The Relationship Between Achievement Goals

and the Academic Success of First-Generation College Students

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Abstract

Recent research has established that first-generation college students, or those students without a parent with a four-year college degree, tend to underperform academically compared to continuing-generation college students, or those with at least one parent with a four-year college degree. The current study was undertaken to attempt to explain this discrepancy, known as the social class achievement gap, through the use of achievement goal theory. A survey of 351 undergraduates was conducted with students reporting their generational status and their adoption of three achievement goals. Their first-semester GPA was later acquired. It was expected that generational status would predict achievement goal adoption, that achievement goal adoption would predict academic performance, and that goal adoption would mediate the relationship between generational status and academic performance. Results did not support these hypotheses. Potential explanations for the null effects and implications of these findings for the social class achievement gap literature are discussed.

The Relationship Between Achievement Goals

and the Academic Success of First-Generation College Students

The goal of college-level educators is to see their students thrive and succeed in an academic context. In turn, it is the goal of most college students to succeed in school so that they have a stronger footing when they enter society as fully independent and responsible adults. Indeed, succeeding in college is a predictor of future career success (Judge, Cable, Boudreau, & Bretz, 1995) and upward economic mobility (Greenstone, Looney, Patashnik, & Yu, 2013). Despite the noblest of efforts from college professors, some students do not succeed, whereas others shine. Academics have long wondered why some students do not perform as well as others, and attention is warranted when systematic patterns of underperformance are identified. One such pattern will be the focus of the current study: The social class achievement gap.

The social class achievement gap illustrates a discrepancy in academic performance in four-year universities between students from upper socioeconomic status (SES) backgrounds and students from lower SES backgrounds with upper SES students outperforming lower SES students with regard to grades (Sirin, 2005). This achievement gap is typically studied by comparing differences between first-generation college students (FGS; students with neither parent having a four-year degree) and continuing-generation college students (CGS; students who have at least one parent with a four-year degree; Harackiewicz et al., 2014) as previous research has shown similarities between generational status and SES with FGS tending to come from lower class backgrounds and CGS tending to come from middle and upper class backgrounds (Sirin, 2005; Snibbe & Markus, 2005). Thus, generational status is an easily operationalized proxy for SES, though researchers vary in the degree to which they overlap SES and generational status in published research. For the purposes of this thesis, the terms SES (or

social class) and generational status will only be used interchangeably with respect to the terms used in cited research. This research has shown that FGS, when compared to CGS, tend to have lower academic achievement (Harackiewicz et al., 2014; Sirin, 2005), lower graduation rates (DeAngelo, Franke, Hurtado, Pryor, & Tran, 2011), lower self-efficacy (Ramos-Sanchez & Nichols, 2007), and longer adjustment periods when entering college (Phinney & Haas, 2003). Recent psychological research on motivation has been conducted to ascertain potential causes of and solutions for this discrepancy (Autin, Batruch, & Butera, 2015; Darnon, Jury, & Aelenei, 2017; Jury, Smeding, & Darnon, 2015; Sommet, Quiamzade, Jury, & Mugny, 2015). This study is an extension of that research. The purpose of this study is to provide further evidence of the link between generational status and academic performance through the use of achievement goal theory (Elliot & McGregor, 2001).

Social Class Achievement Gap

There have been multiple explanations for the social class achievement gap from both the sociology and psychology literatures, such as the poor quality of high schools in working class areas leading to inadequate academic preparation for FGS (Terenzini, Springer, Yaeger, Pascarella, & Nora, 1996; Warburton, Bugarin, & Nunez, 2001) as well as financial strain forcing FGS to work multiple jobs to pay for college and/or having to commute from home, which ultimately detracts from their schoolwork (Pascarella, Wolniak, & Pierson, 2003; Terenzini et al., 1996). Another long-standing explanation of this achievement gap has been that universities produce social class inequalities because they are founded on implicit middle and upper class standards and cultural norms or "rules of the game" (Bourdieu & Passeron, 1990 as cited in Stephens, Fryberg, Markus, Johnson, & Covarrubias, 2012). These rules and norms (such as independence and self-reliance) are often taught to CGS in their middle and upper class

home environments, whereas they are not typically shared with FGS coming from working-class homes. Additionally, the working-class backgrounds of FGS tend to produce stigma when these students enter four-year universities as they are stereotyped as inadequate achievers due to their lower class origins (Rondini, 2016). This can produce feelings of unease, discomfort, and insecurity among these students as they progress in college (Ryan & Sackrey, 1984 as cited in Rondini, 2016).

Although these previous explanations are insightful, there are also motivational explanations for the social class achievement gap that demand attention. One of the most recent and widely cited explanations has been cultural mismatch theory (Stephens, Fryberg, et al., 2012), which posits that FGS have been socialized to adopt and adhere to interdependent, collectivistic cultural values systems throughout their lives that focus on the success of the group over the individual, whereas CGS tend to come more from families that value individualism and independence. These value differences arise from diverging cultural models of self, or implicit understandings of how one operates in a social environment. FGS tend to be socialized with an interdependent model of self that stresses connectedness and responsiveness to others and their needs whereas CGS tend to be socialized with an independent model of self that focuses on being a unique individual who is motivated to pursue his or her own personal desires (Cross & Madson, 1997 as cited in Stephens, Fryberg, et al., 2012). Four-year universities, which emphasize individual achievement and self-reliance while navigating the typical college experience, tend to convey the independent cultural model as more normatively appropriate. This results in a mismatch between the interdependent cultural norms of FGS and the independent cultural norm of four-year universities (Stephens, Fryberg, et al., 2012). FGS perceive this mismatch as psychologically threatening, which creates a sense of anxiety and negative affect

that is ultimately detrimental to their academic performance (Stephens, Townsend, Markus, & Phillips, 2012).

Related to this, universities can function not only to educate but also to implicitly identify and select the best and brightest students for future advancement, scholarship opportunities, and graduation with honors. The function of selection, when made salient, can be detrimental to FGS as they typically perceive themselves to be at a disadvantage in school and unlikely to be among the best students (Autin, et al., 2015; Jury, Smeding, et al., 2015), further compounding the negative effects of cultural mismatch (Stephens, Fryberg, et al., 2012). Overall, the above research establishes that FGS tend to have academic difficulties compared to CGS in four-year university settings. In addition to this work, researchers have also attempted to explain, understand, and potentially ameliorate the social class achievement gap through the use of achievement goal theory (Elliot & McGregor, 2001; Elliot & Thrash, 2001). It is this research that will be the focus of the current study.

Achievement Goals

Achievement goal theory posits that there are goal standards that students can adopt in achievement tasks that direct and guide their behavior and subsequent performance (Elliot & Thrash, 2001). There are two broad types of goals which uniquely define competence in achievement tasks, and it is these two goals which were the original focus of achievement motivation research. One is a mastery goal based on an intrapersonal standard of competence (Nicholls, 1984). Typically, people adopt a mastery goal when they seek to develop new skill sets and base their standard of competence on how well they are performing on the task in relation to their previous attempts or future goals of achievement (Elliot & Church, 1997). They can also seek to demonstrate their competence to others by showing their improvement on past

work. The other type of goal is a performance goal, based on an interpersonal standard of competence (Nicholls, 1984). Performance goals are typically adopted when the focus of the achiever is on their performance relative to the performance of others. This is done in an effort to establish a sense of self-competence or to demonstrate their competence to others to satisfy their own self-worth (Ames & Archer, 1987 as cited in Elliot & Church, 1997; Hulleman, Schrager, Bodmann, & Harackiewicz, 2010).

