"Feeling" Hierarchy: The Pathway from Subjective Social Status to Achievement

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Abstract

The current study tested a psychosocial mediation model of the association between subjective social status (SSS) and academic achievement for youth. The sample included 430 high school students from diverse racial/ethnic and socioeconomic backgrounds. Those who perceived themselves to be at higher social status levels had higher GPAs. As predicted by the model, most of the relationship was mediated by emotional distress and study skills and habits. The lower SSS students had more depressive symptoms, which led to less effective studying and lower GPA. The model held across different racial/ethnic groups, was tested against alternative models, and results remained stable controlling for objective socioeconomic status. Implications for identity-based intervention are discussed.

Keywords

Achievement; Motivation; Adolescents; Social Status

"Feeling" Hierarchy: The Pathway from Subjective Social Status to Achievement Most contemporary societies are categorized by a generally 'vertical' social arrangement, meaning that people possess different amounts of goods, resources, and status, based upon their location on well-established symbolic hierarchies (Levine & Campbell, 1972). As individuals navigate society, they come to develop a subjective social status (SSS), or a perception of their place in the broad social hierarchy (Kilpatrick & Cantril, 1960). Historically, institutions such as schools have been particularly instrumental in the

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reinforcement and reproduction of hierarchies (Sidanius, Pratto, van Laar, & Levin, 2004). Over time, SSS within schools is usually reinforced through social circles, which are predominantly organized around shared socioeconomic characteristics (Ostrove & Cole, 2003). Additionally, SSS informs people, whether covertly or overtly, about the groups they do and do not belong to (Jackman & Jackman, 1973). Identity-based motivation suggests that if SSS is indeed linked to a person's sense of self, it should influence motivation and goal-directed behavior (Oyserman & Destin, 2010). Despite the potential connection between SSS and motivation, in combination with the influential role of educational institutions in the production of social hierarchies, little work has examined the connection between youth's perceptions of their social location, motivation, and outcomes in academic contexts.

Thus, it remains unclear if SSS is related to school achievement and achievement behaviors. Consequently, we also know nothing about the process by which perceptions of an individual's SSS may be related to such outcomes. Particularly in contexts of increasing racial and socioeconomic heterogeneity within schools, the salience of relative privilege or deprivation may be increased and perpetuate systemic patterns of disparities in educational achievement. We attempted to fill this theoretical and empirical void by examining a psychosocial mediation model of the relationship between SSS, emotional distress and academic achievement among an ethnically and economically diverse cohort of students at a selective enrollment high school. Given the findings that psychosocial factors often have different relationships with academic outcomes for students from different ethnic backgrounds (Crosnoe, 2009), a further purpose of this study was to determine if the effects of SSS on academic achievement and the overall model were consistent for different ethnic groups.

Subjective Social Status and Achievement Model

We draw from the theory of identity-based motivation (IBM) to understand why perceptions of SSS may influence school behaviors of youth and academic achievement (Oyserman & Destin, 2010). Generally, IBM asserts that people feel compelled to pursue short and long-term goals when those goals feel congruent with relevant identities. For example, in a classroom-based experiment, middle-school students who were randomly assigned to focus on a future identity that required education were subsequently more motivated to spend time on schoolwork than students who focused on a future identity that did not include education (Destin & Oyserman, 2010). Similarly, we propose that an individual's SSS is an identity that carries a number of messages, influencing emotional states and implicitly guiding everyday behavioral choices. The salient perception of relatively lower social status can conflict with academic goals, reminding students that most people like them do not reach post-secondary education. When youth are faced with momentary and chronic reminders that future goals may be difficult to obtain, the goals feel less congruent with personal identity and everyday motivation suffers (Destin & Oyserman, 2009).

The current study extends IBM by modeling a testable process through which the identity within subjective social status connects to school achievement (see Figure 1). More specifically, the model suggests that students' subjective perceptions of their standing in their school's economic social hierarchy will be related to their amount of depressive symptoms. Those who perceive themselves to be at the lower ends of the social hierarchy are expected to experience relatively more emotional distress. The model further suggests that emotional distress will be related to students' engagement in achievement behaviors such as studying in a consistent and organized manner. As several correlational and experimental studies show (e.g., Crede & Kuncel, 2008), the model also argues that these

academic behaviors then directly predict achievement. The available evidence supporting each link in the model is reviewed in more detail below.

