

# Ethnicity, self-concept, and school belonging: effects on school engagement

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**Abstract** This study examined the relationship of self-concept, school belonging, school engagement to school performance of Caucasian- and African-American students. The main purpose is to assess the ethnicity-based differences in these psycho-social constructs and to explore their differential relationship to school achievement in high-school students from different ethnic background. The data were collected through a survey questionnaire in three school divisions in the Southwest region of Virginia of the United States. The results showed significant ethnicity-based difference in self-concept and in school engagement, but no significant difference in school belonging. The achievement differences were also significant, Caucasian students being higher on self-reported grades. In the regression model, self-concept was not a significant predictor of school outcomes, while school belonging had a significant relationship to school achievement for African-American students. Both self-concept and school engagement were significant for Caucasian students. The findings of the study provide better understanding of the relationship of these variables to school achievement and point to some policy-relevant implications.

**Keywords** Ethnicity · Self-concept · School belonging · School engagement

## 1 Introduction

Academic underachievement of the U.S. students in general and of African-American students in particular is a major concern among parents, educators, and policy makers. Despite many reform efforts in the last two decades, the performance of ethnic minorities has lagged behind the White students (NAEP 2008; Tate 2004). Research has documented these disparities in school performance, standardized test scores, choice of advanced

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course work, and other educational outcomes (Duncan and Magnuson 2005; NAEP 2008). A substantial body of research has studied family and school factors that influence achievement and achievement motivation of the students. Earlier research focused more on the structural factors such as socioeconomic status, parental education and occupation, and experiences of discrimination to explain the lower performance of the African-American students. Research in the last two decades has taken into account social-psychological variables such as self-concept, motivation, beliefs about ability and competence and their relationship to educational performance. This study builds on the previous literature and explores the relationship of three psycho-social constructs, self-concept, school belonging, and school engagement, to school performance. It further examines the ethnicity-based differences in these constructs and how these constructs have differential relationship with school achievement among African-American and Caucasian-American high-school students. The main aim of this study is to advance knowledge and understanding of the effect of these constructs on educational outcomes.

Based on the previous literature, we hypothesized that these constructs, self concept, school belonging, and school engagement, are positively correlated to each other as well as have a positive relationship to school performance. We further expect ethnicity-based differences in these constructs and in their relationship to school achievement. It is important to understand the differential influence of these constructs on students from different ethnic groups so more targeted reforms can be developed and implemented. Although ethnicity is a much broader concept, this study is focused on two groups, African-American and Caucasian-American students. The comparative analysis in the current study will advance the theoretical knowledge about the various pathways to learning and engagement and will yield practical and policy-relevant findings.

## 2 Conceptual framework

Researchers have examined various structural, social, cultural, and psychological reasons for the consistent gap in academic achievement between African-American and Caucasian-American students (Chavous et al. 2003; Duncan and Magnuson 2005; Ford 1996; Mullis et al. 1993; Mullis, Dossey, Owen, & Phillips 1993 as cited in Smerdon 1999; NAEP 2008; Tate 2004). Even though African-American students start school with test scores close to those of their Caucasian-American peers, the gap between these two groups widens over the course of the school years (National Center for Education Statistics as cited in van Laar 2000). Explanations that have been offered include external and structural factors such as socioeconomic status, employment and occupational differences, home and school environments, and individual characteristics such as gender and ethnicity (Smerdon 1999). Social and psychological factors, such as self-concept, school belonging, and school engagement, have also been explored (Crain and Bracken 1994; Goodenow 1993; Gray-Little and Hafdahl 2000; Major et al. 1998; Twenge and Crocker 2002; van Laar 2000; Voelkl 1997). But research relating these psycho-social factors to ethnicity and achievement has not produced consistent findings and has generally been contradictory or inconclusive. There is need for more research on various social, cultural, and individual factors that affect school engagement and school learning for all students and for ethnic minorities in particular. Understanding the role of social psychological variables in school achievement in general and for African-American youth in particular will lead to better designed policies and practices. This study attempts to fill the gap in the research and explores the differences in self-concept, school belonging, school engagement and their relationship to achievement in the two groups of

African-American and Caucasian-American students. Below, we provide a brief overview of these constructs to lay a conceptual frame for the study.