These achievement goals are presumed to lead to diverging outcomes as they tend to reflect different purposes for task engagement (Dweck, 1996 as cited in Elliot & Thrash, 2001; Maehr, 1989 as cited in Elliot & Church, 1997) as well as different orientations toward achievement tasks (Ames 1992; Ames & Archer, 1987; as cited in Elliot & Thrash, 2001). Indeed, mastery goals are thought to lead to a mastery-oriented pattern of motivation with a preference for moderately challenging tasks that are a good indicator of ability and stronger perseverance when failure occurs, whereas performance goals can lead to a helpless pattern of motivational responses with decreased enjoyment of tasks and a loss of effort when failure occurs (Ames, 1992 as cited in Elliot & Church, 1997). This negative outcome for performance goals has been argued to take place only when perceived competence on the task is low, as competence expectancy has been argued to be a moderator of the effects of performance goals (Midgley, Kaplan, & Middleton, 2001; Nicholls, 1984). With regard to downstream consequences, mastery goals are typically associated with positive achievement outcomes as they tend to foster intrinsic motivation, task engagement, and effective learning strategies, whereas performance goals have been found to have a mixed pattern of results as they can lead to decreased task enjoyment and a withdrawal of effort in the face of failure while also positively predicted academic performance (Elliot & Church, 1997).

Early research on goal theory emphasized only the content of goals, specifically mastery and performance aspects. Later work in this area began focusing on a motivation dimension that was common in earlier theories within the field: the valence of motivation (approaching success or avoiding failure; Atkinson & Litwin, 1960). An approach motivation focuses on achieving success and gaining competence. Avoidance motivation, by contrast, focuses on avoiding failing at a task. Approach motivation has been seen as adaptive and avoidance motivation as maladaptive. Those who are approach motivated tend to focus on learning from mistakes and revaluating unsuccessful strategies whereas those who are avoidance motivated prefer tasks that are either so easy that success is almost certain or so difficult that failure is inevitable and therefore is not an indicator of actual ability.

Joining the valence dimension to goal content, Elliot and McGregor (2001) identified four possible achievement goals (See Table 1). Mastery-approach goals are those in which the achiever is striving to develop personal topic competence, whether by improving upon past performance or learning as much as personally possible. Mastery-avoidance goals are those in which the focus is on avoiding a decline in skill or task performance or a failure to learn the topic. Performance-approach goals are those in which the achiever is striving to perform well on a task in relation to everyone else performing that task and ideally to be the best in a given group. Performance-avoidance goals are those in which the achiever is striving to avoid underperforming others in a group and ideally to avoid being the worst at a given task in relation to others.

Many studies have applied the above achievement goals to academic settings. Mastery-approach goals are positively related to course interest, enjoyment, and intrinsic motivation (Elliot & Church, 1997; Lepper, Corpus, & Iyengar, 2005 as cited in Hulleman et al., 2010),

academic engagement (Negru, Pop, & Opre, 2013), and a preference for attempting challenging

tasks (Grant & Dweck, 2003 as cited in Hulleman et al., 2010). Though the positive benefits of

mastery-approach goals have been widely documented for many academic outcomes, their

relationship with academic achievement is rather mixed with some researchers finding a positive

relationship (Van Yperen, Blaga, & Postmes, 2014), whereas others have found a negligible

relationship (Hulleman et al., 2010).

Performance-approach goals tend to have more mixed findings compared to the other

achievement goals. Generally, they have a modest positive relationship with a variety of

beneficial academic outcomes such as achievement, effort, cognitive learning strategies, and self-

regulatory processes (Barron & Harackiewicz, 2003; Midgley et al., 2001; Wolters, Yu, &

Pintrich, 1996). However, performance-approach goals have also been linked to negative

outcomes such as test anxiety and poor performance (Linnenbrink, 2005), cheating behavior

(Van Yperen, Hamstra, & van der Klauw, 2011), and impaired cognitive performance on

achievement tests (Crouzevialle & Butera, 2013).

Recent developments in goal theory may explain the inconsistent performance-approach

goal effects. Typically, performance-approach goals are conceptualized as demonstrating

competence by outperforming peers (Elliot & McGregor, 2001). However, researchers have

varied in how much they have emphasized the appearance component (wanting to appear

competent to satisfy one's self-worth) versus the normative component (wanting to perform

better than others to establish self-competence) in operationally defining performance-approach

goals without explicitly acknowledging their differences (Senko & Dawson, 2016). Indeed,

theorists are now arguing that these two components are conceptually distinct, and recent

research has begun to support this argument. Specifically, Hulleman et al. (2010) found that

when performance-approach goal scales feature normatively-referenced items (doing better or worse than others) their relationship with academic achievement is positive, whereas items referencing appearance or evaluation (wanting to be perceived as smarter or more capable than others) result in negative outcomes. In the current study, the focus will be on the normative component as previous research connecting achievement goals to the social class achievement gap has focused exclusively on the normative aspects of performance-approach goals (Darnon et al., 2017).

Researchers have also argued that the perceived competence of the achiever acts as a moderator of the effects of performance-approach goals with positive effects being found when perceived competence is high and negative effects being found when perceived competence is low (Midgley et al., 2001; Nicholls, 1984). It was argued that this is due to a lack of commitment to the goal of task achievement when perceived competence is low (Nicholls, 1984). However, empirical evidence has not supported this conceptualization (Elliot & Church, 1997). This will be discussed later.

Mastery-avoidance goals are positively related to ineffectual studying habits and stress (Elliot & McGregor, 2001), hindered performance improvement on a verbal skills test (Van Yperen, Elliot, & Anseel, 2009), and disrupted emotion regulation during stressful achievement situations (Sideridis, 2007). Performance-avoidance goals predict a wide range of negative academic outcomes such as lower intrinsic motivation (Elliot & Church, 1997), surface-level studying strategies such as rote-memorization (Elliot, McGregor, & Gable, 1999), high levels of worry and perceived negative feedback from parents (Elliot & McGregor, 2001) and low exam performance (Elliot & Church, 1997; Elliot & McGregor, 2001; Elliot, McGregor, & Gable, 1999), especially when the material is perceived as difficult (Darnon, Butera, Mugny, &

Hulleman, 2009). In essence, performance-avoidance goals are akin to a performance goal combined with low perceived competence which, as noted earlier, has been argued to lead to negative results (Midgley et al., 2001; Nicholls, 1984).