Subjective Social Status and Emotional Distress

The conceptual model predicts that those on the higher end of the SSS ladder will have higher academic achievement as they experience less stress or emotional discomfort in relation to their higher standing. Low social status is a commonly stigmatized identity, particularly in contexts where distinctly low and high status groups interact regularly, such as ethnically diverse secondary schools. Low status group members can engage in a number of strategies to maintain a positive sense of self, such as paying less attention to higher status individuals (Crocker & Major, 1989). However, these strategies expend self-regulatory resources and chronic reminders of low status carry tangible implications for an individual's emotional state.

These hypotheses are based on numerous studies which have observed a strong relationship between SSS and well-being using the 'ladder' method, where participants indicate their SSS by marking their perceived location on a drawing of a ladder that represented the greater social hierarchy (Adler, Epel, Castellazzo, & Ickovics, 2000). This subjective rating of status was predictive of physiological measures of stress, including resting heart rate, and psychological measures, including negative affect and coping abilities. SSS has also been consistently related to depression. People who feel higher on a perceived social hierarchy tend to experience much less depression and depressive symptoms than those with lower ratings of SSS (Wen, Hawkley, & Cacioppo, 2006; Demakakos, Nazroo, Breeze, & Marmot, 2008; Wolff, Submramanian, Acevedo-Garcia, Weber, & Kawachi, 2010).

In addition to general measures of depression, SSS is related to more specific feelings about the self and one's future. SSS predicts adolescents' feelings of optimism, self-esteem, & perceived control (Chen & Paterson, 2006). Providing evidence for the causal influence of SSS on emotional well-being and motivation, participants in a randomized experiment rated themselves as more intelligent if their high SSS was made salient first, compared to similarly high SSS participants whose status was not made salient (Kudrna, Furnham, & Swami, 2010).

Emotional Distress and Achievement

The conceptual model further posits that emotional distress is linked to achievement because those who are less stressed or depressed are more likely to engage in achievement related behaviors such as regular and organized studying. Several studies have repeatedly documented the relation between mental health and school performance. For example, higher teacher ratings of 8 to 9 year old students' depressive affectivity predicted lower achievement in math and reading a year later (Feshbach & Feshbach, 1987). Another study of 171 lower SES Hispanic American ninth grade students found that psychosocial stress and depressive symptoms had very strong negative effects on perceived cognitive competence and grades (Alva & Reyes, 1999). Finally, a study of almost 1000 lower and middle SES elementary aged children found that depressive symptoms are negatively related to grades for both boys and girls (Pomerantz, Altermatt, & Saxon, 2002).

The reasons why depressive symptoms and other indicators of psychosocial stress are negatively related to achievement are not entirely clear. However, meta-analyses have found that depressed mood is associated with significant decreases in several different measures of memory (Burt, Zembar, Niederehe, 1995; Christensen, Griffiths, MacKinnon, & Jacomb, 1997). Evidence also suggests that depressive symptoms and memory problems may

interfere with one's ability to focus and concentrate (Aronen, Vuontela, Steenari, Salmi, & Carlson, 2005; Rohling, Green, Allen, & Iverson, 2002).

Other research suggests that the connection between emotional distress and achievement is related to motivation. Poor mental health may lead children to label the causes of good events as external, unstable, and local, while bad events are attributed to internal, stable, and global causes. Such patterns of attributions may connect depressive symptoms to low achievement because they decrease feelings of control, interfering with motivation and achievement oriented behaviors (Nolen-Hoeksema, Seligman, & Girgus, 1986; Sideridis, 2005). Positive emotions, on the other hand, may facilitate learning for youth because they encourage effort and can serve as a buffer against disengagement in the face of difficulty and failure (Meyer & Turner, 2006). Based on this research, the conceptual model proposes that emotional distress primarily relates to students' academic achievement through motivational processes, manifested as less effective study behaviors. In an overall conceptual pathway, low SSS leads to decreased well-being, which interrupts students' ability to study effectively and consistently, eventually contributing to worse academic outcomes.

