

Intervention Strategies Promoting Academic Self-Efficacy in Prospective First-Generation College Students: A Literature Review

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Abstract

This literature review first identifies the challenges facing prospective first-generation college students (PFGCS) including a lack of academic preparation in high school, financial barriers created by lower socioeconomic status (SES), and a lack of family support due to unfamiliarity with higher education (Majer, 2009; Olive, 2008; Weiser & Riggio, 2010). Second, this literature review examines the positive correlation between increased academic self-efficacy (ASE) and academic achievement (Elias & Loomis, 2002; Robbins et al., 2004; Zajacova, Lynch, & Espenshade, 2005). Third, this literature review provides a conceptual framework for PFGCS intervention program development based on four strategies found to influence ASE: enactive experiences, vicarious experiences, verbal persuasion, and physiological and affective states (Gandara & Bail, 2001; Habel, 2009; Robbins et al., 2004; Zimmerman, 2000). Fourth, the literature review provides implications including the proposed use of an ASE framework for existing intervention program assessment, a recommendation for the use of an ASE framework to guide high school educator and program administrator activities, and the proposed use of an ASE framework for school counselor planning activities serving the PFGCS population.

Keywords: academic achievement, academic self-efficacy, intervention strategies, prospective first-generation college students

Prospective first-generation college students (PFGCS) are students from families where neither parent earned more than a high school diploma (Chen, 2005; Pascarella, Pierson, Wolniak, & Terenzini, 2004; Ross et al., 2012). PFGCS face significant challenges with academic achievement and college access due to disadvantages including insufficient academic preparation in high school, low socioeconomic status (SES), and a lack of knowledge concerning college education (Gibbons & Borders, 2010b; Pascarella et al., 2004; Pryor et al., 2005). Parents of PFGCS lack firsthand knowledge of higher education and, as a result, are ill-equipped to

guide their children's high school course selections and are often challenged by the complicated procedure of applying for college admission and financial aid (Gibbons & Borders, 2010b; Pascarella et al., 2004; Pryor et al., 2005). These challenges contribute to an academic achievement gap between PFGCS and non-PFGCS (Chen, 2005; Warburton, 2001).

Academic self-efficacy (ASE) is a student's confidence in his or her ability to successfully complete a course of study (Bandura, 2000). ASE is a strong predictor of academic

achievement as determined by GPA, ACT scores, and SAT scores (Brady-Amoon & Fuertes, 2011; Elias & Loomis, 2002; Gore, 2006; Zajacova, Lynch, & Espenshade, 2005). PFGCS have lower than average ASE (Gibbons, 2004; Wang & Castaneda-Sound, 2008). Therefore, strategies designed to specifically address ASE in PFGCS should promote academic achievement and help to close the existing performance gap and increase college access.

This literature review first explains the challenges facing PFGCS and emphasizes the need for pre-college interventions. Second, this literature review examines the positive correlation between increased ASE and academic achievement (Elias & Loomis, 2002; Robbins et al., 2004; Zajacova, Lynch, & Espenshade, 2005). Third, this literature review provides a conceptual framework for PFGCS intervention program development based on four strategies found to influence ASE: enactive experiences, vicarious experiences, verbal persuasion, and physiological and affective states (Gandara & Bail, 2001; Habel, 2009; Robbins et al., 2004; Zimmerman, 2000). Fourth, the literature review provides implications including the proposed use of an ASE framework for existing intervention program assessment, a recommendation for the use of an ASE framework to guide high school educator and program administrator activities, and the proposed use of an ASE framework for school counselor planning activities serving the PFGCS population.

Challenges Faced By PFGCS

Chen (2005) reported PFGCS are not academically prepared for college when compared to non-PFGCS. PFGCS have an average GPA of 2.5 on a 4.0 scale (Chen, 2005). Non-PFGCS whose parents had some college education, without an earned degree, reported an average GPA of 2.6. Non-PFGCS whose parents had a bachelor's degree or higher reported an average GPA of 2.8 (Prospero & Vohra-Gupta, 2007). Furthermore, PFGCS are also less likely to take

college entrance exams, but when they do, earn ACT and SAT scores lower than non-PFGCS (Chen, 2005; Warburton, 2001). Of the students whose parents were college graduates, 15% scored in the lowest quartile on the ACT or SAT: 790 or lower; 40% of PFGCS scored in the same quartile (Warburton, 2001). Additionally, PFGCS are less likely to participate in honors programs or classes that prepare students to take an Advanced Placement (AP) test (Ishitani, 2003, 2006; Ross et al., 2012; Warburton, 2001). The PFGCS academic performance gap emphasizes the need for interventions designed to promote academic achievement.

