Self-Efficacy: College Students and Instruments

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A psychological construct is an abstract concept or idea used to explain or understand behavioral and mental processes (Borsboom, 2023). In this literature review, we focus on different domains of self-efficacy to help understand the complex motivations influencing students' desire and ability to achieve their degree. The selected construct interests us because of the growing body of literature on how students' ability to believe in themselves can influence their success in college. For this review, we examined self-efficacy through the lens of the college student in general, the college student in their first year, and the minority college student; then, we examined the instruments used to measure self-efficacy that are broad to the college experience. The self-efficacy construct helps answer the broader question of whether college students believe they can complete a task or goal during their academic career. The construct provides an assessment of the differences between believing and feeling, which are not visible to the external world.

Keywords: college self-efficacy, academic self-efficacy, social cognitive theory, underrepresented minorities, college students

Bandura (1977) developed the psychological construct of self-efficacy, providing the framework for understanding individuals' beliefs in their ability to achieve tasks. Over the years, various studies have examined self-efficacy to understand the behavioral factors and how this construct relates to specific tasks. Understanding self-efficacy has become particularly important as interest in understanding college student behaviors that predict retention, persistence, and academic success continues to be critical to administrators in higher education (Owen & Froman, 1988; Solberg et al., 1993; Wood & Locke, 1987; Zajacova et al., 2005).

Unsurprisingly, students transitioning into college encounter challenges in their first year that are often the biggest in their academic careers to date. The challenges are magnified for those who are part of one or more underrepresented populations, particularly underrepresented minorities, which includes first-generation college students, racial/ethnic minority students, and students from low socioeconomic status backgrounds (Strayhorn, 2011). The challenges and barriers that underrepresented minorities face can impact their perception of their abilities to navigate the transition into college. Students' self-efficacy is diminished if they do not believe they have the skills and abilities, increasing the likelihood of them not continuing their education. The current literature review explores the various ways in which self-efficacy has been studied among college students, particularly examining how self-efficacy is utilized to examine college students in general, those in their first year, and minority college students followed by a review of self-efficacy measurements.

Social Cognitive Psychology: Self-Efficacy Theory

The current literature review is rooted in social cognitive theory, focusing on the construct of self-efficacy by Bandura in 1986. Social cognitive theory provides the framework for understanding human agency since it is through adaptation when exercising control that we can examine the interplay of personal, behavioral, and environmental influences (Bandura, 2003). For instance, if a student is given feedback that indicates they need to study in a manner that allows for deeper processing, they may stop playing music while they study provided they value the feedback given. Since Bandura introduced social cognitive theory, research on self-efficacy has been examined in various domains, such as specific types of self-efficacy (e.g., career, leadership, STEM) and broad domains of self-efficacy (e.g., academics, college, general, etc.) to understand how one's belief influences their views on their abilities to complete disparate tasks.

Self-efficacy is a person's perceived belief that they can complete a task in the future (Bandura, 2012). Bandura (2001) found self-efficacy is critical in understanding how individuals' beliefs affect personal evolution when determining what actions they produce or how they persist when presented with a challenge. The individual's evolution ultimately influences the investment in time and energy one exerts in activities or physical spaces. Efficacy is developed through four main stages of cognitive development. First, mastery is the most successful way of building efficacy, giving the individual a more profound sense of attainment. Second, social modeling occurs when people see someone like themselves exhibiting sustained efforts, which enhances their belief that they can produce the same performance. Third, when people are presented with a sense of encouragement from another individual, social persuasion enhances their personal belief in their capabilities to do well. Finally, efficacy is developed when people can accurately read their physical and emotional state to gauge their capabilities; the ability to manage one's physical and emotional state allows people to effectively attain goals when presented with challenges (Bandura, 2003). Given the nuance of influences that contribute to the development of self-efficacy, the multifaceted construct requires a heightened level of specificity to accurately predict performance measures and distinguish the results (Pajares, 1996).