Despite the overall negative outcomes of mastery-avoidance and performance-avoidance goals, exceptions to these patterns of results have been noted. For example, it has been shown that mastery-avoidance goals are not as deleterious to performance attainment and achievement as performance-avoidance goals when competence is defined by intrapersonal standards rather than interpersonal standards (Elliot & McGregor, 2001) and can actually have positive benefits with older populations (Senko & Freund, 2015). Further, cross-cultural evidence has suggested that performance-avoidance goals may not always be maladaptive if the culture being assessed is more collectivistic than individualistic as students in these cultures are socialized to not dishonor the family by performing worse than others on achievement tasks, and therefore are accustomed to the goal of avoiding underperforming others (King, 2016).

Achievement Goals and the Social Class Achievement Gap

Recent research has been conducted to assess and potentially reduce the social class achievement gap through the use of the 2x2 goal achievement goal framework (Darnon et al., 2017; Jury, Smeding, Court, & Darnon, 2015; Smeding, Darnon, Souchal, Toczek-Capelle, & Butera, 2013; Sommet et al., 2015). The primary focus of this previous research has been to assess what achievement goals FGS pursue. For example, Jury, Smeding, Court, et al. (2015) found that FGS were more likely than CGS to adopt performance avoidance goals. This effect was moderated by the high school academic achievement of these students with high achieving FGS being more likely than high achieving CGS to adopt performance-avoidance goals. It was argued that this was because high achieving FGS view entrance into college as the beginning of

an upward mobility process from their humble working class backgrounds which potentially results in threats to their personal identities. This identity threat, coupled with the mismatch of cultural values (Stephens, Fryberg, et al., 2012), was argued to produce avoidance-based motivational strategies including the adoption of performance-avoidance goals (Jury, Smeding, Court, et al., 2015). Considering that research has shown that the adoption of performance-avoidance goals leads to negative academic outcomes (Elliot & Church, 1997; Elliot & McGregor, 2001; Elliot & Murayama, 2008), these findings could have perilous implications for FGS.

Sommet et al. (2015) found that the competitiveness of the academic department decreased the mastery goal adoption of FGS and CGS across three years of study with FGS experiencing sharper decreases in mastery goal adoption than CGS. It was argued that the more competitive departments reflected the value system of the upper classes and that this would result in the detrimental cultural mismatch discussed previously (Stephens, Fryberg, et al., 2012), which in turn would result in more negative academic outcomes for FGS than CGS. This provides evidence that educational context can affect what goals FGS adopt.

To summarize the above findings, FGS report stronger endorsement of performance-avoidance goals (Jury, Smeding, Court, et al., 2015) and weaker endorsement of mastery goals in competitive contexts (Sommet et al., 2015). This would suggest a perilous motivational profile for FGS that should lead to largely negative downstream effects. However, little research has actually addressed this possibility. Can the achievement goals that students choose to adopt help to explain the social class achievement gap? Only two studies have addressed the impact that achievement goal adoption can have on the achievement differences between FGS and CGS.

Smeding et al. (2013) sought to reduce the social class achievement gap through the adoption of mastery-oriented goals by experimentally manipulating the emphasis on the selection and education functions of universities discussed previously (Autin et al., 2015). In line with research that showed that the selection function of universities can be detrimental to FGS (Jury, Smeding, et al., 2015), Smeding et al. (2013) found that when the educational function of colleges was emphasized in assessment practices (i.e., toward the attainment of mastery-oriented goals) compared to the selection function, the social class achievement gap was significantly reduced. Indeed, in study 2, Smeding et al. (2013) measured mastery goal adoption and found that when mastery goal adoption was high, the social class achievement gap was almost eliminated. This finding provides evidence that the adoption of mastery goals leads to improved academic outcomes for FGS, despite the overall negligible relationship between mastery-approach goals and academic performance (Hulleman et al., 2010).

Further evidence for this argument comes from Darnon et al. (2017), who tested the moderating effect of generational status on the relationship between achievement goals and grades. They found that mastery-approach goals positively predicted achievement for FGS and that performance approach goals positively predicted achievement for CGS. They argued that CGS tend to have higher competence expectancies than FGS in four-year universities, and with those higher expectations of success comes less uncertainty about academic performance. In line with the moderation argument proposed earlier (Midgley et al., 2001; Nicholls, 1984), Darnon et al. (2017) suggested that performance-approach goals tend to not predict achievement for individuals who doubt their abilities, such as FGS, whereas they should predict achievement for those who tend to have higher confidence levels, such as CGS. Conversely, mastery-approach goals should predict achievement for those who have low competence expectancies (FGS) and

should not predict achievement for those who have high competence expectancies (CGS). Indeed, performance-approach goals were found to positively predict achievement for CGS and mastery-approach goals were found to positively predict achievement for FGS. While the findings of this study are compelling, the competence expectancy rationale was a speculative suggestion that was not tested directly. The present study will explore this possibility further.

The previous research connecting achievement goals to the social class achievement gap, while illuminating, remains scarce. The above findings suggest that differences exist between FGS and CGS that ultimately affect the degree to which they adopt achievement goals (Jury, Smeding, Court, et al., 2015; Sommet et al., 2015). They also find that adoption of these achievement goals can predict their future achievement and inform a deeper understanding of the social class achievement gap (Darnon et al., 2017; Smeding et al., 2013). However, these studies did not utilize all four achievement goal constructs in one model, either studying one goal in particular while largely ignoring the other three (Jury, Smeding, Court, et al., 2015) or looking at just two out of the four (Darnon et al., 2017). The present work attempted to extend this line of research by incorporating three of the four achievement goals simultaneously to predict whether status as a FGS predicts achievement goal adoption, if this achievement goal adoption predicts academic achievement, and if a significant mediation of achievement goal adoption exists between generational status and academic achievement. Directly assessing the degree to which achievement goal adoption predicts achievement for FGS and CGS should yield substantive findings that have, as yet, gone untested.

Overview of the Current Work

The data for this study came from a larger survey of the experiences of college freshmen and transfer students. This larger project did not assess mastery-avoidance goals, and therefore

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data on mastery-avoidance goals were unavailable. As such, mastery-avoidance goals were not included in the current study. Though this is unfortunate, none of the previous research connecting achievement goals to the social class achievement gap has included mastery-avoidance goals. This is due partially to the understudied nature of achievement goals, as they are the most recent goal to be conceptualized (Elliot & McGregor, 2001). Additionally, research has shown that mastery-avoidance goals are somewhat rare in college-aged participants in academic and sports settings (Ciani & Sheldon, 2010). Overall, the lack of mastery-avoidance goals was not seen as necessarily detrimental to the overall purpose of the current study.

Generational Status Effects on Academic Performance. As an initial prediction, it was expected that FGS would underperform CGS on a measure of academic performance. In this study, that measure was first-semester GPA as the sample consisted entirely of freshmen and transfer students who were new to the college from which the data was collected. Therefore, *hypothesis 1* was that FGS have significantly lower first-semester GPA compared to CGS, thus establishing a social class achievement gap within the sample and replicating the basic findings of previous research (Harackiewicz et al., 2014).