PFGCS are typically from lower SES families (Bradbury & Mather, 2009; Gibbons, 2004) and face financial barriers affecting college access. Regarding financing college, 22.7% of PFGCS noted concern compared to 11.4% of non-PFGCS (Pryor et al., 2005; Warburton, 2001). Compared to 31.2% of non-PFGCS, thirty-nine percent of PFGCS reported that an institution's cost influenced their college choice (Pryor et al., 2005; Warburton, 2001). For 41% of PFGCS, the availability of financial aid was a major factor in their decision to attend college versus 31.3% of non-PFGCS (Pryor et al., 2005). Greater than half of PFGCS (55.1%) stated they would find a job to assist in college expenses and 36.1% would work full-time jobs while taking college courses (Pryor et al., 2005; Warburton, 2001). Furthermore, PFGCS are hesitant to take out student loans to assist tuition costs for college (Mehta, Newbold, & O'Rourke, 2011). Interventions can be designed to assist PFGCS in navigating the complexities of college financial planning and will help to ensure future independence.

Lundberg, Schreiner, Hovaguimian, and Slavin Miller (2007) also identified a lack of cultural capital in PFGCS. Cultural capital includes a familiarity with the traditions and cultural norms necessary to be successful in higher education. PFGCS are disadvantaged compared to non-PFGCS in regards to knowing the higher

education culture (Lundberg et al., 2007; Pascarella et al., 2004). Cultural capital is accumulated through associations with others, including parents and peers, who successfully attended or completed college. However, PFGCS have limited or no access to adults familiar with the search for colleges, managing college admissions, or processing financial aid applications; therefore, cultural capital is not passed down to PFGCS (Roderick et al., 2008). Roderick et al. (2008) reported PFGCS have difficulty in applying to colleges because they do not have access to college information or guidance and support from their families or high schools. As a result, PFGCS have a deficit in understanding and interpreting information and attitudes when making the important decision to attend college (Pascarella et al., 2004; Ross et al., 2012; Warburton, 2001). Furthermore, because parents of PFGCS often lack an understanding of the economic and social benefits of higher education, they do not promote continued education for their children (Ishitani, 2006; Ross et al., 2012). PFGCS must then be more dependent on non-familial adults for guidance in the college process (Roderick et al., 2008). These findings further emphasize the importance of PFGCS interventions if the academic performance gap is to be reduced or eliminated.

ASE as a Predictor of PFGCS' Academic Achievement

Bandura (1997) defined self-efficacy as a person's beliefs in his or her capability to follow through with completion of a task in order to achieve desired results. Self-efficacy is based on previous performance and provides the basis for self-confidence, self-esteem, motivation, well-being, and personal accomplishments; it influences goal-setting, aspirations, and level of commitment to these goals (Bandura, 2004; Bandura & Locke, 2003; Perry, 2011). Self-confidence is conditional and based on previously acquired knowledge (Perry, 2011). Self-esteem refers to an individual's sense of appreciation and value of self, but it does not necessarily pertain to achievement and goal attainment (Bandura, 1997; Lane, Lane, & Kyprianou, 2004). Research showed that self-efficacy is more influenced by personal goals

and performance and has greater predictive validity than self-esteem and self-confidence (Bandura, 1997; Feldt & Woelfel, 2009; Lane et al., 2004; Perry, 2011; White, 2009).

Bandura (2000) argued that self-efficacy is instrumental to an individual's goal selection and the control exerted over an individual's environment. Self-efficacy is related to expectancy beliefs; if an individual thinks there is an opportunity for success based on past experiences and feedback from others, the individual will more likely feel efficacious (Bandura, 2000; Pajares, Johnson, & Usher, 2007). Also central to the concept of self-efficacy is the understanding that individuals enable themselves to control their thoughts, feelings, and actions (Bandura, 2000).

However, in order for this concept to be useful for PFGCS intervention development, an understanding of its domain-specificity is necessary.

Research showed that self-efficacy is domain-specific and it is, therefore, beneficial to focus on ASE as a narrower predictor of academic achievement (Zimmerman, 2000). ASE is specifically associated with a student's confidence to achieve higher academic achievement measures such as GPA, ACT scores, and SAT scores (Zajacova et al., 2005). ASE is a significant predictor of academic achievement (Elias & Loomis, 2002; Ferla, Martin, & Yonghong, 2009; Robbins et al., 2004; Zajacova et al., 2005). Zajacova et al. (2005) noted that in academic settings ASE, unlike self-efficacy, consistently predicts grades and increased GPA.