The Current Study

In sum, we predicted that high school students' SSS will be related to their academic achievement through its association with emotional distress and study habits. To test this model, we sampled students from an educational context in which social status may regularly be brought to mind and hierarchy-based comparisons may occur regularly. We sampled students from an economically and ethnically diverse selective enrollment high school. This context was chosen because it includes a significant proportion of high achieving lower and upper SES students who were all granted admission through a lottery. As a result, the school's social makeup contained a sufficient amount of ethnic and socioeconomic integration and heterogeneity, which naturally creates an abundance of opportunities for status-based social comparisons, increasing the salience of each student's own subjective social status.

We also examined if ethnicity moderated the effects of SSS on GPA and the overall model. Although the proposed pathway from SSS to achievement would appear to function uniformly across ethnic groups, some related research suggests that ethnicity may moderate the effect. For instance, socioeconomic diversity has been found to impair performance for lower socioeconomic status high school students, but this effect is particularly pronounced amongst African American and Latino students, compared to European American students (Crosnoe, 2009). In many settings, the de facto connection between race and social status (Wilson, 2009) could also influence the way that SSS relates to feelings, behaviors, and outcomes. Even within ethnically diverse school settings, social stratification by ethnicity can serve as a mechanism for divergent academic pathways (Muller, Riegle-Crumb, Schiller, Wilkinson, & Frank, 2010). Thus, the connection between SSS and achievement could be more dramatic for ethnic minorities.

Finally, we tested three possible alternative models, varying the order and direction of association between variables, and controlled for a measure of objective socioeconomic status amongst a subsample of participants.

Method

Participants

The sample included 430 students from the 9th through 12th grades of an ethnically and economically diverse selective enrollment high school in a large Midwestern city. About 30% of the students qualified for free- and reduced-price lunch. Almost all of the students met or exceeded expectations on the state exam. In addition to their middle school grades and their 7th grade state exam scores, students were required to take an entrance exam. Students who reached the minimum cutoff scores for the school were then selected through a random lottery system that also used stratified sampling of students from varying ethnic and socioeconomic backgrounds. Although the sample for this study included approximately 50% of total students in the school, due to consent requirements, the sample composition closely reflected the overall make-up of the school (sample 40% European American, 24% African American, 19% Hispanic, and 17% Asian vs. total 36% European American, 25% African American, 22% Hispanic, and 17% Asian). Nearly two-thirds of the sample was female and about 19% of the sample was freshmen, 28% sophomores, 27% juniors, and 26% seniors.

Procedure

One month prior to the survey administration, parental consent and child assent forms with a description of the study were distributed to all students in their homeroom classes. Information was also emailed to their parents through the parent organization of the high school. Students were told that if they completed the survey, they would be entered into a raffle for prizes ranging from $25 to $200. They were also informed that money was also donated to the parent organization. Students who either did not have parent/guardian consent or did not assent to taking the survey did not participate in the data collection. Participants completed the surveys during an extended homeroom period at the beginning of the school day.

School officials asked that the student survey not include questions regarding family income or education. As a result, we devised a separate online parent survey to collect such information. The parent organization of the high school sent information about the online survey in the bi-monthly school newsletter that parents receive electronically. Parents were given eight weeks to complete the survey. Parents were told that if they completed the survey, then their child would be entered into a raffle for prizes ranging from $50 to $200. Money was also donated to the parent organization. As a result, data on parent education and total family income were collected from parents of 85 students in our sample.

Measures

Subjective Social Status—Students were asked 8 items regarding how they perceived their social economic status in relation to their peers at school (e.g., "Most of my classmates' families have more money than my family"). Items were assessed using a 4-point scale (1 = *almost never* to 4 = *very often*) and higher scores reflect adolescents' perceptions of higher social standing relative to their peers ($\alpha = .76$). We specifically chose to devise a new measure of SSS, rather than replicate previous "ladder" methods (e.g., Adler et al., 2000; Goodman, Adler, Kawachi, Frazier, Huang, & Colditz, 2001). Our theoretical approach called for a scale measure that encompassed various aspects of their perceived relative social and economic standing within their specific school context, rather than a more general item.

Emotional Distress—Students reported the extent to which they felt depressed during the past week (e.g., "You were not happy with your life") with 8 items. Items were assessed using a 4-point scale (1 = *almost never* to 4 = *very often*) (α = .87).