## 2.1 Ethnicity and self-concept

Self-concept is an important construct in the social sciences and has been extensively studied for its relationship with many positive outcomes, especially educational outcomes. Despite the problems of measurement and many definitions, researchers agree that self-concept refers to a person's view of him- or herself (Byrne 1984; Marsh 2005). As individuals interact with their environment, they evaluate their own actions and behaviors and develop a personal description that includes self-evaluation (Shavelson et al. 1976). Some have suggested that description (i.e., self-concept) and evaluation (i.e., self-esteem) are conceptually and empirically distinct (Fleming and Courtney 1984); however, Bracken, Bunch, Keith, and Keith (as cited in Crain and Bracken 1994) factor-analyzed two self-esteem and three self-concept instruments and found them to measure what was essentially the same construct. While it is believed that self-concept is related to other constructs (i.e., intelligence, interpersonal relations, social skills), it has also been shown that self-concept can be distinguished from these other constructs (Bracken 1992). For example, academic ability is not the same as academic self-concept although the latter reflects an individual's perception of the former. Although new research has examined the multidimensionality of self concept and has established its domain-specific nature (Marsh 2005; O' Mara et al. 2006), in this study the self-concept is measured as a global measure of worth, following Rosenberg's work (Rosenberg 1965). Other researchers have also examined the relationship between global self-concept and educational outcomes (Osborne 1995; Rosenberg et al. 1995; Steinberg et al. 1992).

Ethnicity as a factor in self-concept has been widely explored but the relationship is still unclear. Previous studies have primarily focused on differences in global self-concept between African- and Caucasian-American children (Crain and Bracken 1994). Many researchers have expected that lower academic performance among African-American students would correlate with a lower self-evaluation in these students. According to theories of self-evaluation, information about performance and comparisons with others are processed into self-judgments. The social comparison theory (Festinger 1954; Wills 1991) maintains that social comparisons following negative performance feedback will lead to a less positive self-concept. The symbolic interactionist perspective expects that feedback from others will be incorporated into the self-concept (Cooley 1956; Mead 1934).

Contrary to the expectation of lower self-concept based on lower achievement in African-American students, African-American students have generally been found to have equal or higher self-concept than Caucasian-American students. Although self-evaluation theories predict that achievement influences self-concept, social scientists have often found weak relationship between academic achievement and self-concept in African-American students (Allen and Haniff 1991; Demo and Parker 1987; Osborne 1995).

A number of studies have investigated the relationship (or lack thereof) of self-concept and achievement in African-American students. Several researchers have speculated that disengagement within the academic domain may be one factor related to the lack of relationship between self-concept and academic achievement in African-American students. According to Steinberg et al. (1992) and Steele (1997), when individuals are part of a group that is negatively stereotyped in certain domains, those individuals may define or redefine their self-concept to exclude that domain from their process of self-evaluation. Members of stigmatized groups may also disengage their self-concept from domains in which feedback or

outcomes are not seen as valid indicators of their worth or ability (Crocker and Major 1989; Major and Crocker 1993). It is possible for people to disengage their self-concept from a certain domain while still seeing that domain as valuable and important. This could occur when feedback is seen as a poor indicator of ability or merit. Likewise, individuals may disengage their self-concept from feedback perceived as valid in domains that are not valued (Major et al. 1998).