Generational Status Effects on Achievement Goal Adoption. With regard to the effects of generational status on achievement goal adoption, it was expected that CGS would adopt mastery-approach goals and performance-approach goals more strongly than FGS and that FGS would adopt performance-avoidance goals more strongly than CGS. Previous research has found that when mastery-oriented practices are made salient, the social class achievement gap is reduced (Smeding et al., 2013). Further, the adoption of performance-approach goals have been found to positively predict achievement in CGS (Darnon et al., 2017). If an achievement gap were to be observed in the current study, it could suggest a deficit of mastery goal adoption

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among FGS or a strong adoption of performance-approach goal adoption in CGS. Therefore, *hypothesis 2* was that CGS would adopt mastery-approach goals more strongly than FGS and *hypothesis 3* was that CGS would adopt performance-approach goals more strongly than FGS. Additionally, FGS have been found to adopt performance-avoidance goals more strongly than CGS (Jury, Smeding, Court, et al., 2015). This finding was expected to be replicated in the current study, so *hypothesis 4* was that FGS would adopt performance-avoidance goals more strongly than CGS.

Achievement Goal Effects on Academic Performance. With regard to the effects of achievement goal adoption on academic performance, it was expected that adoption of mastery-approach goals would be associated with positive academic performance for FGS only. Mastery-approach goals have been associated with many positive academic outcomes, however their relationship to academic performance has been found to be rather mixed (Hulleman, et al., 2010; Van Yperen et al., 2014). Regarding the social class achievement gap, recent findings suggest that adoption of mastery-approach goals should be positively related to achievement for FGS specifically, thereby reducing the social class achievement gap (Darnon, et al., 2017; Smeding et al., 2013). This would suggest a moderation of generational status on the effects of mastery-approach goals on academic performance with a positive relationship being found for FGS and a negligible relationship being found for CGS. In line with this logic, *hypothesis 5* was that mastery-approach goal adoption would significantly positively predict academic achievement for FGS, but not for CGS. Next, it was expected that performance-avoidance goals would negatively predict academic performance for all students. Performance-avoidance goals have been found to be detrimental to achievement in a variety of academic settings (Darnon et al., 2009; Elliot & Church, 1997; Elliot & McGregor, 2001; Elliot, McGregor, & Gable, 1999), so these findings

were expected to replicate in the current sample. Therefore, *hypothesis 6* was that the adoption of performance-avoidance goals would significantly predict negative academic performance for all students regardless of generational status. By contrast, it was expected that the adoption of performance-approach goals would positively predict academic achievement overall. The effects of performance-approach goals on academic performance are mostly positive (Elliot & Church, 1997), with mixed findings occurring when the goals are framed in terms of appearing competent (Hulleman et al., 2010; Senko & Dawson, 2016). Overall, this would suggest that performance-approach goals should positively predict achievement for most college students if the goals are framed in terms of normative competence (doing better than others). Considering that the focus of this study was on the normative component of performance-approach goals, and the measure used to assess this goal featured normative language, *hypothesis 7* was that performance-approach goal adoption would positively predict achievement for both FGS and CGS.

Indirect Effects of Achievement Goal Adoption. Finally, beyond the findings of Darnon et al. (2017) and Smeding et al. (2013), all other research in this area has only speculated on the effects of achievement goal adoption on academic achievement as a downstream consequence when taking generational status into account. Testing this argument, it was expected that the adoption of achievement goals would significantly mediate the relationship between generational status and academic performance, thus providing concrete evidence of the role of achievement goal adoption in explaining the social class achievement gap. Therefore, it was expected that the indirect effects for adoption of mastery-approach goals (*hypothesis 8*), performance-approach goals (*hypothesis 9*) and performance-avoidance goals (*hypothesis 10*), would all be significant.

Secondary Consideration

An additional consideration for both performance-approach goals and mastery-approach goals comes from the findings of Darnon et al. (2017). Despite the lack of evidence supporting the moderation model of competence expectancies for performance-approach goals (Elliot & Church, 1997), Darnon et al. (2017) suggested a moderation effect of competence expectancies when generational status is considered. They found that performance-approach goal adoption positively predicted achievement for only FGS and not CGS, and that mastery-approach goal adoption positively predicted achievement for only CGS, and not FGS. However, Darnon et al. (2017) did not test the role of competence expectancy directly, so any conclusions about this moderation argument remain speculative. This was addressed in the current study as a secondary analysis as data on competence expectancies were readily available in the dataset used for the analyses. However, no a priori expectations were offered regarding the results.

Method

Participants

Participants were 351 undergraduates (92 Male, 256 Female, and 3 nonbinary) recruited via online recruitment at a four-year public university in the northeast United States. Participants were either freshman ($n = 213$) or transfer students ($n = 138$). There were roughly equal numbers of FGS ($n = 161$) and CGS ($n = 190$) represented with the majority identifying as white ($n = 225$) compared to Hispanic ($n = 68$), Black ($n = 31$), Asian ($n = 21$), Native American ($n = 2$), and Pacific Islander ($n = 1$). Twenty-three participants declined to provide racial information. Some participants identified with more than one race, which resulted in the total number of race identifications to add to 371. The mean age of the sample was 19.84 ($SD = 4.65$). Participants were entered into a raffle for either Amazon gift cards or gift cards for use at on-campus venues as compensation for participating.

Measures

An electronic survey was used to gather all data from the participants. Demographic information was collected including generational status, age, gender, race, and high-school GPA. Status as a FGS was defined as not having a parent who has a four-year college degree. Achievement goal constructs were measured via the revised Achievement Goal Questionnaire (Elliot & Murayama, 2008), which is a validated revision of the original achievement goal questionnaire created by Elliot and McGregor (2001). The questionnaire has 9 questions that assess the degree to which the participant identifies as having mastery-approach goals (three items; $\alpha = .71$; "e.g., My aim is to completely master the material presented in my class"), performance-approach goals (three items; $\alpha = .88$; "e.g., My goal is to perform better than the other students"), and performance-avoidance goals (three items; $\alpha = .92$; "e.g., My aim is to avoid doing worse than other students"). Items on competence expectancies (four items; $\alpha = .86$; "e.g., I expect to do well in my classes"), were adapted from Kosovich, Hulleman, Barron, and Getty (2015). All questions were in 5-point Likert scale format with answers ranging from 1 (*not true of me*) to 5 (*very true of me*). Scores for each construct were aggregated by taking the average of each of their respective items. Data regarding first-semester GPA (0.0-4.0 scale) was provided by the institutional research office of the university in which the data was collected. This data was an objective measure that reflected the first-semester academic performance of all participants, thus avoiding the pitfalls associated with self-report measures of academic achievement.

Procedure

Data for this study were collected as part of a larger project utilizing the same participants. Informed consent was provided prior to the demographic survey via the same online

interface mentioned previously. The participants were administered the demographic survey, the primary variable measures, plus other measures for the larger project. Upon completion of the survey, the participants had finished their role in the study and were thanked and debriefed. Academic achievement data, in the form of first-semester GPA, were obtained from the office of institutional research after the data collection procedure was completed. All data were kept anonymous to protect the privacy of participants.