Study Skills—Five items pertaining to students' effective studying were adopted from Elliot, McGregor, and Gable's (1999) cognitive-metacognitive study strategies (e.g., "I'm not sure how to study for most of my classes"). Items were assessed using a 4-point scale (1 = *not at all true* to 4 = *very true*) were reverse coded such that higher values reflect a greater skill or understanding of how to study for school (α = .88).

Study Habits—Students reported the amount of time per week they spent doing schoolwork and preparing for school while at home with 7 items (e.g., "In a typical week, how often do you study, even if your homework is complete?"). They answered items on a 5 point scale (0 = *never*, 1 = *less than once per week*, 2 = *once per week*, 3 = *several times per week*, and 4 = *almost every day*). Higher scores represent better studying habits (α = .81).

Adolescent Grade Point Average—Students self-reported the number of A's, B's, C's, D's and F's they received on their most recent report card at the time when the survey was administered in the winter of the 2009–2010 school year. A grade point average was then calculated for each student using a standard 4.0 grade designation system.

Analysis Plan

The conceptual model presented in Figure 1 was tested using latent variable structural equation modeling (SEM) with maximum likelihood estimation in AMOS 16.0 (Arbuckle, 2007). SEM accounts for measurement error and more accurately estimates the direct (i.e., non-mediated) and indirect (i.e., mediated) effects in the mediation model. Bootstrap methods were used to derive the standard errors and p-values of the indirect effects. To account for measurement error, the composites of each factor were used as single indicators of their latent variables. Thus, the residuals were fixed to the product of their error variances and their variances, and the paths from the indicators to their latent variables were set to the square root of the indicator's internal consistency reliability (Stephenson & Holbert, 2003). In the final phase of analyses, the multiple-group analysis facility in Amos 16.0 was used to assess the potential moderating effects of adolescent ethnicity on the model. Overall model fit was assessed with the goodness-of-fit $\chi 2$, the comparative fit index (CFI), the Tucker-Lewis Index (TLI) and the root-mean-square error of approximation (RMSEA) using established criteria (Arbuckle, 2007).

We also evaluated our hypothesized model against other plausible mediation models. Although this approach still inhibits us from drawing causal conclusions, it can strengthen our argument for which model better fits the data. Three specific alternative models were tested. *Alternative model one* was the reverse of our proposed model. *Alternative model two* argued that students' SSS would predict their study skills and study habits. These study behaviors were related to better academic achievement, which in turn was related to decreased emotional distress. Finally, *alternative model three* argued that students' academic achievement predicted their SSS, which in turn was related to their levels of emotional distress. A lower level of emotional distress was then related to better study skills and study habits.

Lastly, we conducted an exploratory analysis with the subsample of 85 students that had family background information to test our model using *objective socioeconomic status* (SES) as a covariate. Parents' report of the average parent education and total family income were standardized and averaged together to form an SES variable. Because SES was

correlated with SSS ($r = .34$, $p < .001$), we included the new variable in the model to covary with SSS and have direct effects on other measures in our model. Independent sample t-tests were conducted to compare the students with family background variables ($n = 85$) to those without such information ($n = 346$). Students with the family background information had a slightly higher GPA ($p < .01$) and reports of SSS ($p < .01$), but the two groups did not significantly differ on our measures of emotional distress, study skills, and study habits.

Results

The zero-order correlations of the study variables are presented in Table 1. All correlations were significant and in the expected direction. The more adolescents perceived their SSS as being higher than their peers, the less emotional distress they reported. Furthermore, both SSS and emotional distress were related to adolescent GPAs. Study skills and habits were positively correlated with each other, and were each negatively correlated with emotional distress and positively correlated with SSS. These academic behaviors were also positively associated with GPA.

Table 2 presents the standardized means and ANOVA tests for each variable by ethnicity. Only two variables significantly differed by ethnicity. Students from different ethnic backgrounds reported comparable levels of emotional distress, study skills and study habits. However, Hispanic American adolescents reported a significantly lower SSS relative to their European American peers, but Asian and African American adolescents did not differ from either of those groups. Asian and European American adolescents also reported a significantly higher GPA than Hispanic and African American students.