Negative stereotypes about the intellectual abilities of African-Americans are so pervasive in our culture, and so generally known that even those who experience no direct prejudice are also aware of them (Brigham 1974; Gaertner and Dovidio 1986). According to Major et al. (1998), these negative stereotypes and the associated prejudice and discrimination may cause African-Americans to expect racial bias and unfair treatment in academic situations. In turn, this may cause African-American students to develop a psychological distance or defense that prevents academic achievement outcomes from affecting their self-views (Steinberg et al. 1992). Based on these expectations, African-American students may be more likely than their Caucasian-American peers to disengage their self-esteem from performance in these situations. Findings consistent with this view, have been reported by Major et al. (1998), who found that African-American college students scored higher on a measure of intellectual disengagement than did White students, yet the groups did not differ in the value they placed on doing well in school. In the same study, higher scores on the intellectual disengagement measure were related to higher global self-esteem, especially if the students reported poor school performance. Additionally, higher disengagement was related to lower reported grade point averages among African-American but not among White students. Thus, among African-American college students, greater intellectual disengagement was simultaneously related to lower grade point averages and higher self-esteem.

Some researchers attempt to explain the lack of a consistent relationship between ethnicity and self-concept by pointing to the lack of consistency among definitions and measures of self-concept. Specifically, it has been argued that research showing higher self-concept in African-Americans is due to the use of global indices of self-concept rather than specific indices such as academic self-concept (Rosenberg et al. 1995; van Laar 2000). According to the proponents of this view, such specific indices of self-concept are more likely to be related to academic performance than are global indices (Mboya 1986). Graham (1994) published a review of 18 studies that examined differences between Blacks and Whites in academic self-esteem. She reported that 39% of the studies show Black students to have higher academic self-esteem than White students, 22% show no difference, 27% show mixed results, and 11% show Whites to have higher academic self-concept. Overall, the research literature is unclear on the antecedents of self concept and the effects it has on educational performance in minority youth. More empirical research that looks at the processes of socio-psychological development and its relationship to educational outcomes is needed to understand the achievement trajectories of the minority youth.

## 2.2 School belonging

Recent research has shown that school belonging is an important social-psychological construct which is related to school engagement and school performance. School belonging develops as a student experiences positive interactions with peers, teachers, and other members of the school community. A sense of community and a sense of personal relatedness are part of school belonging which develops through positive experiences in school environment (Sánchez et al. 2005; Osterman 2000). Sense of belonging or membership in

school can be defined as the extent to which students feel personally accepted, respected, included, and supported by others in the school social environment (Goodenow 1993). Belonging is more than technical enrollment—it means students have established a social bond among themselves, teachers, and the norms governing schooling institutions (Wehlage et al. 1989).

Although the research on school belonging is sparse, the research results are beginning to accumulate and show that school belonging and identification is related to school performance and retention in school (Booker 2006; Goodenow and Grady 1993). The quality of social relationships in school is an important situational and contextual factor in understanding engagement and achievement in school. The concepts of belongingness and school membership are identified as critical factors in school retention (Finn 1989; Wehlage et al. 1989). Researchers have further noted that high schools in particular are not structured to promote a sense of community belonging (Eccles and Midgley 1989). Yet adolescent students' perceived belonging or psychological membership in the school environment is associated with motivation, grades, and effort (Goodenow 1993). Thus, students who “fit in” are likely to engage in learning and experience the academic success resulting from that engagement and effort (Baumeister and Leary 1995; Goodenow and Grady 1993; Osterman 2000).

### 2.3 Individual characteristics related to belonging and engagement

Recent research has explored questions related to race differences in school belonging and engagement (Booker 2006). Some researchers have reported lower belonging and lower engagement in African-American students. African-American students put forth less effort in school; feel less a part of their schools, and less close to their teachers compared to White students (Hudley 1997; Steinberg et al. 1992). A report based on the National Educational Longitudinal Study (NELS) showed that African-American students report less time spent on homework than Whites, but their self-ratings' of trying hard in class were higher than those of White students (Ainsworth-Darnell and Downey 1998). African-American students were also more likely to report that others thought of them as good students. A separate report, also based on the NELS data, found no racial differences in belonging and engagement as characterized by attendance, class preparedness, and time spent on homework.