Several studies focused on the effects of ASE on PFGCS' performance (Creed, Prideaux, & Patton, 2005). Naumann, Bandalos, and Gutkin (2003) investigated the correlation between GPA and other variables, including ACT scores, belief in one's success, self-efficacy, seeking assistance, and goal setting. Naumann et al. found that PFGCS' GPA is positively correlated with self-efficacy

(.287), which was higher than all the other variables except the belief in one's success (.582), ACT scores (.511), and goal setting (.353). Robbins et al. (2004) and Zajacova et al. (2005) also identified correlations between ASE and GPA. Robbins et al. (2004) showed a strong positive correlation between ASE and GPA (estimated true correlation of .496) - even higher than SES (estimated true correlation of .155) and ACT and SAT tests (estimated correlation of .388). Since 2002, additional studies confirmed Robbins et al.'s (2004) meta-analysis that ASE is associated with academic achievement in the general college student population (Brady-Amoon & Fuertes, 2011; Elias & Loomis, 2002; Gore, 2006; Zajacova, 2005). These studies supported the relationship of ASE to academic achievement and demonstrated the potential benefits of pre-college intervention strategies targeted at PFGCS.

ASE is influenced by students' environment including support provided by teachers, parents, and peers (Majer, 2009; Tsang et al., 2012; Vuong, Brown-Welty, & Tracz, 2010). Research showed that parental involvement, quality of relationships with parents, and family support and encouragement are important to college planning and have a large impact on students' academic decisions (Hall, 2003; Gibbons & Borders, 2010a; Olive, 2008). Parents' educational aspirations for their children are a strong predictor for students' ASE and academic achievement (Fan & Williams, 2010; Torres & Solberg, 2001). Furthermore, Olive (2008) found that with low ASE, PFGCS rarely consider college. These findings emphasize the challenges faced by PFGCS. Without family members and peers that are familiar with college education, PFGCS are at a significant disadvantage. Academic intervention strategies were found instrumental in helping PFGCS decide to attend college and to increase ASE (Majer, 2009; Olive, 2008).

Four primary influences of self-efficacy were identified in the literature: enactive experiences, vicarious experiences, verbal persuasion, and physiological and affective states (Bandura, 1986;

Habel, 2009; Zimmerman, 2000). Enactive experiences include challenging tasks that, when accomplished, lead to an increased belief in one's ability to achieve in the future (Bandura, 1986; Habel, 2009; Zimmerman, 2000). Vicarious experiences include the witnessing of others' success leading to the belief that the task is not insurmountable (Bandura, 1986; Habel, 2009; Zimmerman, 2000). Verbal persuasion includes encouragement to achieve and physiological and affective states include emotional arousal as a result of stress, fatigue, or excitement (Bandura, 1986; Habel, 2009; Zimmerman, 2000). These states can positively affect ASE by increasing one's sense of accomplishment once success is achieved (Bandura, 1986; Habel, 2009; Zimmerman, 2000). An understanding of these influences and interventions specifically targeted to address these four categories will increase ASE and help close the existing academic performance gap for PFGCS.

Intervention Framework

In an effort to fill the academic performance gap and to promote college access, numerous pre-college intervention programs are sponsored by both public education systems and private nonprofit organizations (Gandara & Bail, 2001). Emphasizing the use and potential importance of these programs, the Educational Longitudinal Survey (ELS) of 2002, found approximately 10% of all public high school students whose family income fell below the poverty line participated in some type of pre-college intervention (Domina, 2009). A variety of services are offered and these intervention strategies are identified as important mechanisms to increase at-risk students', including PFGCS', college access and academic achievement (Gandara & Bail, 2001; Gullatt & Jan, 2003; Perna & Swail, 2001). However, research showed that a majority of these programs lack the significant internal evaluation data needed to justify funding, direct strategic planning, and identify areas for potential improvement (Gandara & Bail, 2001; Gullatt &

Jan, 2003; Randolph & Johnson, 2008).

Furthermore, some studies challenged the effectiveness of these programs by finding little or no statistical difference in outcomes for participants (Domina, 2009; Dubois, Holloway, Valentine & Cooper, 2002; Myers, Olsen, Seftor, Young & Tuttle, 2004). Therefore, a framework based upon the concept of ASE will offer educators, program administrators, and school counselors a valuable tool for future intervention development. This framework will be based on the four types of strategies known to influence ASE: enactive experiences, vicarious experiences, verbal experiences, and physiological and affective states (Habel, 2009; Zimmerman, 2000). By identifying specific intervention strategies that fall within these categories, educators, program administrators, and school counselors can then develop programming specifically designed to promote PFGCS' ASE, ultimately leading to improved academic achievement.