Results

The basic descriptive statistics of the relevant variables are provided in Table 2, and the bivariate correlations between all variables are included in Table 3. Interestingly, all three achievement goals correlated positively with one another (Mastery-approach and Performance-approach: $r = .32$, $p < .001$; Mastery-approach and Performance-avoidance: $r = .18$, $p = .001$; Performance-approach and Performance-avoidance: $r = .70$, $p < .001$). This is counterintuitive, especially the overlap between mastery-approach goals and performance-avoidance goals, considering the diverging outcomes associated with each goal (Elliot & Church, 1997; Elliot & McGregor, 2001). Additionally, competence expectancy was positively correlated with GPA ($r = .14$, $p < .05$), suggesting that the more participants expected they would do well, the higher their actual achievement. Finally, high school GPA was significantly correlated with first-semester GPA ($r = .40$, $p < .001$). As such, high school GPA was entered as a covariate into all subsequent regression models predicting first-semester GPA.

Primary Analyses

Overview. The primary analyses consisted of a series of simultaneous and hierarchical multiple regressions to test if generational status predicted first-semester GPA and achievement goal adoption, and if achievement goal adoption predicted first-semester GPA. High school

GPA, an indicator of baseline ability, served as a covariate for all of these analyses. Seven

participants did not report their first-semester GPA, and another 59 participants did not report

their high-school GPA. These participants did not differ on any key variables when compared to

participants who did report their first-semester and high-school GPA, and were subsequently

dropped from these analyses, leaving a final sample size of 288 participants for these regression

analyses. Finally, a mediation analysis was conducted to test if the indirect effect of achievement

goal adoption on the relationship between generational status and achievement was significant.

Generational Status Effects on Academic Performance. Hypothesis 1 was that FGS

would have significantly lower first-semester GPA compared to CGS. This was tested through

the use of a hierarchical multiple regression that subsequently tested hypotheses 5, 6, and 7. For

this analysis, high-school GPA was entered as a covariate predictor variable in step 1, then

generational status (0 = FGS, 1 = CGS) was entered as a predictor variable in step 2. First-

semester GPA was entered as the outcome variable. The results of this analysis are displayed in

Table 5. Results supported hypothesis 1 with generational status significantly predicting

achievement ($\beta = .119$, $p < .05$). Indeed, generational status positively correlated with first-

semester GPA ($r = .173$), indicating that FGS ($M = 3.12$, $SD = .708$) performed significantly

worse in their first semester compared to CGS ($M = 3.33$, $SD = .552$).

Generational Status Effects on Achievement Goal Adoption. Hypotheses 2, 3 and 4

addressed the degree to which generational status predicted mastery-approach, performance-

approach, and performance-avoidance goal adoption respectively. Hypothesis 2 was that CGS

would adopt mastery-approach goals more strongly than FGS, hypothesis 3 was that CGS would

adopt performance-approach goals more strongly than FGS, and hypothesis 4 was that FGS

would adopt performance-avoidance goals more strongly than CGS. Three simultaneous multiple

regressions were conducted with generational status being entered as a predictor variable in each analysis and adoption of either mastery-approach, performance-approach, or performance-avoidance goals entered as outcome variables in each respective analysis. Results of these analyses are summarized in Table 4. Hypotheses 2, 3 and 4 were not supported, as it was found that generational status did not predict mastery-approach goal adoption ($\beta = .08$, $p > .05$), performance-approach goal adoption ($\beta = -.042$, $p > .05$) nor performance-avoidance goal adoption ($\beta = -.001$, $p > .05$).

Achievement Goal Effects on Academic Performance. Hypotheses 5, 6, and 7 addressed the effects of achievement goal adoption on academic achievement. This was done through an additional step of the hierarchical multiple regression described above that addressed hypothesis 1. High-school GPA and generational status were retained in steps 1 and 2 respectively, with adoption of mastery-approach goals ($M = 4.20$, $SD = 0.683$), adoption of performance-approach goals ($M = 3.45$, $SD = 1.11$), adoption of performance-avoidance goals ($M = 3.69$, $SD = 1.18$) and the interaction term between generational status and mastery-approach goal adoption being added as predictor variables in step 3. Results of this regression are summarized in Table 5. Hypothesis 5 was that mastery-approach goal adoption would positively predict academic performance for FGS only, suggesting a moderation of generational status on the effects of achievement goals on achievement. The results did not support this hypothesis as mastery-approach goal adoption did not predict achievement overall ($\beta = .051$, $p > .05$) nor did the interaction term between generational status and mastery-approach goals reach significance ($\beta = .018$, $p > .05$). Hypothesis 6 was that performance-avoidance goal adoption would negatively predict performance for all students. Results did not support this hypothesis as performance-avoidance goal adoption did not predict achievement ($\beta = -.107$, $p > .05$). Finally,

hypothesis 7 was that performance-approach goal adoption would positively predict performance for all students. Results did not support this hypothesis as performance-approach goal adoption was found to not predict achievement ($\beta = .100$, $p > .05$).

Indirect Effects of Achievement Goal Adoption. Hypotheses 8, 9, and 10 addressed the indirect effects of achievement goal adoption on the relationship between generational status and academic performance. These hypotheses were tested through the use of a mediation analysis which followed the procedure put forth by Hayes (2017), using the PROCESS macro for SPSS, with generational status being entered as a predictor variable, first-semester GPA being entered as an outcome variable, and adoption of mastery-approach goals, performance-approach goals, and performance-avoidance goals entered as mediator variables. All indirect effects (β) are bootstrap estimates (based on 10000 trials) tested with bias-corrected 95% confidence intervals. Significant indirect effects are indicated when the confidence interval range for the indirect effect excludes zero.

The results of this mediation analysis are summarized in Table 6 and presented graphically in Figure 2. Considering that achievement goals did not significantly predict achievement, it was understood that the indirect effects of achievement goal adoption were almost certain to be non-significant. However, the analysis was still conducted in an effort to be as thorough as possible and to address the a priori hypotheses that had been proposed. Unsurprisingly, the results of the mediation analysis did not support hypotheses 8, 9, and 10 as the indirect effects for mastery-approach goals ($\beta = .0040$, $p > .05$), performance-approach goals ($\beta = -.0128$, $p > .05$), and performance-avoidance goals ($\beta = .0117$, $p > .05$) were not significant. However, the direct effect of generational status on academic performance was significant ($\beta = .3236$, $p < .01$) along with the total effect ($\beta = .3264$, $p < .01$). This suggests that while there is a

relationship between generational status and academic performance, adoption of achievement goals do not significantly mediate this relationship.