School belonging, engagement, and ethnicity-based differences in both are also related to other individual and family-related factors. Johnson et al. (2001) examined the literature related to these factors and reported that, while definitions related to these concepts vary widely, a few patterns could be found. They found that generally younger students, boys, adolescents from higher socioeconomic backgrounds, and adolescents with more authoritative parents reported greater attachment to school or valuing of education (Steinberg et al. 1992). Additionally, they noted that students from families of higher socioeconomic status are more likely to have higher levels of school belonging and to be more engaged in school activities (Ainsworth-Darnell and Downey 1998; Smerdon 1999). Given the importance of sense of belonging in psychological functioning, especially for minority youth, researchers are increasingly interested in the role of belonging in educational processes and outcomes. Yet there is a dearth of empirical literature on school belonging and how it is associated with school engagement and achievement for students from different ethnic groups. In this study, school belonging was measured by five items following the work of Goodenow (1993). These items reflect sense of belonging, relationship, and social bonds with others in school. The items used in this study are listed in Table 1.

**Table 1** Item descriptive statistics and reliability estimates for composites

	<i>M</i>	<i>SD</i>
<i>Composite reliability</i>		
Self-concept	4.03	0.91
Total sample $\alpha = 0.85$ ( $N = 355$ )		
Caucasian-American sample $\alpha = 0.88$ ( $n = 205$ )		
African-American sample $\alpha = 0.81$ ( $n = 150$ )		
<i>Item wording</i>		
I feel good about myself	3.93	1.09
I feel I am a person of worth, the equal of other people	4.04	1.14
I am able to do things as well as most other people	4.14	1.03
On the whole, I am satisfied with myself	4.03	1.12
School belonging	3.47	0.80
Total sample $\alpha = 0.80$ ( $N = 358$ )		
Caucasian-American sample $\alpha = 0.84$ ( $n = 201$ )		
African-American sample $\alpha = 0.73$ ( $n = 137$ )		
<i>Item wording</i>		
I feel like a real part of my school	3.03	1.25
People here notice when I'm good at something	3.38	1.23
Other students in this school take my opinions seriously	3.05	1.13
I can really be myself at this school	3.49	1.34
I feel proud of belonging to my school	3.72	1.31
Academic engagement 1 (effort)	3.08	0.61
Total sample $\alpha = 0.78$ ( $N = 344$ )		
Caucasian-American sample $\alpha = 0.82$ ( $n = 201$ )		
African-American sample $\alpha = 0.70$ ( $n = 143$ )		
<i>Item wording</i>		
I feel I am responsible for my learning	3.19	0.71
I always try hard no matter how difficult the work	2.97	0.78
When I fail, that makes me try that much harder	3.00	0.83
I always do my best in school	3.14	0.78
Academic engagement 2 (enjoyment of learning)	2.76	0.59
Total sample $\alpha = 0.80$ ( $N = 348$ )		
Caucasian-American sample $\alpha = 0.82$ ( $n = 202$ )		
African-American sample $\alpha = 0.76$ ( $n = 146$ )		
<i>Item wording</i>		
I enjoy school because I am learning things that will help my in the future	2.66	0.82
Academic success is important for success in life	3.21	0.80
I look forward to school because I like the subjects I study	2.37	0.81
Participation in class is fun	2.62	0.81
I often study things that interest me	2.94	0.73