Application of Self-Efficacy Theory

Studying self-efficacy among college students enhances the literature on ways to identify students' beliefs in their ability to complete assignments, desire to invest energy in college-related tasks, and ability to make decisions when navigating goals or new challenges. Perceived strong or weak self-efficacy can influence academic grades, class attendance, and class participation, presenting a direct correlation between the variables and degree attainment (Liu, 2018). For example, high (vs. low) self-efficacy ratings can serve as a predictor that students are more likely to set difficult goals and persist in their development of mastering new skills. In contrast, students with low (vs. high) self-efficacy ratings may not be compelled to develop skills or engage in the work needed to develop and complete a rigorous goal as they oftentimes feel overwhelmed and deficient when faced with a challenge (Bandura, 2012). In college, self-efficacy beliefs are further propagated by internal and external influences from social networks, academic status, and cultural value systems. As the theory has evolved, it is being utilized in studying various populations and types of self-efficacy. For instance, Zhang et al. (2022) found when comparing elite and nonelite college students in China based on classification, students from the elite environments had higher self-efficacy ratings in their first few years of college, and those from nonelite environments had higher

ratings in their last few years of college. The theory has also been applied in studies examining self-efficacy in varied domains (e.g., leadership self-efficacy) and self-efficacy among different populations. For example, the self-efficacy of non-U.S. native international students was found to have weaker self-efficacy as they persisted through their college experience when compared to their domestic peers.

Numerous aspects of the college experience influence students' willingness to persist during their academic careers toward degree attainment. Van Dinther et al. (2011) found that a critical part of college students' sociocognitive development comes from their perceived self-efficacy, which significantly impacts the time and energy students invest in their learning experience. Furthermore, when students see they are making academic progress, they are more likely to persist toward task completion by allotting the necessary time to engage in academically rigorous work (Geitz et al., 2016). The learning process is ongoing; therefore, perceived self-efficacy is ever-changing such that college students' learning strategies and performance is a continuing process. Geitz et al. found that perceived self-efficacy is influenced by peer interactions and perceived assignment feedback during their college experience. While the theory can be applied to a wide range of populations and different types of self-efficacy, for the purposes of this review, we focused on the self-efficacy studies on college students in general, students in their first year, and minority college students and then examined self-efficacy inventories that have an emphasis on academic success.

Self-Efficacy Among College Students

Studying college students' success, particularly their self-efficacy, can help develop the literature on understanding the role self-efficacy plays in students' college life (DeWitz & Walsh, 2002; Dewitz et al., 2009; Wernersbach et al., 2014). DeWitz and Walsh (2002) examined the domains of college, social, and general self-efficacy that refer to various areas of college life (i.e., course, roommates, and social situations), perceived ability to engage in social behavior, and confidence with a variety of tasks, respectively; the researchers found each domain of self-efficacy are significantly correlated with college satisfaction, but only college self-efficacy accounts for the variance in college satisfaction. In another study conducted by DeWitz et al. (2009), self-efficacy (i.e., college, social, and general) was examined with the psychological constructs of purpose in life to see if it served as a possible predictor of students' risk of leaving college. The findings revealed college, social, and general self-efficacy are significant predictors of the purpose of life with general self-efficacy being the greatest. Wernershach et al. (2014) found that academically underprepared students in an academic study skills course had comparable or higher academic self-efficacy ratings to their peers after program participation thereby showing a higher probability of academic success.

Gore (2006) found that it is important for students to receive feedback on their performance to assess their academic ability, strengthening their academic self-efficacy. For instance, if the student received positive feedback on their course assignment and felt they did well before submitting the assignment, their academic self-efficacy would likely increase when completing future tasks. Similarly, Kim and Lee (2019) found that when students were provided with negative feedback, they had lower academic self-efficacy ratings than those who received positive feedback; however, their self-assessments were more accurate. In sum, when evaluating college students' self-efficacy, various factors are used in conjunction with the specific domains of self-efficacy to evaluate what influences students' success, as this multifaceted construct is driven by

different influences.