Secondary Analyses

Darnon et al., (2017) suggested that competence expectancies acted as a moderator of the effects of mastery-approach goals and performance-approach goals on academic performance, we tested this in this study as a secondary analysis. This was achieved by analyzing the interactive effects of competence expectancies and achievement goals on academic performance. In contrast with their reasoning, no correlation was observed between competence expectancies and generational status ($r = .025$), which suggests that FGS do not have lower confidence than CGS as Darnon et al. (2017) suspected. As such, generational status was not included in these secondary analyses. To further test their argument, a hierarchical multiple regression was run with first-semester GPA being regressed onto high school GPA (a covariate entered in step 1); competence expectancy, mastery-approach goal adoption, performance-approach goal adoption, performance-avoidance goal adoption, and interaction terms between competence expectancy and each respective achievement goal (step 2). Results of the regression analysis incorporating competence expectancies are provided in Table 7. Results indicated that while competence expectancy does positively predict academic performance ($\beta = .128$, $p < .05$), it does not significantly interact with adoption of mastery-approach goals ($\beta = -.092$, $p > .05$), performance-approach goals ($\beta = -.136$, $p > .05$), or performance-avoidance goals ($\beta = .079$, $p > .05$) to predict achievement, thus refuting the logic of Darnon et al. (2017) that a moderation of competence expectancies on the effects of achievement goals should take place.

Discussion

This study was undertaken to better understand the social class achievement gap (Harackiewicz et al., 2014), and to test if motivational achievement goals (Elliot & McGregor, 2001) help to predict any differences between FGS and CGS. It was hypothesized that generational status would predict achievement goal adoption (FGS would be more performance-avoidance motivated and CGS would be more mastery-approach and performance-approach motivated), that achievement goal adoption would predict achievement for these students Specifically, it was hypothesized that mastery-approach goals would positively predict achievement for FGS, performance-approach goals would positively predict achievement overall, and performance-avoidance goals would negatively predict achievement overall, and that achievement goal adoption would significantly mediate the relationship between generational status and academic achievement. The results of this study largely do not support these hypotheses. Though a significant difference was found between FGS and CGS on first-semester GPA after controlling for high-school GPA, which establishes that a social class achievement gap does exist among the students in the current sample, generational status did not significantly predict adoption of any of the three achievement goals (Table 4), achievement goals did not predict achievement (Table 5), and there was no significant mediation of achievement goal adoption on this relationship (Figure 2). This suggests that achievement goal adoption did not influence the differences between FGS and CGS on academic achievement.

Alternative Explanations

The largely negligible findings of this study can help to inform the social class achievement gap and achievement goal literatures, if only in an inverse way. The fact that generational status did not predict achievement goal adoption is rather surprising given the plethora of work on the topic that has found significant differences (Darnon et al., 2017; Jury,

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Smeding, Court, et al., 2015; Smeding et al., 2013; Sommet et al., 2015). One potential reason for the lack of replication of previous research is that all of the cited work above took place by the same research team in France, a country in which entrance into college is determined almost entirely through successful completion of the *baccalauréat*; an aptitude test that is the culmination of the middle and high school years of French students. Perhaps having a system in which entrance to college is so stringently screened by one examination influences subsequent achievement goal adoption for FGS and CGS in France, though it could be argued that the SAT acts in a similar fashion in the American educational system. Regardless, considering that cross-cultural findings are contradicting established patterns in achievement goal research (King, 2016), future research should attempt to replicate the findings of social class achievement gap and achievement goal research in non-French samples to provide additional support for these arguments.

Another surprising finding was that achievement goal adoption did not predict achievement. A meta-analysis by Hulleman et al. (2010) showed that when surveys measuring mastery-approach goals featured language that was particularly relevant to the theoretical components of mastery goals (maximizing potential learning, improvement on prior performance and skills, and mastering specific tasks) their positive relationship with performance was weakened considerably. This would suggest that mastery-approach goals may not predict academic performance, as was seen in the current study. However, the effects of performance-approach goals (Darnon et al., 2017) and performance-avoidance goals (Elliot & Church, 1997; Elliot & McGregor, 2001; Elliot, McGregor, & Gable, 1999) on academic achievement have been firmly established, so we expected to replicate their effects in this study. This discrepancy could perhaps be due to the restricted class range of students in this sample as only freshmen and

transfer students were included for this study. Some of the previous research that has found significant results had samples comprised of older college students (Darnon et al., 2009; Elliot & Church, 1997), which were largely absent in the current study. However, this argument is less compelling as prominent work on achievement goals has been conducted on students in introductory psychology classes that are easily assumed to be underclassmen (Elliot & McGregor, 2001). Additionally, there has been successful work done on participants from a variety of academic levels and ages (Hulleman et al., 2010; Senko & Freund, 2015).

A more likely explanation is that achievement goals do not possess as much explanatory power as other, newer, forms of motivation. Achievement goal research has been increasingly focused on the reasons why students pursue the goals they do. These reasons are multifaceted and complex, and are aptly termed "goal complexes" when combined with achievement goals (Senko & Tropiano, 2016; Sommet & Elliot, 2017). For example, performance goals can be adopted for either social reasons (wanting to appear as competent to parents and peers) or personal reasons (feeling proud, enjoying competition, seeking challenge, etc.). Research on goal complexes has found that the reasons students pursue their goals can offer unique and insightful information on how their motivation can influence their performance. Specifically, when certain goals (mastery goals) are pursued for certain reasons (valuing the pursuit of learning and personal development), the interaction produces compounded beneficial effects (Sommet & Elliot, 2017).

The current study only assessed achievement goals, without taking into consideration the reasons behind why the participants were pursuing these goals. Arguably, FGS pursue college education for vastly different reasons than CGS. It has been shown that students from low SES backgrounds are more likely than students from upper class backgrounds to attend college to

help out their families (Phinney, Dennis, & Osorio, 2006). Further, FGS have been shown to experience a sense of familial guilt regarding their success at school because they feel that they have surpassed the achievements of their families and are, in effect, leaving them behind (Covarrubias & Fryberg, 2015). Both of these examples indicate that FGS are highly concerned with their families and are motivated to attend college for family reasons more strongly than CGS. This is line with the argument that FGS are socialized with collectivistic value systems (Stephens, Fryberg, et al., 2012). Overall, the goal complexes model would be likely to capture the intricacies of the different reasons FGS and CGS pursue the goals they do and how these reasons can influence the effects of achievement goal adoption on achievement. It is possible that if the reasons for goal pursuit were considered in the current study, significant findings may have resulted. Therefore, it is suggested that future research take the reasons behind why students pursue achievement goals into account.

From the exploratory analyses that were conducted, it was ascertained that competence expectancy did positively predict academic achievement, suggesting that the more confident a student was that they would perform well, the higher their actual achievement. However, the focus of this analysis was on the interactive effects of competence expectancy and achievement goal adoption on achievement, in an effort to clarify the untested arguments of Darnon et al. (2017) that competence expectancies would moderate the relationship between goals and achievement. In contrast to their proposed rationale, none of the interactions between competence expectancies and goals were significant, suggesting that there is no moderation of competence expectancies on the relationship between goals and performance. Considering that goals did not predict achievement individually, this finding is less than surprising. However, beyond this, the moderation hypothesis of competence expectancies has not found much support

in the achievement goal literature (Elliot & Church, 1997). Indeed, empirical evidence has supported instead an antecedent model with competence expectancies predicting achievement goal adoption rather than competence expectancies moderating their effects (Elliot & Church, 1997). For example, high competence expectancies tend lead to stronger performance-approach goal adoption, which then leads to greater academic performance. Overall, between the null findings of the current study and the lack of support in the literature, there is very little evidence to suggest that competence expectancies act as a moderator of the effects of achievement goal adoption on actual performance.