## 2.4 School engagement

Although conceptualization and research on engagement in learning has received considerable attention in recent years, theory, measures, and empirical research are not yet developed to fully understand the concept of engagement (Fredricks et al. 2004). Engagement is considered a function of the individual as well as the environment so it is assumed to be malleable and responsive to the contextual features of the learning environment. It is considered a multidimensional construct with psychological, behavioral, and cognitive components. Newmann et al. (1992) define engagement as “a student’s psychological investment in and effort directed toward learning, understanding or mastering the knowledge, skills, or crafts that academic work is intended to promote” (p. 12). Models of engagement developed by Finn (1989), Wehlage et al. (1989), and Newmann et al. (1992) emphasize both psychological or affective and behavioral dimensions to school engagement. Dika and Singh (2002) explored the multidimensional approach to conceptualizing engagement in a pilot study on student engagement. Data was collected from rural high school students on both psychological and behavioral dimensions of engagement. The cognitive dimension was operationalized as valuing of knowledge and positive orientation towards learning, and the behavioral dimension was conceptualized as attendance and class preparation. A confirmatory factor analysis of this data showed that there are likely two distinct dimensions of academic engagement in subject-related learning.

Previous studies have shown that engagement has a significant direct effect on achievement in path analyses of context, self, engagement, and achievement (Connell et al. 1994; Fredricks and Eccles 2002; Ryan and Deci 2000; Skinner et al. 1990). Singh et al. (2002) also found that engagement (measured as homework time and TV time) had a significant direct effect on both math and science achievement in structural equation models of motivation, attitude, engagement, and achievement.

In theory, higher levels of engagement lead to higher achievement. Several studies have examined the relationships among engagement, achievement, and other factors (e.g., Connell et al. 1994; Cothran and Ennis 2000; Finn and Voelkl 1993; Johnson et al. 2001; Jordan and Nettles 1999; Lamborn et al. 1992). Overall, studies have documented positive associations between engagement and achievement. Over and above background factors such as race, SES, gender, educational track, and family cultural capital, behavioral engagement explain a modest but significant amount of variance in school achievement (Roscigno and Ainsworth-Darnell 1999; Singh et al. 2002; Smerdon 1999). Educational researchers have also explored the concept of academic and school engagement in relation to ethnicity. To understand the educational trajectories and achievement motivation of minority youth researchers have examined if minority students are less academically engaged and if they feel less a part of their schools than their majority peers (Booker 2006; Steinberg et al. 1996). It has been suggested that African-American students are less engaged in school than Whites because they expect fewer occupational and other benefits to come from education. This view suggests that African-American students avoid “acting white” by accepting an education structure created and maintained in large part by the dominant group (Fordham and Ogbu 1986); however, there is disagreement on this idea (Ainsworth-Darnell and Downey 1998). There is a need for more research on the ethnicity-based differences in school engagement and how it is related to school achievement. In this study, school engagement was measured by two constructs: one signifying behavioral dimension of effort and other being the psychological dimension of enjoyment and value of learning.

This study examined the ethnicity-based differences in self-concept, school belonging, school engagement, and how these constructs differentially influence academic achievement of African-American and Caucasian-American students. The following questions guided the study:

1. Are there differences in self-concept, school belonging, and school engagement between African-American and Caucasian-American students?
2. How are these constructs related to each other? Are there differences in the magnitude of correlations among these variables between African-American and Caucasian-American students?
3. Are these constructs related to academic achievement? Are there ethnicity-based differences in the relationships of these constructs to academic achievement?

### 3 Methods

#### 3.1 Data sources and participants

This article is part of a larger study on self-processes, social ties, school factors, and school engagement. Survey data were collected from 1,157 high-school students in three school divisions in the Southwest region of Virginia in June 2002. Since the majority of the respondents in the data set were Caucasian-American, a data file with all African-American students ( $n = 163$ ) was merged with a data file of a random subset of Caucasian-American students ( $n = 210$ ) to be able to make valid comparisons between the two groups ( $N = 373$ ). The reason for taking a random subsample of the Caucasian-American students was to balance the two sample sizes. The balanced sample sizes in the two groups will provide more valid comparisons with less concern about the heterogeneity of variance in the two groups. There was an equal balance of males and females, at approximately 45 and 54%, respectively.