Self-Efficacy Among First-Year College Students

We examined studies that took a narrower sample of the college student population by focusing on students in their first year. Wernersbach et al. (2014) measured the levels of academic self-efficacy as a predictor of academic outcome and retention among college first-year students, comparing those who participated in a study skills course to those in general education. The researchers found that underprepared first-year students when compared to their peers in the study skills course initially reported lower levels of academic self-efficacy. After enrolling in the study skills course, students' academic self-efficacy was comparable or greater to those not in the course. Gore et al. (2005) examined the extent to which college self-efficacy was measured among first-year students, specifically focusing on the intersection of college self-efficacy beliefs and career-related decision-making, comparing retained and nonretained students. College self-efficacy was utilized to give a broad range of typical college life (i.e., roommate, social, and academic). They found first-year students entered college with higher college self-efficacy ratings regardless of their intended academic pursuit. Similarly, Wright et al. (2013) investigated career development among first-year college students and examined how increased levels of college self-efficacy influenced persistence; they found that at the end of the first term, students with higher college self-efficacy ratings increased the probability of returning in the spring and being academically successful.

Rayle et al. (2005) took a different approach to studying first-year college students by examining the relationship between educational self-efficacy and the value placed on education by themselves or their families among female college students. The educational self-efficacy construct was used to measure participants' perceived value and commitment to their education. They found educational self-efficacy was positively correlated with parents' education, household income, and high school grade point average (GPA). Their findings also revealed when comparing race/ethnicity, students demonstrated the same trends in relation to education self-efficacy and the other variables. The findings were comparable to earlier studies that assessed family support and college self-efficacy, demonstrating a positive significant correlation (Torres & Solberg, 2001). Studies have shown that different domains of self-efficacy can account for the variance in academic performance and persistence; therefore, examining self-efficacy helps provide insight into students' retention beginning in their first year.

Self-Efficacy Among Minority College Students

Studies involving minority college students demonstrate mixed findings on their perceived self-efficacy (Jeffords et al., 2020; Wang & Castañeda-Sound, 2008). For instance, Wang and Castañeda-Sound found ethnic minority students reported lower ratings of college self-efficacy than their nonminority peers in relation to academics. Jeffords et al. data revealed minority students have comparable levels of college self-efficacy and inflexibility to nonminority students, and it is the stress of living up to stereotypes and stigmas that impacted their perceived self-efficacy ratings particularly among college students in their first year. Rayle et al.'s (2005) study comparing White American women and women of color found similar educational self-efficacy ratings between the two groups and that the relation between variables such as stress, self-esteem, and the value placed on education had no interaction with race/ethnicity. When considering the

impact of stress and how to support students experiencing stress, flexible coping strategies (e.g., planning, seeking help, and accepting where one is in life) among other cognitive and behavioral strategies were found to help improve general self-efficacy ratings (Freire et al., 2020). Similarly, Dwyer and Cummings (2001) found a significant correlation between stress and coping strategies, meaning the more strategies one has, the better they are equipped to manage stress demonstrating higher general self-efficacy ratings, which could be applied when studying minority students.

Particularly for Hispanic and Latino first-generation college students, research suggested that self-efficacy continues to be an evolving psychological construct, providing helpful information on college students who identify as Hispanic/Latino(a). For instance, in a study on first and continued-generation Hispanic students, data revealed no significant difference between first and continued-generation students' general self-efficacy when they had a GPA between 3.0 and 4.0 (Garza et al., 2014). Torres and Solberg's (2001) study on Latino college students showed that when family support was strong, college self-efficacy was reported as strong, and there was a significant positive association with persistence when factors such as family support existed. The factors influencing minority students' college self-efficacy were not limited to family and generational status as seen in a study of Mexican-American students where socioeconomic status, enculturation, and acculturation were found to have a significant positive effect on college self-efficacy (Aguayo et al., 2011). Specifically, when students perceived they had more financial resources, they had more confidence in performing in the college environment. Also, when they understood their own cultural identity and how to navigate other cultural identities in the college environment, they reported an increased college self-efficacy. As seen in these studies, various confounding factors influenced self-efficacy among minority students; the consistent theme seemed to demonstrate that strong self-efficacy existed regardless of personal traits when external influences (i.e., family support, finances, knowledge of others, etc.) were accounted for in creating a supportive environment for students to thrive.