Enactive experiences are those tasks and assignments that, when successfully accomplished, begin to prove to the student that they are capable of achievement (Habel, 2009). Successfully accomplishing difficult tasks promotes an increase in ASE and then provides a foundation for future academic achievement (Habel, 2009). Ideally, activities should increase in difficulty providing sufficient challenge while allowing ASE to build. Recommended activities include academic workshops and college preparatory coursework designed to aid the transition from high school to college education. Financial planning workshops can be used to prepare PFGCS to deal with financial aid forms and scholarships. College preparatory courses, including abbreviated refresher courses, can be offered within the students' high school environment or at partner college institutions similar to some existing intervention programs (Ghazzawi & Jagannathan, 2011; Graham, 2011; Lam, Srivatsan, Doverspike, Vesalo, & Mawasha, 2005). Additionally, sufficient support services, including tutoring with an emphasis on study skill development, should be provided to ensure success, as failure would negatively affect ASE. If these experiences are to serve as enactive

experiences, PFGCS must be both challenged and successful (Habel, 2009; Zimmerman, 2000).

ASE is highly domain specific (Habel, 2009). Therefore, program developers must be cognizant of discipline specific offerings. A program that emphasizes writing skills should positively affect the domain of writing-ASE. However, a student in a writing-ASE program may suffer from a lack of ASE when faced with pre-calculus or chemistry coursework. Existing intervention programs employed discipline specific approaches and demonstrated success (Lam et al., 2005; Seftor & Calcagno, 2010). These programs were developed to provide academic support for underrepresented students, including PFGCS, and attempt to promote interest in the science, technology, engineering, and mathematics (STEM) disciplines. In an assessment of one program targeting STEM education, Lam et al. (2005) determined the program increased college access. Furthermore, participants earned higher GPAs and reported less anxiety associated with mathematics and science courses (Lam et al., 2005). This is consistent with Seftor and Calcagno's (2010) finding that participants in multiple mathematics and science intervention programs had increased college enrollment and increased participation in mathematics and science courses. Therefore, activities intended as enactive experiences should be aligned with the desired domain-specific academic outcome.

Vicarious experiences involve the modeling of successful activities by others (Habel, 2009; Zimmerman, 2000). If peers are successful in their efforts, then students can begin to see success as a potential outcome for themselves. Program experiences offered as group activities can be impactful. Summer residential programs served this purpose (Ghazzawi & Jagannathan, 2011) and these programs

demonstrated success. Offering a cohort of PFGCS an immersive, on-campus experience, intended to prepare them for the transition to college, can offer rewards (Ghazzawi & Jagannathan, 2011). Students stay in college dormitories, attend college classes, participate in college extracurricular activities, and attend workshops on college admissions and financial aid (Ghazzawi & Jagannathan, 2011). In an evaluation of one college residential program, Ghazzawi and Jagannathan (2011) found that 95% of the 2007 and 2008 participants entered college. The cohort experience not only provides students with a measure of personal achievement, but also places them in a college environment with peers, facing similar challenges, who successfully negotiate the experience as well. By incorporating peer group activities, ASE is promoted through a vicarious experience (Habel, 2009; Zimmerman, 2000).

Verbal persuasion can be offered in the form of encouragement, guidance, and positive feedback on assignments (Habel, 2009). This is important for PFGCS with weak familial support systems, as they may become easily discouraged when tasks increase in difficulty. Verbal persuasion can act as a counterbalance for students as stress begins to build (Habel, 2009; Zimmerman, 2000). This type of support is central to mentorship activities and is another commonly cited intervention strategy intended to promote academic achievement and college access (Center for Higher Education Policy and Analysis, 2009; Randolph & Johnson, 2008). Through mentoring, educators hope to improve outcomes by providing positive one-on-one interactions (Center for Higher Education Policy and Analysis, 2009). However, the effect of verbal persuasion may be negated if it is used as the sole strategy rather than a single piece of the larger framework.

Dubois et al.'s (2002) meta-analysis of youth mentoring program evaluations found some benefit for program participants. Therefore, verbal persuasion should play a key role in

intervention strategies, but its effect also depends on the success of enactive and vicarious activities. Vancouver and Kendall (2006), Vancouver, More, and Yoder (2008), and Vancouver, Thompson, Tischner, and Putka (2002), further highlighted the dangers of employing short-term ASE strategies in laboratory studies designed to promote ASE through planned positive outcomes in a single day testing series. Vancouver and Kendall (2006), Vancouver et al. (2008), and Vancouver et al. (2002) found that despite providing participants with positive experiences aimed at increasing their ASE, there was no improvement in academic achievement and a negative correlation was found between ASE and academic achievement. It should be understood that Vancouver's studies were performed in a laboratory setting, his methods emphasized short-term impacts, and the preponderance of existing literature supports a positive correlation between ASE and academic achievement. However, Vancouver's findings help emphasize the importance of employing a long-term integrated strategy in an academic setting designed to incorporate experiences within each of the framework categories if increased ASE is to persist for PFGCS.