#### 3.2 Measures and constructs

The data included measures of self-concept, school belonging, and school engagement, as well as demographic variables and self-reported grades. After examining the results of principal components and reliability analyses, composite scores were created for each construct as the mean of the respective items. Self-concept was measured with four items (scored on a five-point rating scale; 1 = hardly ever true to 5 = almost always true) from the Rosenberg Self-View Inventory (Rosenberg 1965). The reliability of the four items was  $\alpha = 0.86$ . School belonging, defined as connectedness or belonging to school, was measured by five items scored on a five-point rating scale (1 = hardly ever true to 5 = almost always true), e.g., I feel like a real part of my school. These items were from The Psychological Sense of School Membership (PSSM; Goodenow 1993) and had a reliability of  $\alpha = 0.80$ . School engagement was conceptualized as having two dimensions: psychological (exhibited by enjoyment and valuing of learning) and behavioral (exhibited by effort and responsibility for learning) (Newmann et al. 1992). Five items measured the psychological dimension of engagement, e.g., I look forward to school because I like the subjects I study ( $\alpha = 0.80$ ), while four items measured the behavioral dimension, e.g., I always try hard, no matter how difficult the work ( $\alpha = 0.78$ ). Both sets of items were scored on a four-point rating scale (1 = strongly disagree to 4 = strongly agree). For all three scales, separate reliability estimates for the two groups revealed slightly higher reliabilities for the Caucasian-American group.



### 3.3 Data analysis

Descriptive statistics and independent sample *t* tests were computed to examine the mean differences on items as well as constructs. Correlational analyses for the two samples were conducted to examine relationships among variables, and differences in magnitude of relationships between the two groups. To assess the variance accounted for by these constructs in self-reported grades, separate regression analyses were conducted for the two groups.

## 4 Results

### 4.1 Ethnicity-based differences in self-concept, school belonging, academic engagement

The first research question investigated if there were ethnicity-based differences in the three constructs, self-concept, school belonging, and academic engagement. The results show significant difference in self-concept in the two groups ( $T = 3.94, p < 0.001$ ). African-American group had significantly higher mean on self-concept (Mean = 4.25) when compared to Caucasian-American group (Mean = 3.88). Self-concept was a composite of four items; the groups were significantly different on three items. For details see Table 2. There was no significant difference on school belonging. Both the groups reported similar responses to items that measured bonding and belonging with school. Academic engagement was measured by two composites; one measuring behavioral aspect of engagement such as effort, responsibility for learning, and the second composite measured psychological orientation to learning such as interest and enjoyment of learning. There was no significant difference on the second composite measuring psychological dimension of academic engagement. But there was a significant difference in the two groups on the first composite measure of academic engagement reflecting effort and taking responsibility for learning ( $T = 1.97, p < 0.05$ ). The mean for the Caucasian group was significantly lower (Mean = 3.02) when compared to the mean for the African-American group (Mean = 3.15). It is important to note that the effect size for this difference is small. There were significant differences in the groups on self-reported grades. Caucasian-American students had reported significantly higher grades for the past year. On a five-point scale the mean grade for the Caucasian group was 3.85, compared to 3.52 reported by the African-American group. For details see Table 2.

**Table 2** Ethnicity-based differences in self-concept, school belonging, academic engagement 1 (effort), and academic engagement 2 (enjoyment of learning)

Composite	Caucasian-American sample		African-American sample		<i>T</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	
Self-concept	3.88	0.95	4.25	0.81	3.94**
School belonging	4.45	0.83	3.51	0.75	0.73
Academic engagement 1 (effort)	3.02	0.64	3.15	0.55	1.97*
Academic engagement 2 (enjoyment of learning)	2.72	0.61	2.81	0.57	1.41

\*  $p < 0.05$

\*\*  $p < 0.01$

**Table 3** Correlations between self-concept, school belonging, academic engagement 1 (effort), academic engagement 2 (enjoyment of learning), and self-reported grades (Caucasian-American sample;  $N = 215$ )