Self-Efficacy Instruments

According to Bandura (2006), there is no "one measure fits all" approach to measure self-efficacy (p. 307). In constructing and choosing a self-efficacy inventory, researchers need to use domain-specific items in gradations of "can do" to measure participants' capabilities "as of now" (p. 312). Thus, this section examined studies utilizing different self-efficacy inventories applied in different settings and populations. In the college setting, over the years instruments have been developed to measure general self-efficacy, academic self-efficacy, and college self-efficacy to help develop a body of literature for understanding what contributes to student success whether it be a high GPA, persistence, or degree attainment.

General Self-Efficacy Inventories

Sherer et al. (1982) developed a Self-Efficacy Scale to measure generalized expectations from various life experiences with subscales of general self-efficacy (17 items) and social self-efficacy (6 items). Given the inventory has good reliability (Cronbach α = .86 and .71), Sherer and Adams (1983) wanted to further validate this scale's use among college students as they took an interest in understanding how past experience and perceptions of developed skills contribute to college students' individual expectations of their efficacy. Sherer and Adams found that general self-efficacy directly correlates with socially desirable behavior. For instance, a person with high self-

esteem will likely have strong general self-efficacy. The results also showed that social self-efficacy scores correlate with a person's ability to keep a job but not their performance of job responsibilities. The scale does not measure specific target behaviors like other self-efficacy scales.

Choi (2005) used the Self-Efficacy Scale to assess the predictability of general self-efficacy at varying degrees of specificity on academic performance among college students, specifically for general self-efficacy, academic self-efficacy, and specific self-efficacy. Choi found that general self-efficacy does not contribute to the variance in academic performance, reinforcing its utility for understanding trait efficacy. DeWitz et al. (2009) found that general self-efficacy is the most significant predictor of purpose in life, reinforcing its utility to a broader scope of information. Building on previous general self-efficacy measures, a New General Self-Efficacy measure evolved, proposing general self-efficacy is one's ability to do well in various situations. Scherbaum et al. (2006) found that this scale is important in examining the relationship between resiliency, general self-efficacy, and persistence among college final-year students. Their findings are similar to the findings by Garza et al. (2014) that once students reach their final year and have performed well academically, they have developed the efficacy to persist. These general self-efficacy measures allow for a broad collection of information relevant to life experience and should be used when designing studies regarding college student success as opposed to when measuring specific tasks or behaviors.

Academic Self-Efficacy Inventories

As the literature on self-efficacy continues to evolve, we found that studies began exploring self-efficacy's connections with sports skills, academic performance, health practices, and socialization behaviors. To develop an understanding of how these connections influence motivation, persistence, and accomplishment, the College Academic Self-Efficacy Scale (CASES) was developed (Owen & Froman, 1988). Owen and Froman critiqued Bandura's 1984 hierarchical two-step approach to measuring self-efficacy, providing data on strength and magnitude, which are different. The authors took a different approach that was not hierarchical, lessening the difficulties such as scales being inadequate, not measuring self-efficacy, or "providing weak or unknown psychometric properties" (p. 3). The CASES inventory took a simpler approach by measuring a pool of academic behaviors portrayed by college students. For instance, CASES has 33 items using a 5-point Likert scale and asks students to indicate "the importance of the behavior on academic success" by accessing the frequency ratings when performing and enjoying each task. Owen and Froman reported the instrument has strong validity in academic self-efficacy and is a strong predictor of GPA, having tested the instrument twice and achieving consistency with α of .90 and .92.

Since the development of CASES, it has been used in various studies throughout the literature to measure academic self-efficacy and its relation to different variables, developing a body of literature on understanding college student persistence, motivation, and academic success. For instance, one study using CASES assessed the predictability of academic self-efficacy at varying degrees of specificity in relation to academic performance among college students (Choi, 2005). Comparing the results of the CASES measure to that of the General Self-Efficacy subscale from the Self-Efficacy Scale and specific self-efficacy, both Sherer et al. (1982) and Wood and Locke (1987), found that specific self-efficacy is a significant predictor of term grades and,

surprisingly, CASES data did not show a strong correlation between academic self-efficacy and grades.