Structural Equation Model

The proposed model was then assessed using latent variable structural equation modeling for the overall sample (see Figure 1). The model had an adequate fit to the data, $\chi^2(5) = 14.8$ $p < .01$, CFI = .94, TLI = .88, RMSEA = .07, and explained 20% of variance in GPA. However, modification indices suggested that not all of the SSS effect was mediated by the other variables in the model. Thus, we added a direct path from SSS to GPA (see Figure 2). The model fit slightly improved, $\chi^2(4) = 9.0$ $p < .06$, CFI = .97, TLI = .92, RMSEA = .05, and explained 1% more of the variance in GPA.

The standardized and unstandardized direct and indirect coefficients are presented in Table 3. All of the hypothesized paths in the model were significant in the expected direction. Higher SSS was associated with lower levels of emotional distress ($b = -.49$ $p < .001$), which in turn predicted better study habits ($b = .21$ $p < .01$) and study skills ($b = .35$ $p < .001$). Study habits ($b = .26$ $p < .001$) and study skills ($b = .15$ $p < .001$) were both positively associated with higher GPA. As shown by the significant indirect effects of SSS on GPA ($b = .35$ $p < .001$, 95% CIs [.02, .09]), emotional distress and the study behaviors accounted for a significant proportion of the association between the two variables. However, the direct effect of SSS on GPA remained significant ($b = .14$ $p < .05$). Conversely, the effects of SSS on study skills ($b = .17$ $p < .01$, 95% CIs [.07, .26]) and study habits ($b = .10$ $p < .05$, 95% CIs [.01, .22]) were completely accounted for by emotional distress, as evidenced by the significant indirect effects and non-significant direct effects. Lastly, there was a significant indirect effect of emotional distress on GPA ($b = -.11$ $p < .01$, 95% CIs [$-.17, -.05$]).

Moderation by Ethnicity—The next phase of the analysis used multiple-group SEM to determine whether the model differed by adolescent ethnicity. This process entails comparing the unconstrained structural paths to a fixed model were the structural paths were constrained to be equal across the African American, Asian, European and Hispanic American subsamples. The unconstrained model fit the data very well, $\chi^2(16) = 13.37$, $p = .$

65, CFI = 1.00, TLI = 1.00, RMSEA = .00. The constrained model also fit the data well, although the fit statistics were not as strong as for those for the unconstrained model, $\chi^2(25)$ = 29.45, p = .25, CFI = .97, TLI = .96, RMSEA = .02. The nested model comparisons, $\Delta\chi^2$ (9) = 16.08, p = .07, revealed that the more constrained model fit as well as the unconstrained model and therefore could not be rejected. As a result, the more parsimonious, constrained model was kept, meaning that the model did not significantly differ for the different ethnic groups.

Alternative Models—We then tested the extent to which the three alternative mediated models fit the data. Alternative models one and two failed to converge, which suggests that these models are incorrectly specified to account for the variation in the data. Alternative model three, however, did converge but fit the data poorly, $\chi^2(6)$ = 83.14 p < .00, CFI = .52, TLI = .20, RMSEA = .17.

Objective Socioeconomic Status—Lastly, we tested our hypothesized model on our subsample of 85 students using objective socioeconomic status as a covariate. As a baseline, our proposed model fit this sample of students adequately, $\chi^2(4)$ = 5.31 p < .25, CFI = .95, TLI = .87, RMSEA = .06. The model fit indices decreased after including SES as a covariate and with pathways from SES to the other variables in the model, $\chi^2(5)$ = 7.76 p < .17, CFI = .93, TLI = .78, RMSEA = .08. The magnitude of the path coefficients between study variables remained similar compared to the initial model without the inclusion of SES, although the significance levels decreased because of the smaller sample size. The standardized and unstandardized direct and indirect coefficients are presented in Table 4. Higher SSS was associated with lower levels of emotional distress (b = −1.20 p = .22), which in turn predicted better study habits (b = .22 p = .23) and study skills (b = .31 p = .12). Study habits (b = .27 p < .001) and study skills (b = .17 p < .01) were both positively associated with higher GPA. We also examined whether there was a significant interactive effect of SSS and objective socioeconomic status on student GPA. Results showed that the interaction term was not significant, meaning that the association between SSS and GPA was similar across different levels of objective socioeconomic status.