Composite	1	2	3	4	5
1. Self-concept	–	0.49**	0.36**	0.36**	0.33**
2. School belonging		–	0.25**	0.28**	0.21**
3. Academic engagement 1 (effort)			–	0.70**	0.41**
4. Academic engagement 2 (enjoyment of learning)				–	0.40**
5. Self-reported grades					–

#### 4.2 Correlations among self-concept, school belonging, academic engagement, and self-reported grades

The second research question explored the relationships among these constructs. As expected, significant correlations were found among these constructs. Because the focus of the research is on ethnicity-based differences in these constructs, the correlations among the variables were examined separately to look for differences in the magnitude of relationships among these constructs in the two groups. Self concept was related to school belonging, enjoyment of learning (academic engagement composite 2) in both the groups. But while there was a strong and significant relationship of self-concept and academic effort (Academic engagement composite 1) in Caucasian sample ( $r = 0.36$ ), there was no significant correlation between self-concept and academic effort ( $r = 0.14$ ) in the African-American sample. Same pattern was true for the relationship of self-concept and self-reported grades. In the Caucasian-American sample the correlation of self-concept and grades was significant and positive ( $r = 0.33$ ), while in the African-American group the correlation ( $r = 0.13$ ) was not significant. Thus, while the correlations of self-concept with school belonging and enjoyment of learning (academic engagement composite 2) were of similar magnitude, there was no significant relationship of self-concept with academic effort (academic engagement composite 1) and reported grades in African-American sample. This pattern of correlations provided the basis for further investigation of these differences in the relationship of self-concept to achievement-related variables.

School belonging had positive correlation with enjoyment of learning (psychological dimension of academic engagement) in both the groups ( $r = 0.34$  and  $0.28$  for African-American and Caucasian-American groups, respectively). School belonging had a positive but moderate relationship with academic engagement (behavioral dimension) in both the groups ( $r = 0.23$  and  $0.25$ ). For both the groups, the two academic engagement composites were positively correlated but the strength of relationship was significantly different in the two groups. Academic effort (academic engagement composite 1) and enjoyment of learning (academic engagement composite 2) had a strong correlation ( $r = 0.70$ ) in Caucasian-American sample. In African-American sample, although the two academic engagement composites were significantly correlated, the magnitude of the correlation ( $r = 0.37$ ) was significantly lower in this group ( $r = 0.70$  vs.  $r = 0.37$ ). Academic engagement composite 2 (enjoyment of learning) has positive correlation with self-reported grades in both the samples ( $r = 0.41$  and  $0.25$  for Caucasian-American and African-American samples, respectively). These differences in the pattern of correlations in the variables led us to investigate the differences further through regression analyses. The two groups were analyzed separately to understand the differences in the relationship of self-concept, school belonging, academic engagement, and self-reported grades (Tables 3, 4).

**Table 4** Correlations between self-concept, school belonging, academic engagement 1 (effort), academic engagement 2 (enjoyment of learning), and self-reported grades (African-American sample;  $N = 163$ )

Composite	1	2	3	4	5
1. Self-concept	–	0.38**	0.14	0.24**	0.13
2. School belonging		–	0.23**	0.34**	0.35**
3. Academic engagement 1 (effort)			–	0.37**	0.25**
4. Academic engagement 2 (enjoyment of learning)				–	0.22**
5. Self-reported grades					–