Kolo et al. (2017) took a different approach when investigating the use of an academic self-efficacy inventory when they studied the relationship between academic self-efficacy and students' academic performance among final-year students. Their contributions are based on the need to understand the psychosocial factors influencing student academic performance. Muris (2001) created an academic self-efficacy scale for young adolescents that was adapted and administered to college students. Results indicated that college students reported high levels of academic self-efficacy, indicating an increased belief in their ability to be academically successful. The data revealed a significant positive correlation between their academic self-efficacy and academic performance.

In a study of how academic self-efficacy and academic standing influence students' adoption of academic goals and college achievement among students at a Hispanic-serving institution, Hsieh et al. (2007) found that students with higher academic self-efficacy also had good academic standing, and academic self-efficacy is positively correlation with mastery goals. These findings also demonstrated that students with strong academic self-efficacy endorsed performance-avoidance goals more than students with weak academic self-efficacy. In sum, academic self-efficacy can be used as a strong predictor of academic standing and goal setting among college students, but there is a need for more research on students with strong academic self-efficacy and their goal adoption motivation as it is seen that it can be performance-driven or performance-avoidance. The growing body of literature on measures specifically for academic self-efficacy demonstrates various uses for the information and the evolution of research on understanding college students without special interest in first-year or minority college students as seen in the literature on college self-efficacy.

College Self-Efficacy Inventory

The College Self-Efficacy Inventory (CSEI) was developed to measure self-efficacy beliefs of the college experience, going beyond that of academic self-efficacy as measured by other models. Solberg et al.'s (1993) purpose in developing the CSEI was to examine self-efficacy in the areas of course efficacy, social efficacy, and roommate efficacy, representing the critical element of the traditional college student experience. They validated their 20-item instrument among Mexican-American and Latino-American college students. Barry and Finney (2009) used the CSEI to further validate its usefulness in predicting college student success while applying it to various populations such as college students, first-year college students, and underrepresented college students. Barry and Finney's validation found good internal consistency for each subscale (course, $\alpha = .88$; roommate, $\alpha = .83$; social, $\alpha = .88$).

Other studies have modified the CSEI by Solberg et al. (1993) to develop an instrument fitting their population characteristics while keeping common variables to understand what contributes to college student success, specific to academic work. For instance, Wang and Castañeda-Sound (2008) examined self-efficacy by comparing first-generation college students and non-first-generation college students and then assessed differences between ethnic minorities and White students. To make the CSEI fit their research needs, the measure was modified by removing the roommate subscale. They found that when it comes to college self-efficacy, students who are first-generation college students report lower levels of academic self-efficacy than their peers who are non-first-generation college students. These findings are consistent with other

studies that show that first-generation college students tend to be less prepared, likely resulting in them facing more academic challenges (Hertel, 2002).

A similar study found that while the CSEI is reliable and valid for measuring college self-efficacy among minority populations, it did not work well for nontraditional students and was not used in its entirety. Zajacova et al. (2005) modified the CSEI by removing items like living on campus from the inventory, which is typically not a part of the nontraditional students' college experience even though students were enrolled in a first-year seminar orientation course. They found that academic self-efficacy and stress were negatively correlated among nontraditional immigrant minorities and that academic self-efficacy is positively correlated with grades and credits earned thus making college self-efficacy the strongest predictor of GPA.

Using the same modified version of the CSEI to investigate the effects of college self-efficacy on academic success among first-generation sophomores, Vuong et al. (2010) took an interest in the "sophomore slump" because of the lack of resources invested by the administration (p. 51). They recognized that first-generation status does not go away after persisting beyond the first year and that an investigation of college self-efficacy is needed to understand the impact of persistence. Findings revealed that college self-efficacy during the sophomore slump impacts GPA and persistence when comparing second- and first-generation college students, demonstrating a need for continued intervention for first-generation students. A similar study among students in their final year found a positive and significant relationship between academic self-efficacy and performance (Kolo et al., 2017). Kolo et al. acknowledged that various psychological factors impact students throughout college; in order to promote persistence and academic success, reliable data on what variables contribute to student success is needed to provide the proper interventions.