Finally, physiological and affective states should be understood and impactful experiences should be designed to trigger desired states (Habel, 2009; Zimmerman, 2000). Successes are more impactful if they involve emotion or excitement (Habel, 2009; Zimmerman, 2000). Therefore, positive outcomes can be derived from physiological and affective states including stress, fatigue, emotion, and excitement (Keeley, Zayac, & Correia, 2008; Zimmerman, 2000). Stress can serve as a motivator and, when moderated by other strategies including verbal persuasion and academic support services, students can achieve great satisfaction from successfully overcoming challenges, thus becoming an enactive experience (Keeley et al., 2008; Habel, 2009; Zimmerman, 2000). Excitement and emotional responses can be encouraged by offering opportunities for

PFGCS to engage in activities within new and unfamiliar surroundings. PFGCS, typically unfamiliar with college environments, can benefit from residential college campus activities such as staying in a dormitory, eating in a dining hall, visiting a campus library, and attending a college class, creating a greater emotional reaction than witnessed in students with greater college familiarity (Ghazzawi & Jagannathan, 2011; Graham, 2011; Gullatt & Jan, 2003; Seftnor & Calcagno, 2010). Therefore, intervention strategies directed at PFGCS should seek to promote positive emotional responses through college immersive experiences while cognizant of potential negative consequences. Stress and excitement can be powerful tools in promoting student motivation and academic achievement, but if excessive, these emotions may have detrimental effects (Keeley et al., 2008).

Conclusions

In order to promote academic achievement and college access for PFGCS, this literature review defines the challenges faced by PFGCS and offers a framework based on the concept of ASE for intervention program development. PFGCS are less academically prepared for college than non-PFGCS; have lower GPA, ACT scores, and SAT scores; and typically come from lower SES families (Gibbons & Borders, 2010b; Majer, 2009; Olive, 2008; Weiser & Riggio, 2010). Moreover, PFGCS' ASE is lower due to a lack of family support and guidance through the college application and entrance process (Chen, 2005; Elias and Loomis, 2002; Pascarella et al., 2004; Ross et al., 2012).

This literature review identifies ASE as one of the most influential factors affecting students' academic achievement (Brady-Amoon & Fuertes, 2011; Elias & Loomis, 2002; Gore, 2006; Zajacova, 2005). Therefore, pre-college intervention strategies that are used to increase ASE of PFGCS will help them reach desired academic achievement and gain college access. Educators, program administrators, and school counselors will benefit from the offered framework by using it to develop specific intervention strategies for PFGCS. This framework is based on four types of strategies that promote ASE (Gandara

& Bail, 2001; Habel, 2009; Robbins et al., 2004; Zimmerman, 2000). Recommended enactive experiences include such activities as academic workshops, financial planning workshops, college preparatory coursework, abbreviated refresher courses, and tutoring. Recommended vicarious experiences include summer camps and college campus experiences. Recommended verbal experiences include mentorship activities. Recommended activities influencing physiological and affective states include directed experiences within new and unfamiliar surroundings (Gandara & Bail, 2001; Habel, 2009; Robbins et al., 2004; Zimmerman, 2000).

Implications

Intervention programs were criticized for the lack of rigorous assessment needed to justify funding, direct strategic planning, and identify areas for improvement (Gandara & Bail, 2001; Gullatt & Jan, 2003; Randolph & Johnson, 2008). Furthermore, some studies challenged the effectiveness of these programs by finding little or no statistical difference in outcomes (Domina, 2009; Dubois et al., 2002; Myers et al., 2004). An implication stemming from this literature review suggests using the framework provided to strengthen overall assessment of current intervention programs. Measuring the effects of specific program activities on ASE can then guide program improvements.

