is your Student ID number?

__________________________________________

Second, please indicate how confident you are that you can successfully complete the tasks on the following scale from 0=not at all confident, to 10=extremely confident.

<table>
<thead>
<tr>
<th>Task</th>
<th>Not Confident</th>
<th>Extremely Confident</th>
</tr>
</thead>
<tbody>
<tr>
<td>Studying</td>
<td>0 1 2 3 4 5 6 7 8 9 10</td>
<td></td>
</tr>
<tr>
<td>Research a term paper</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Write course papers</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Do well on your exams</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Take good class notes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Keep up to date with your schoolwork</td>
<td></td>
<td></td>
</tr>
<tr>
<td>-------------------------------------</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>Manage time effectively</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Understand your textbooks</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Get along with roommate(s)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Divide space in your apartment/room</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Divide chores with your roommate(s)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Participate in class discussions</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ask a question in class</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Get a date when you want one</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Talk to your professors</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Talk to university staff</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ask a professor a question</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Make new friends at college</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Join a student organization</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Third, please indicate the levels of stress your experience in the following environments on the following scale from 1 = **Always** to 5 = **Never**.

<table>
<thead>
<tr>
<th>Environment</th>
<th>Never</th>
<th>Hardly Ever</th>
<th>Sometimes</th>
<th>Often</th>
<th>Always</th>
</tr>
</thead>
</table>
Finally, please tell us about yourself by circling the options below.

1. What is your age?
   a. 18-25
   b. 26-30
   c. 31-35
   d. 36 or older

2. What is your gender?
   a. Male
   b. Female
   c. Other
   d. Prefer not to answer

3. What is your race? (Select one or more)
   a. American Indian or Alaska Native
   b. Asian (including Indian subcontinent and Philippines)
   c. Black or African American (including African and Caribbean)
   d. Native Hawaiian or Other Pacific Islander
   e. White (including Middle Eastern)
   f. Other
   g. Prefer not to answer

4. What is your ethnicity?
   a. Latinx
   b. Non-Latinx

5. Have either of your parents or the people who raised you earned a bachelor’s degree (or higher) before you turned 18?
   a. Yes
   b. No
   c. Not sure
   d. Prefer not to answer
6. Have any other members of your family earned a bachelor’s degree (or higher) before you turned 18?
   a. Sibling
   b. Child
   c. Aunt or Uncle
   d. Cousin
   e. Prefer not to answer

7. Are you a Transfer Student?
   a. Yes
   b. No

8. What is your class level?
   a. Freshman
   b. Sophomore
   c. Junior
   d. Senior
   e. Masters/Doctoral
   f. Professional Student
   g. Continuing Education Student

9. How many hours do you work for pay weekly?
   a. Less than 5
   b. 5-9
   c. 10-19
   d. 20–29
   e. 30-39
   f. 40+

10. What is your marital status?
    a. Single
    b. In a relationship
    c. Married
    d. Separated
    e. Divorced
    f. Widowed

11. Which best describes where you currently live?
    a. On-campus (Residence Hall)
    b. Off-campus housing (within 5 miles of campus)
    c. Off-campus (further than 5 miles from campus)
    d. Prefer not to answer
12. Which of the following are applicable to your living situation?
   a. Living alone
   b. Living with students
   c. Living with non-student roommates
   d. Living with parents/guardians/relatives
   e. Living with spouse
   f. Other

13. Income: What is your total annual income before taxes?
   a. Less than $10,000
   b. $10,000-$19,000
   c. $20,000-$29,000
   d. $30,000+

APPENDIX B

Informed Consent

Dear Students,

Being at least 18 years of age and a student in this class, you are invited to participate in the research on teaching and learning in this Introduction to Sociology course.

Please read the following carefully:

As a part of evaluating the success of the pedagogical practices used in this class, the information (i.e. survey questionnaire and final letter grade) will be used in a research project to assess teaching practices in an Introduction to Sociology course and how it impacts student success. The results of this study will benefit the department and larger communities of teachers to
understand the effectiveness of the teaching methodologies and will be used to guide our further efforts to make the course better.

The analysis of the data will not occur until after the semester is over. Prior to being analyzed, all identifying information will be removed from the data, assigning each student an anonymous participant number so it will not be able to be connected to you. This will be performed by a sociology graduate student at Sacramento State, Eric Seres, and not the instructor of the class. If you would like to have your data removed from use in this assessment of the class, please email Eric Seres and he will note this and remove your data from use in the analysis (email at: ericseres@csus.edu).

Participation will have no impact on your grade. There will be no added work for participating in the project except the short survey questionnaires on the first and last days of the semester. The results of the study will be presented in Professor Olave’s thesis and may be disseminated as a conference presentation and/or publication. However, no identifiable information will be shared, and the information will be summarized focusing on the aggregated data. If you have any questions, please let me know. For questions about you rights as a research participant please contact the Sacramento State IRB @ irb@csus.edu. Should you experience any psychological difficulties after answering the survey, please seek help at Psychological Counseling Services at California State University Stanislaus, Vasche library building office 185, (209) 667-3381.

If you have any questions, please let us know. Please complete and submit the attached survey if you agree to participate in this study.
Thank you,

Barbara Olave

REFERENCES