Another important avenue to consider is the intersectionality of race and social class. Previous research has found that there is a race achievement gap with underrepresented minority students performing worse than racial majority students, and that this achievement gap intersects and overlaps with the social class achievement gap (Harackiewicz, Canning, Tibbetts, Priniski, & Hyde, 2016). Indeed, Harackiewicz et al. (2016) found that a psychological intervention meant to reduce these achievement gaps in an introductory-level science course was especially effective for underrepresented minority students who were also FGS. This finding suggests that previously unseen substantive findings can emerge when race and social class are considered simultaneously. This study, for the sake of parsimony, did not assess racial factors with regard to the role of achievement goal adoption on the relationship between generational status and academic performance. Additionally, the sample consisted of 150 FGS. Among these students, 79 were underrepresented minority students (Black and Hispanic), 74 were racial majority students (White and Asian), and 23 did not provide race information. Parsing these groups apart for the sake of intersectionality analyses would have resulted in a serious sample size issue that would have made the results of said analyses difficult to interpret. Therefore, intersectionality

was not addressed in this study, though it remains a promising future direction that may yield significant findings in later research.

Limitations

Given the negligible findings of this study, additional limitations of this study must be addressed. First, sample size issues are always of concern. The current study featured over three hundred participants, however a large portion of them were lost to the analyses due to missing or unreported data. Therefore, future work should ensure a larger sample size to be certain that there is adequate statistical power in all analyses.

Second, this study, along with most other studies assessing achievement goals and the social class achievement gap, is correlational in nature. Experimental manipulation of achievement goal adoption would likely reveal more robust findings. Since this study only evaluated the correlational relationships between the variables in question, it is possible that potential meaningful and significant explanations for the social class achievement gap were lost. Future research should seek to employ experimental methodology to address this shortcoming. A noteworthy strength of this study however is the nature of the dependent variable, in this case first-semester GPA. Though some studies have had to rely on self-reports of academic performance, this study featured objective data from the institution from which the data was collected. This effectively eliminated any possibility of response bias from the participants. Future research is encouraged to follow the procedure of this study in collecting objective data on academic achievement.

Finally, as noted above, the sample in the current study only included freshmen and transfer students from one public university. While it is logical to assume that the impact of a student's social class background would be most salient in their first semester of college, other

research in this area has included a broader age range of students and included students from more than one university (Stephens, Fryberg, et al., 2012). It is possible that only including freshmen and transfer students from one university may have resulted in missed findings from other students at the college or students from other schools. Future research should feature more diverse samples to ensure that all potential differences between participants are being examined.

Future Directions

Despite the null findings of this study, there are some future directions to this line of research that are worth discussing. First, as discussed above, the implications of goal complexes and intersectionality on the social class achievement gap should be explored. Both provide insightful and thought-provoking concepts to motivation research, but have yet to be rigorously applied to explain or reduce the social class achievement gap. Goal complexes, being the newest addition to the achievement goal literature, is especially exciting to consider with regard to the social class achievement gap as very little research has utilized these constructs to help explain the social class achievement gap, leaving the door wide open for ambitious researchers to study this topic. Additionally, intersectionality concerns are of extreme importance as it has been increasingly shown that race and social class achievement gaps are interrelated and sometimes overlapping phenomena (Harackiewicz et al., 2016). It is very likely the case that the scientific community will be unable to explain the social class achievement gap without acknowledging the race achievement gap as well. Both of these lines of research are exciting new avenues for this area, which will hopefully yield useful information in the coming years.

Additionally, greater attention should be placed onto mastery-avoidance goals and their role in the social class achievement gap. As noted earlier, mastery-avoidance goals are virtually absent from previous studies on this topic, and were not included in the current study. Though

mastery-avoidance goals have been found to be rare in college-aged populations (Ciani & Sheldon, 2010), excluding them from research on the social class achievement gap is unwise. It could be the case, however unlikely, that mastery-avoidance goals offer additional explanatory power in understanding the social class achievement gap. Specifically, FGS may adopt mastery-avoidance goals more strongly as they progress through their degrees, as avoiding a loss in skill may become more of a priority as they near graduation. Indeed, research has shown that students are less motivated to master their material as they approach graduation (Lieberman & Remedios, 2007). Given that mastery-avoidance goals have been associated with detrimental educational outcomes (Elliot & McGregor, 2001; Sideridis, 2007; Van Yperen et al., 2009), if FGS are found to adopt mastery-avoidance goals more strongly than CGS as they progress through their degrees, it may help to explain aspects of the social class achievement gap including the difference in graduation rates between FGS and CGS (DeAngelo et al., 2011).

Another possibility for future research includes differences between FGS who come to four-year universities right out of high school compared to FGS who attend community colleges and then transfer into four-year universities. Only a smattering of previous research has assessed the impact of community college attendance on the achievement of FGS (Pascarella et al., 2003), though this research did not track students longitudinally into four-year university environments. The current study featured both of these types of students, but did not assess any differences between them as the sample sizes of each group would have proven to be too small if they had been grouped in such a way. Future research should focus on the impact of community college attendance on the social class achievement gap. Specifically, does attending community college improve the chances of FGS to succeed at four-year universities? This is an interesting question that deserves empirical attention.

Conclusions

      Overall, a social class achievement gap was found among students in the sample. Clearly, something is causing this phenomenon to take place. The current study does not lend support to the hypothesis that achievement goals play a role. Future and more rigorous research, that could possibly employ an experimental methodology, is strongly recommended. FGS are an important part of the four-year university demographic. Recent estimates indicate that FGS make up roughly 20% of the student body in four-year universities (Saenz, Hurtado, Barrera, Wolf, & Yeung, 2007; as cited in Harackiewicz et al., 2014), and these students are not performing as well as their peers. It is of the upmost importance that educational researchers better understand the mechanisms that drive this relationship so that future research can attempt to ameliorate these differences and not just understand them. The world of academia cares about all of its students, and the time has come to lift FGS onto an equal platform and give them a fighting chance at success.