Future Studies

Research shows that self-efficacy significantly impacts the motivation students put into learning and is a critical element of their sociocognitive development (van Dinther et al., 2011). Exploring various domains of self-efficacy allows for a growing body of literature identifying students' motivation to complete assignments, invest energy, and make decisions regarding their academic careers. For instance, Liu (2018) found that self-efficacy can influence academic success, and Geitz et al. (2016) found that when students progress academically, self-efficacy increases the amount of energy and time they put forth thus making them more likely to persist toward task completion. Geitz et al. also found that students' self-efficacy beliefs change based on the feedback from peer interactions and assignments in their learning environment. Looking at the future of how the body of literature can evolve, three common themes exist among the research: replication of studies, inclusion of minorities/underrepresented groups, and implementation of an intervention.

Studies have shown that there is a need to continue duplicating their research findings to add to the reliability and validity of the information (DeWitz et al., 2009; Kolo et al., 2017). To expand on the understanding of college student needs, Wang and Castaneda-Sound (2008) indicated that future studies should replicate their findings while further exploring demographic and psychosocial influences.

In duplicating the studies, there is a need to expand data as it relates particularly to underrepresented populations, including studies specific to individual race/ethnicity, gender, socioeconomic status, and first-generation status (Choi, 2005; DeWitz & Walsh, 2002; DeWitz et al., 2009; Gore, 2006; Jeffords et al., 2020; Rayle et al., 2005). Future studies should examine the relationship between self-efficacy and college satisfaction on specific racial and ethnic grounds.

For instance, DeWitz and Walsh (2002) found that African American and White American participants' data showed no significant difference in the relationship between self-efficacy and college satisfaction, but the limitation of the study is the African American sample size was low thus making for a limited comparison. They recommended duplication studies using additional variables related to students' well-being, which could offer more research-based evidence for designing intervention programs.

Given the findings thus far, there is a need to implement and assess intervention programs to investigate further the relationships between self-efficacy and the various variables that influence college success (Hsieh et al., 2007; Wernersbach et al., 2014). For instance, one study argued that to meet the needs of students better, future studies could assess the psychological factors (e.g., motivation, learning, stress, etc.) that impact student retention such as the use of study skill classes or the environment outside of the academic context (Wernersbach et al., 2014). Another study that indicated a need for intervention suggested that students with performance-avoidance goals and strong self-efficacy tend to have a lack of desire to seek help, which can cause them to be at a higher risk of poor academic performance (Hsieh et al., 2007). It may also be helpful to duplicate the study and include a qualitative design to gather a deeper understanding of the students. Examining subscales could provide more information on the nuances of these measures and provide more incidents in specific areas that influence student behavior (Wright et al., 2013). Finally, exploring college self-efficacy regarding ethnic minorities' persistence would provide additional insight particularly for those in their first year as this year remains a critical area of study. To sum up, a meta-analysis could provide useful information on the growing body of literature regarding college student self-efficacy.

Practical Implication

We have identified two strategies for practitioners that may be useful when working with college students daily. The first is understanding the student population, including the education level and support of student parents, how students perceive their racial/ethnic identity compared to others on the campus, and their purpose for college. As we have seen through this literature review, it is important to identify specific areas relevant to the students you are seeking to support and focus on how to employ strategic measures to support the student. For instance, if students identify that they lack emotional support from their families, creative ways are needed to fill that void. The second is to consider the academic year cycle to ensure students get timely support and intervention occurs before the semester/academic year ends.

Conclusion

The literature demonstrates that there are different ways to measure self-efficacy to determine what contributes to college student success. The CSEI is often used as it allows for an understanding of the academic, social, and roommate factors that can influence student motivation to engage in behaviors that allow for success to occur. However, one must examine if it fits their intended population before use. The idea of when to administer inventories and the type of inventory is critical for any study examining self-efficacy among any sample of college students as we saw that student needs are forever evolving, and various aspects of the college influence their self-efficacy beliefs.

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