Discussion

In hierarchically organized societies, people develop a sense of their subjective social status compared to others (Jackman & Jackman, 1973). Previous research on physical and mental health and stress found that when people feel low on a social hierarchy, they are more likely to suffer from poor health and feel worse about themselves and their lives (e.g., Adler et al., 2000), but few studies have assessed the relationship between SSS and academic achievement. The high school setting provides a particularly poignant context to investigate the cognitive and motivational implications of SSS because the behaviors and outcomes of youth during their secondary educational experiences are strongly predictive of many important lifetime outcomes, including health and socioeconomic status (Baum & Ma, 2007). We proposed a psychosocial model which suggests that SSS is related to students' academic achievement through mental health, which connects to students' study skills and habits. Overall, the data provide strong support for the primary assertions of the theoretical model.

One of the main contentions of the model was that higher SSS would be associated with lower emotional distress. As predicted, and similar to studies on the effects of SSS on mental health in other domains (e.g., Wolff et al., 2010), there was a very strong connection between SSS and the experience of depressive symptoms among the students. Those who perceived themselves to be at the lower end of the social status hierarchy tended to encounter more emotional distress or depressed mood than those high on SSS. Therefore,

the thoughts about social status in a specific domain, such as a school setting, seem to generalize to broader sentiments that a person holds about their life and emotional experiences. Considering the strong effects depressed mood has on virtually every aspect of a person's life (e.g., Nolen-Hoeksema et al., 1986), if low SSS does facilitate increased chances of being depressed, then these findings have very important implications for more than just academic achievement.

We also predicted that depressive symptoms would mediate the relationship between SSS and students' study skills and habits and achievement. This assertion was based on the assumption that because depressed mood usually leads to low energy and motivation (e.g., Sideridis, 2005), those who experience more depressive symptoms should be less likely to study. Furthermore, because depressed mood can hinder students' ability and motivation to focus on school tasks, those suffering from high levels of depressive symptoms were expected to not only study less, but also study in a less organized manner when they do study. As predicted in the model, there was a significant direct relationship between depressive symptoms and the study skills (e.g., effectiveness of studying) and habits (e.g., amount of time spent on homework) of high school students. Their study skills and habits suffered the more depressive symptoms they experienced. We also found that as predicted, depressive symptoms significantly mediated the relationship between SSS and students' study skills and habits. Thus, students who perceived themselves to be at the higher end of the social status hierarchy had more productive study habits and studied longer, largely through their decreased emotional distress.

Prior research has shown consistent relationships between depressive symptoms and students' academic achievement (e.g., Feshbach & Feshbach, 1987), but the factors which mediated the relationships have not been clear. Studies have found that memory and concentration problems are associated with depressive symptoms (e.g., Christensen et al., 1997), and several different studies have found that such problems are strongly predictive of academic problems (Aronen et al., 2005). Our model proposed that study skills and habits would mediate the connection between depressive symptoms and achievement, not only because they are related to emotional distress, as we found in this study, but also because study skills and habits are probably the most important predictors of grades. For instance, interventions that focused on improving college students' study skills and strategies have observed significant increases in academic success (Crede & Kuncel, 2008). Consistent with this research and our theoretical model, study skills and habits significantly mediated the association between depressive symptoms and student grades.

Furthermore, in a series of tests of alternative models, we fail to find support for other possible relationships between the variables. Specifically, it was not the case that the model could be reversed, with achievement leading to study skills, level of depressive symptoms, and SSS. Nor did we observe students' SSS predicting their study skills and study habits, relating to better academic achievement, which in turn might predict decreased emotional distress. A final unsupported alternative model tested whether students' academic achievement predicted their SSS, which in turn was related to their levels of emotional distress, leading to study skills and study habits. Instead, the data supported our proposed mediation model, and held when controlling for objective socioeconomic status amongst an available subsample.

Nonetheless, the pathway through well-being and study behaviors did not account for the entire relationship between SSS and achievement. Identity-based motivation provides one possible explanation for the unexplained portion of the SSS effect. The experience of higher status reminds students that they are likely to experience successful post-secondary educational outcomes, which also encourages motivation and achievement during high

school. For example, experiments have shown that students are more motivated to pursue everyday school tasks after they are led to think about an open financial path to future goals like college (Destin & Oyserman, 2009), focus on the future financial rewards of a college education (Destin & Oyserman, 2010), and cultivate detailed images of themselves in the future (Oyserman, Bybee, & Terry, 2006). All of these factors are less likely to occur for students who perceive a lower sense of their own social status. Although the current study measured general emotional distress that was related to SSS, it was unable to test the future-oriented thoughts about the self that may be related to SSS and emotional states and are likely to contribute to motivation in school. Future work remains necessary to test the utility of identity-based motivation in diverse contexts, where people's status identity is made salient by everyday interactions with significantly higher and/or lower status peers.