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Table 1

The 2x2 Achievement Goal Framework by Elliot & McGregor (2001)

		Valence	
		Positive (Approaching Success)	Negative (Avoiding failure)
Competence Standards	Mastery (Intrapersonal)	Mastery-Approach Attaining a goal to develop competence through learning	Mastery-Avoidance Avoiding a decline in skill or competence
	Performance (Interpersonal)	Performance-Approach Striving to outperform others	Performance-Avoidance Striving to avoid underperforming others

Table 2

Descriptive Statistics for Achievement Goals, Competence Expectancy, and GPA

Measure	*M(SD)*	Range	Skewness	Kurtosis
Mastery-Approach	4.19(.693)	3.33	-.616	-.188
Performance-Approach	3.45(1.11)	4.00	-.479	-.531
Performance-Avoidance	3.69(1.19)	4.00	-.758	-.320
Competence Expectancy	16.21(2.89)	13	-.437	-.492
First-Semester GPA	3.20(.668)	3.60	-1.33	2.16

Table 3

Bivariate Correlation Matrix for All Variables Included in Regression Analyses

Measure	1	2	3	4	5	6	7
1. Mastery approach	-						
2. Performance-approach	.32**	-					
3. Performance-avoidance	.18**	.70**	-				
4. Competence expectancy	.44**	.12*	.02	-			
5. First-Semester GPA	.10	.06	-.03	.14*	-		
6. Generational status	.06	-.02	-.004	.03	.17**	-	
7. High school GPA	-.09	.03	-056	.01	.40**	.15*	-

Note: For achievement goal scales, higher numbers reflect stronger endorsement. For competence expectancy, higher numbers reflect higher confidence. For first-semester and high-school GPA, higher numbers reflect higher achievement. For generational status, higher numbers reflect CGS status (categorical variable).

$* p < .05$ $** p < .01$

Table 4

Multiple Regression Results of Relationships Between Generational Status and Achievement Goal Adoption

Predictor	Goal pursuit					
	Mastery-approach		Performance-approach		Performance-avoidance	
	Beta	*t*	Beta	*t*	Beta	*t*
Generational status	.080	1.35	-.042	-.710	-.001	-.019
F	1.96		.379		.448	
R^2	.013		.003		.003	

Note: $N = 292$.

Table 5

Hierarchical Multiple Regression Analysis Predicting First-semester GPA from Generational Status and Achievement Goal Adoption

Predictor	R^2	ΔR^2	Beta (Standardized)
		First-semester GPA	
Step 1	.156**		
High school GPA			.395**
Step 2	.170**	.014*	
High school GPA			.377**
Generational status			.120*
Step 3	.183**	.013	
High school GPA			.373**
Generational status			.119*
Mastery-approach			.051
Performance-approach			.100
Performance-avoidance			-.107
Generational status x mastery-approach			.018

Note: $N = 288$.

$* p < .05$ $** p > .01$

Table 6

Mediation Analysis of Achievement Goals on the Relationship Between Generational Status and First-Semester GPA.

Mediating Variable	Indirect Effect	95% *CI*s
Mastery-approach	.012	[-.012, .047]
Performance-approach	-.008	[-.046, .021]
Performance-avoidance	-.001	[-.035, .034]
Total effect	.246**	
Direct effect	.243**	
Indirect effect	.003	

Note: *N* = 288. *CI* = confidence interval.
** *p* < .01

Table 7

Results of Hierarchical Multiple Regression Analysis on the Relationship Between Competence Expectancies, Achievement Goals, and Achievement.

| Predictor	R^2	ΔR^2	Beta (Standardized)
		First-Semester GPA	
Step 1	.156**		
High school GPA			.395**
Step 2	.201**	.045*	
High school GPA			.393**
Competence expectancy			.128*
Mastery-approach			-.008
Performance-approach			.101
Performance-avoidance			-.089
Competence expectancy x Mastery-approach			-.092
Competence expectancy x Performance-approach			-.136
Competence expectancy x Performance-avoidance			.079

Note: $N = 288$.
* $p < .05$ ** $p < .01$

Figure 1

Mediation Model with Generational Status as Predictor, Achievement Goals as Mediators, and Academic Achievement as Outcome.


Proposed Achievement Goal Mediation Model between Generational Status and Academic Achievement
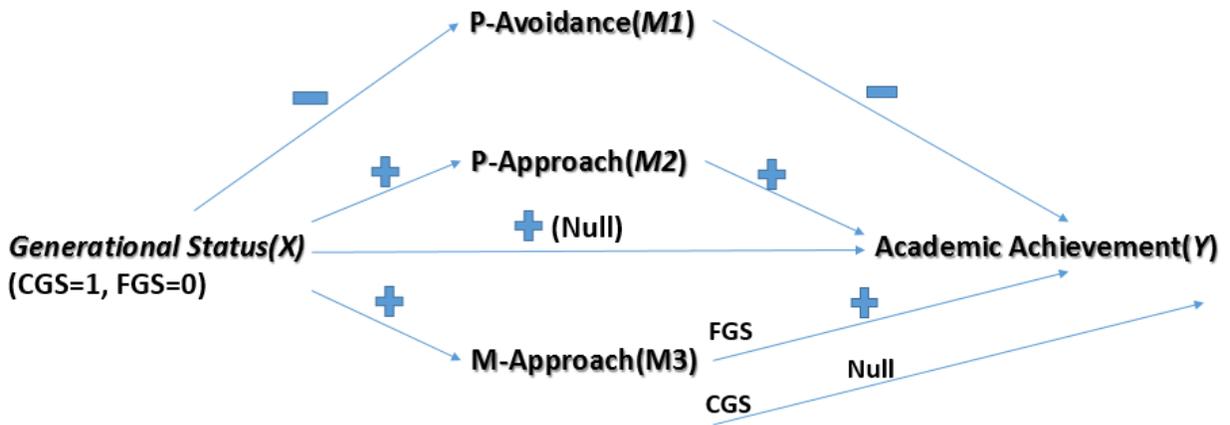
Note: Direct effect was expected to be positive and the total effect (after mediation) was expected to be null. Effect of mastery-approach goal adoption on achievement was expected to be moderated by generational status.

Figure 2

Results of Mediation Analysis with Generational Status as Predictor, Achievement Goals as Mediators, and Academic Achievement as Outcome.
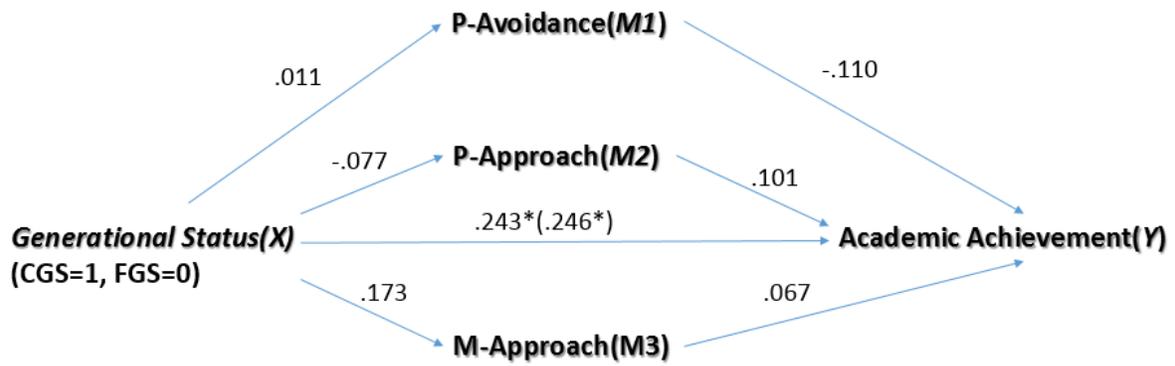
Note: All values are standardized beta coefficients
*p < .05