Another implication that arises from research findings is the role and function that educators and program administrators can provide to increase the ASE of PFGCS. Educators and program administrators have a responsibility to nurture the ASE of PFGCS, given the research that increased ASE promotes academic achievement. For instance, educators can customize PFGCS' planning to ensure learning and academic achievement, as well as offer positive

encouragement. Knowing each PFGCS' capabilities and personalities, educators can create individualized tasks and activities that are challenging, but can be accomplished successfully. In so doing, educators should offer frequent and supportive feedback as PFGCS are engaged in the tasks. PFGCS will feel empowered by believing that they can do the work, resulting in higher ASE. Also, PFGCS will not feel as compelled to compare themselves to their non-PFGCS peers if they have their own standards of academic achievement. Additionally, program administrators are responsible for PFGCS' ASE and academic achievement. Investment in PFGCS' academic achievement requires institutional responsibility, and it is the responsibility of program administrators to align classroom practices and intervention strategies with PFGCS' academic goals. Program administrators should implement programs that focus on community service and leadership experience to further enhance PFGCS' academic experience and provide additional opportunities for PFGCS' qualifications for college access. The framework provided in this literature review may be used by educators and program administrators to develop integrated intervention approaches specifically designed to improve ASE in PFGCS.

As this literature review notes, parental involvement is also an influential factor for increasing ASE in PFGCS. School counselors can use the intervention framework to promote parental involvement in the schools and in their PFGCS' academic goals. School counselors could conduct parent workshops on college planning, career opportunities, how to provide positive encouragement for their children, and strategies to help their children with schoolwork. While the importance of parent workshops is evident, school counselors should also implement PFGCS-based workshops to address college access, college as a cultural experience and not just a means to an end (e.g., finding a job and/or starting a career), and tackle the issues PFGCS face with their familial support systems. School

counselors should also guide PFGCS through the college application process and financial aid planning while addressing obstacles PFGCS face when accessing such information, such as limited or no Internet access.

Promoting rigorous assessment of intervention strategies to improve intervention programs is important in assisting PFGCS. Also, increasing ASE in PFGCS through the involvement of educators and program administrators, and school counselors successfully involving parents in PFGCS' academic goals and college planning, will help PFGCS have higher academic achievement and better access to college.

References

- Bandura, A. (1997). *Self-efficacy: The exercise of control*. New York, NY: W. H. Freeman & Co.
- Bandura, A. (1986). *Social foundations of thought and action: A social cognitive theory*. Englewood Cliffs, NJ: Prentice-Hall.
- Bandura, A. (2000). Exercise of human agency through collective efficacy. *Current Directions in Psychological Science*, 9(3), 75-78. doi: 10.1146/annurev.psych.52.1.1
- Bandura, A. (2004). Health promotion by social cognitive means. *Health Education & Behavior*, 31, 143-164.
- Bandura, A., & Locke, E. (2003). Negative self-efficacy and goal effects revisited. *Journal of Applied Psychology*, 88, 87-99. doi: 10.1037/0021-9010.88.1.87
- Bradbury, B., & Mather, P. (2009). The integration of first-year, first-generation college students from Ohio Appalachia. *NASPA Journal*, 46, 258-281. doi: 10.2202/1949-6605.6041
- Brady-Amoon, P., & Fuertes, J. N. (2011). Self-efficacy, self-rated abilities, adjustment, and academic performance. *Journal of Counseling & Development*, 89, 431-438. doi: 10.1002/j.1556-6676.2011.tb02840.x
- Center for Higher Education Policy and Analysis. (2009). *Mentoring scaffolding: Do they promote college access?* Los Angeles, CA: Rossier School