Because social status is often conflated with ethnicity and there is evidence that certain general models of academic achievement function differently by ethnicity (Muller et al., 2010), we explicitly assessed potential ethnic differences. The results replicated the consistently observed finding that particular minority groups experience lower overall SSS and achievement (for a review, see Wiggan, 2007). Hispanic American students rated themselves as lower on the social hierarchy than the self-ratings of European Americans. Also, Asian Americans and European Americans earned higher GPAs than African Americans and Hispanic Americans. Ethnic groups did not, however, differ on emotional distress, study habits, or study skills. Because our model was tested on students in a relatively high-achieving, selective enrollment high school, it is not surprising that they show comparable levels of important measures that are related to achievement.

In spite of the few mean differences, the more important finding was that the model operated similarly for different ethnic groups, unlike some other achievement related models. For instance, in a national sample of ethnically diverse high schools, parental education was a more stable predictor of achievement for African American students than for European American, Asian American, and Hispanic American students (Muller et al., 2010). In another study, low socioeconomic status was more strongly associated with psychosocial problems for African American and Hispanic American students than European American students (Crosnoe, 2009). SSS, on the other hand, appears to relate to emotional distress, study behaviors, and achievement in the same way for different types of students who coexist in a single academic setting. This may occur because our model focuses on social cognitive factors that prioritize and directly assess how a student *experiences* context. Models that focus instead on actual contextual factors, such as education or resources, help to understand societal trends but are often unable to illustrate how this translates into individual feelings and motivation. It is highly likely that ethnic differences in other models reflect sociocultural differences in how youth interpret elements of their context, but future research is necessary to effectively integrate the objective and subjective experiences of status.

Although the proposed model gains strong support from the data, future research may also utilize longitudinal and experimental approaches to further verify the proposed temporal and causal pathway from SSS through emotional distress and study skills and habits to GPA. Also, as mentioned above, an explicit measure of identity components may provide a more complete empirical illustration of the theoretical assertions. Further, future research regarding SSS can draw upon more controlled laboratory paradigms to further specify potential physiological mechanisms. In particular, it is likely that the affective experience of emotional distress, which is linked to subjective social status, consists of a physical arousal that can drive or inhibit cognitive capacity and motivation. Finally, the current sample provided a suitable initial test for the model connecting SSS to achievement, but future studies will be necessary to test the stability of the pattern across different contexts and

populations. It remains uncertain whether SSS influences outcomes for older, college students and adults in other contexts and if the current model underlies these potential effects.

However, the current cross-sectional study provides initial evidence for the overall model linking SSS to achievement. In a context of significant socioeconomic heterogeneity, SSS exhibits direct and indirect associations with the actual school achievement of high school students. Those who experience lower social status suffer worse emotional distress, which seems to hinder their ability to enact productive school behaviors. Therefore, students' perception of their location on a relevant social hierarchy is related to their emotional state, academic behaviors, and academic achievement in such a way that it could reinforce the stability of their current location on the hierarchy.

The observed pattern of results is driven by perceptions that high school students carry regarding their own social standing. Thus, psychological interventions that attempt to reshape school contexts to be less divisive along lines of status could significantly combat systematic within-school disparities in achievement. A complementary approach might help students to build positive, status-related identities that buffer against emotional distress and encourage better school behaviors. In other words, perceived low social status does not necessarily need to be associated with emotional distress and less effective studying. Instead, established methods of identity-based intervention may be able to redirect the relationship between subjective status and achievement for youth by restructuring contexts and reshaping their interpretation.

Acknowledgments

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Subjective Social Status → Emotional Distress → Study Skills & Habits → Academic Acheivement
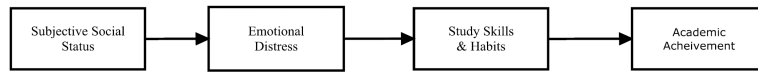
Figure 1.
The conceptual model of subjective social status on GPA
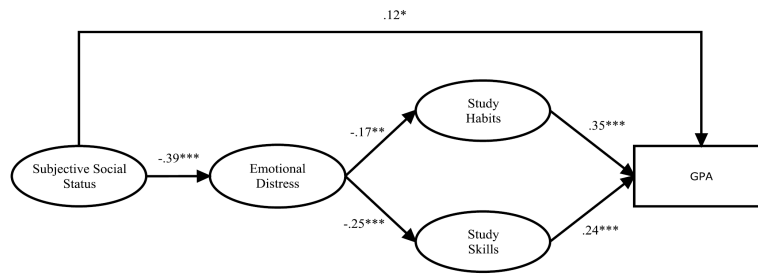
Figure 2.
The modified conceptual model with standardized direct effects. ***$p < .001$, **$p < .01$, *$p < .05$. $R^2 = .21$. $\chi^2(4) = 9.0$ $p < .06$, CFI = .97, TLI = .92, RMSEA = .05. The residuals of the study habits and skills latent constructs were correlated but are not depicted in the figure.

Table 1

Zero-Order Correlations among Study Variables

	1	2	3	4	5
1. Subjective Social Status	-				
2. Well Being	.31	-			
3. Study Habits	.11	.13	-		
4. Study Skills	.15	.21	.11	-	
5. GPA	.17	.20	.35	.27	-

Note: $N = 430$. All correlations are significant at the .01 level.

Table 2

Standardized Means and Standard Deviations of Each Factor by Ethnicity

	African American	Asian American	European American	Hispanic American	F(3, 426)
Subjective Social Status	−.03[ab]	−.06[ab]	.17[a]	−.27[b]	3.78[**]
Well Being	.01[a]	−.15[a]	.07[a]	−.03[a]	.81
Study Habits	−.10[a]	−.08[a]	.09[a]	.01[a]	.99
Study Skills	−.08[a]	−.13[a]	.16[a]	−.12[a]	2.49
GPA	−.45[b]	.11[a]	.36[a]	−.28[b]	19.09[***]
	N=105	70	174	81	

Note: Means in the same row that do not share subscripts differ at *p* < .05.

[*] *p* < .05.

[**] *p* < .01.

[***] *p* < .001.

Table 3

Parameter Estimates and Significance Levels for Direct and Indirect Effects.

	Effects		
	b	(SE)	β
Direct Effects			
Sub. Social Status → Well Being	.49***p	(.07)	.39
Well Being → Study Habits	.21**	(.07)	.17
Well Being → Study Skills	.35***p	(.08)	.25
Study Habits → Grade Point Average	.26***p	(.04)	.35
Study Skills → Grade Point Average	.15***p	(.03)	.23
Sub. Social Status → Grade Point Average	.14*	(.06)	.12
Indirect Effects			
Sub. Social Status → Study Habits	.10*	(.05)	.07
Sub. Social Status → Study Skills	.17**	(.05)	.10
Sub. Social Status → Grade Point Average	.05**	(.02)	.05
Well Being → Grade Point Average	.11**	(.03)	.12

Note: N = 430 families.

*
$p < .05$.

**
$p < .01$.

***P
$< .001$.

SE = standard error. The standard errors and p values for the indirect effects are bias corrected and were estimated with 500 bootstrap samples in AMOS 16.0. $\chi^2 = 9.01(4)$, p <.06, CFI= .97, TLI= .92, RMSEA= .05.

Table 4

Parameter Estimates and Significance Levels for Direct Effects Controlling for Objective Social Status.

	Direct Effects		
	b	(SE)	B
Sub. Social Status → Emotional Distress	−1.20	(.97)	.43
Emotional Distress → Study Habits	−.22	(.19)	−.16
Emotional Distress → Study Skills	−.31	(.20)	−.19
Study Habits → Grade Point Average	.27 ***	(.07)	.42
Study Skills → Grade Point Average	.17 **	(.06)	.30
Sub. Social Status → Grade Point Average	.04	(.05)	.08

Note: *N* = 85 families.

***
$p < .001,$

**
$p < .01.$

SE = standard error. $\chi 2 = 7.76(5)$, p < .17, CFI= .93, TLI= .78, RMSEA= .08.