- of Education.
- Chen, X. (2005). *First Generation Students in Postsecondary Education: A Look at Their College Transcripts* (NCES 2005-171). U.S. Department of Education, National Center for Education Statistics. Washington, DC: U.S. Government Printing Office.
- Creed, P., Prideaux, L., & Patton, W. (2005). Antecedents and consequences of career decisional states in adolescence. *Journal of Vocational Behavior*, 67, 397-412. doi:10.1016/j.jvb.2004.08.008
- Domina, T. (2009). What works in college outreach: Assessing targeted and schoolwide interventions for disadvantaged students. *Educational Evaluation and Policy Analysis*, 31, 127-152. doi:10.3102/0162373709333887
- Dubois, D., Holloway, B., Valentine, J., & Cooper, H. (2002). Effectiveness of mentoring programs for youth: A meta-analytic review. *American Journal of Community Psychology*, 30, 157-197.
- Elias, S., & Loomis, R. (2002). Utilizing need for cognition and perceived self-efficacy to predict academic performance. *Journal of Applied Social Psychology*, 32, 1687-1702.
- Fan, W., & Williams, C. M. (2010). The effects of parental involvement on students' academic self-efficacy, engagement and intrinsic motivation. *Educational Psychology*, 30, 53-74.
- Feldt, R. C., & Woelfel, C. (2009). Five-factor personality domains, self-efficacy, career-outcome expectations, and career indecision. *College Student Journal*, 43, 429-437.
- Ferla, J., Martin, V., & Yonghong, C. (2009). Academic self-efficacy and academic self-concept: Reconsidering structural relationships. *Learning and Individual Differences*, 19, 499-505. doi: 10.1016/j.lindif.2009.05.004
- Gandara, P., & Bail, D. (2001). *Paving the way to postsecondary education: K-12 intervention programs for underrepresented youths*. Washington, DC: U.S. Department of Education, National Center for Education Statistics.
- Ghazzawi, I., & Jagannathan, C. (2011). Bridging the gap: The role of outreach programs in granting college access to first generation students. *Academy of Educational Leadership Journal*, 15, 117-137.
- Gibbons, M. F. (2004). Prospective first-generation college students: Meeting their needs through social cognitive career theory. *Professional School Counseling*, 8, 91-97.
- Gibbons, M. M., & Borders, L. D. (2010a). A measure of college-going self-efficacy for middle school students. *Professional School Counseling*, 13, 234-243.
- Gibbons, M. M., & Borders, L. D. (2010b). Prospective first-generation college students: A social-cognitive perspective. *Career Development Quarterly*, 58, 194-208.
- Gore, P. A. (2006). Academic self-efficacy as a predictor of college outcomes: Two incremental validity studies. *Journal of Career Assessment*, 14, 92-115.
- Graham, L. (2011). Learning a new world: Reflections on being a first-generation college student and the influence of TRIO programs. *New Directions for Teaching and Learning*, 127, 33-38. doi: 10.1002/tl
- Gullatt, Y. & Jan, W. (2003). *How do pre-collegiate academic outreach programs impact college-going among underrepresented students?* Washington, DC: Pathways to College Network Clearinghouse.
- Habel, C. (2009). Academic self-efficacy in ALL: Capacity-building through self-belief. *Journal of Academic Language & Learning*, 3, A94-A104.
- Hall, A. S. (2003). Expanding academic and career self-efficacy: A family systems framework. *Journal of Counseling & Development*, 81, 33-39.
- Ishitani, T. T. (2003). A longitudinal approach to assessing attrition behavior among first-generation students: Time-varying effects of pre-college characteristics. *Research in Higher Education*, 44, 433-449.
- Ishitani, T. T. (2006). Studying attrition and degree completion behavior among first-

- generation college students in the United States. *Journal of Higher Education*, 77, 861–885. doi:10.1353/jhe.2006.0042
- Keeley, J., Zayac, R., & Correia, C. (2008). Curvilinear relationships between statistics anxiety and performance among undergraduate students: Evidence for optimal anxiety. *Statistics Education Research Journal*, 7(1), 4-15. Retrieved from <http://www.stat.auckland.ac.nz/serj>
- Lam, P., Srivatsan, T., Doverspike, D., Vesalo, J., & Mawasha, R. (2005). A ten year assessment of the pre-engineering program for under-represented, low-income and/or first generation college students at the University of Akron. *Journal of STEM Education*, 6(3), 14-20.
- Lane, J., Lane, M., Kyprianou, A. (2004). Self-efficacy, self-esteem and their impact on academic performance. *Social Behavior and Personality*, 32, 247-256.
- Lundberg, C., Schreiner, L., Hovaguimian, K., and Slavin Miller, S. (2007). First-generation status and student race/ethnicity as distinct predictors of student involvement and learning. *NASPA Journal*, 44, 57-83.
- Majer, J. M. (2009). Self-efficacy and academic success among ethnically diverse first-generation community college students. *College Journal of Diversity in Higher Education*, 2, 243–250. doi: 10.1037/a0017852
- Mehta, S.A., Newbold, J., O'Rourke, M. (2011). Why do first-generation students fail? *College Student Journal*, 45, 20-35.
- Myers, D., Olsen, R., Seftor, N., Young, J., & Tuttle, C. (2004). *The impacts of regular Upward Bound: Results from the third follow-up data collection*. Washington, DC: U.S. Department of Education, Policy and Program Studies Services.
- Naumann, W. C., Bandalos, D., & Gutkin, T. B. (2003). Identifying variables success that predict college success for first-generation students. *Journal of College Admission*, 181, 4–9. <http://nces.ed.gov/pubs2003/digest02/i>ndex.asp
- Olive, T. (2008). Desire for higher education in first-generation Hispanic college students enrolled in an academic support program: A phenomenological analysis. *Journal of Phenomenological Psychology*, 39, 81–110. doi:10.1163/156916208X311638
- Pajares, F., Johnson, M., & Usher, E. (2007). Sources of writing self-efficacy beliefs in elementary, middle, and high school students. *Research in the Teaching of English*, 42, 104-120.
- Pascarella, E., Pierson C., Wolniak, G., & Terenzini, P. (2004). First-generation students. *Journal of Higher Education*, 75, 249-284.
- Perna, L., & Swail, S. (2001). Pre-college outreach and early intervention. *Thought & Action*, 19(1), 99-110.
- Perry, P. (2011). Concept analysis: Confidence/self-confidence. *Nursing Forum*, 46, 218-230.
- Prospero, M., & Vohra-Gupta, S. (2007). First generation college students: Motivation, integration, and academic achievement. *Community College Journal of Research and Practice*, 31, 963–975. doi:10.1080/10668920600902051
- Pryor, J. H., Hurtado, S., Saenz, V. B., Lindholm, J. A., Korn, W. S., & Mahoney, K. M. (2005). *The American freshman: National norms for fall 2005*. Los Angeles, CA: Higher Education Research Institute, University of California Los Angeles.
- Randolph, K., & Johnson, J. (2008). School based mentoring programs: A review of the research. *Children & Schools*, 30, 177-185.
- Robbins, S. B., Lauver, K., Le, H., Davis, D., Langley, R., & Carlstrom, A. (2004). Do psychosocial and study skill factors predict college outcomes? A meta-analysis. *Psychological Bulletin*, 130, 261–288. doi:10.1037/0033-2909.130.2.261
- Roderick, M., Nagaoka, J., Coca, V., Moeller, E., Roddie, K., Gilliam, J., & Patton, D. (2008, March). *From high school the future: Potholes on the road to college*. Chicago, IL: Consortium on

- Chicago School Research
- Ross, T., Kena, G., Rathbun, A., KewalRamani, A., Zhang, J., Kristapovich, P., & Manning, E. (2012). *Higher education: Gaps in access and persistence study* (NCES 2012-046). Jessup, MD: National Center for Education Statistics.
- Seftor, N., & Calcagno, J. (2010). *The impacts of Upward Bound Math-Science on postsecondary outcomes 7-9 years after scheduled high school graduation*. Washington, DC: U.S. Department of Education, Policy and Program Studies Services.
- Torres, J. B., & Solberg, V. S. (2001). Role of self-efficacy, stress, social integration, and family support in Latino college student persistence and health. *Journal of Vocational Behavior*, 59, 53-63.
- Tsang, S. K. M., Hui, E. K. P., & Law, B. C. M. (2012). Self-efficacy as a positive youth development construct: A conceptual review. *Scientific World Journal*, Advance online publication. doi: 10.1100/2012/452327
- Vancouver, J. B., & Kendall, L. N. (2006). When self-efficacy negatively relates to motivation and performance in a learning context. *Journal of Applied Psychology*, 91, 1146-53. doi:10.1037/0021-9010.91.5.1146
- Vancouver, J. B., More, K. M., & Yoder, R. J. (2008). Self-efficacy and resource allocation: Support for a nonmonotonic, discontinuous model. *Journal of Applied Psychology*, 93, 35-47. doi:10.1037/0021-9010.93.1.35
- Vancouver, J. B., Thompson, C. M., Tischner, E. C., & Putka, D. J. (2002). Two studies examining the negative effect of self-efficacy on performance. *Journal of Applied Psychology*, 87, 506-516. doi:10.1037//0021-9010.87.3.506
- Vuong, M., Brown-Welty S., & Tracz, S., (2010). The effects of self-efficacy on academic success of first-generation college sophomore students. *Journal of College Student Development*, 51, 50-64. doi: 10.1353/csd.0.0109
- Wang, C., & Castaneda-Sound, C. (2008). The role of generational status, self-esteem, academic self-efficacy, and perceived social support in college students' psychological well-being. *Journal of College Counseling*, 11, 101-118.
- Warburton, E. (2001). Bridging the gap: Academic preparation and postsecondary success of first-generation students. *Education Statistics Quarterly*, 3, 1-67.
- Weiser, D. A., & Riggio, H. R. (2010). Family background and academic achievement: Does self-efficacy mediate outcomes? *Social Psychology of Education*, 13, 367-383. doi:10.1007/s11218-010-9115-1
- White, K. A. (2009). Self-confidence: A concept analysis. *Nursing Forum*, 44, 103-114.
- Zajacova, A., Lynch, S. M., & Espenshade, T. J. (2005). Self-efficacy, stress, and academic success in college. *Research in Higher Education*, 46, 677-706. doi:10.1007/s11162-004-4139-z
- Zimmerman, B. (2000). Self-Efficacy: An essential motive to learn. *Contemporary Educational Psychology*, 25, 82-91. doi:10.1006/ceps.1999.1016

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