\*\*  $p < 0.01$

### 4.3 Regression models for the two groups

Regression analyses were carried out to further understand the relationship of self-concept and school belonging to academic engagement and achievement. Because of significant differences in the correlations in the groups the data for the two groups were analyzed separately. The first set of analyses was carried out to see if self concept and school belonging were related to the two components of academic engagement: academic effort and enjoyment of learning. When academic effort (academic engagement composite 1) was regressed on self-concept and school belonging, self-concept was a significant predictor of academic effort for Caucasian students while it had no explanatory power for African-American group. While school belonging had significant but small regression coefficient for the African-American group it did not exert significant influence on academic effort for Caucasian group. The model explained 14% variance in academic effort for Caucasian group and only 5% variance for the African-American group. When the academic engagement composite 2, reflecting enjoyment of learning, was regressed on self concept and school belonging, similar results were found. Only self-concept had a significant  $b$  (0.187) for Caucasian-American group, and the model explained 14.4% variance in enjoyment of learning. In contrast, in African-American sample, self-concept was not significant predictor of enjoyment of learning but school belonging had a significant regression coefficient ( $b = 0.205$ ). The model for African-American sample was significant and explained 13% variance in enjoyment of learning. These results highlight the differential effects of self-concept and school belonging on academic engagement in the two groups. Neither enjoyment of learning nor academic effort was influenced by self-concept, while school belonging affected both dimensions of academic engagement in African-American students. The results showed significant effect of self-concept on academic engagement while school belonging was not a significant variable in academic engagement for Caucasian-American students.

Further analyses were undertaken to understand the role of these variables in academic engagement and achievement. In the second set of analyses, the two composites of academic engagement were regressed on self-concept, school belonging, and one of the composites of academic engagement. Academic engagement composite 1 (effort) was regressed on self-concept, school belonging, and academic composite 2 (enjoyment of learning) in an effort to understand the effect of these variables on academic engagement in the two groups. Academic engagement composite 2 (enjoyment of learning) was regressed on self-concept, school belonging, and academic composite 1 (academic effort). For full results, see Table 5. Results showed similar pattern. For Caucasian students, the two composites of academic engagement were strongly related and had large effects in each model. Self-concept had a significant effect on academic effort. Self-concept and enjoyment of learning explained 51%

**Table 5** Relationship of self-concept and school belonging to composites of academic engagement

Independent variables	Caucasian-American sample		African-American sample	
	Model 1	Model 2	Model 1	Model 2
	Academic engagement 1 (effort)	Academic engagement 2 (enjoyment of learning)	Academic engagement 1 (effort)	Academic engagement 2 (enjoyment of learning)
Self-concept	0.208* (0.310)	0.187* (0.292)	0.033 (0.051)	0.094 (0.141)
School belonging	0.074 (0.098)	0.099 (0.137)	0.140* (0.199)	0.205* (0.283)
$R^2$	0.135	0.144	0.050	0.131

Note: standardized regression coefficients in *parentheses*

\*  $p < .05$

**Table 6** Academic engagement and achievement: effect of self-concept and school belonging

Independent variables	Model 1 Academic engagement 1 (effort)	Model 2 Academic engagement 2 (enjoyment of learning)	Model 3 Grades
Caucasian-American sample			
Self-concept	0.078* (0.117)	0.057 (0.090)	0.228* (0.185)
School belonging	0.005 (0.007)	0.053 (0.074)	0.033 (0.024)
Academic engagement 1 (effort)	–	0.623*** (0.653)	0.473*** (0.116)
Academic engagement 2 (enjoyment of learning)	0.693*** (0.660)	–	0.225 (0.255)
$R^2$	0.508	0.513	0.212
African-American sample			
Self-concept	0.007 (0.011)	0.086 (0.128)	–0.030 (–0.024)
School belonging	0.083 (0.119)	0.168* (0.231)	0.392* (0.308)
Academic engagement 1 (effort)	–	0.267* (0.259)	0.146 (0.082)
Academic engagement 2 (enjoyment of learning)	0.274* (0.283)	–	0.191 (0.104)
$R^2$	0.120	0.195	0.137

Note: Standardized regression coefficients are given in *parentheses*

\*  $p < 0.05$

\*\*\*  $p < 0.0001$

variance in effort towards learning. For African-American students, self-concept was not a significant variable and only 12% variance was explained in academic effort by the model. Only significant variable was enjoyment of learning.

In the final model, we regressed self-reported grades on self-concept, school belonging, and the two academic engagement composites. The differences in the two groups were noteworthy. In Caucasian-American there were two significant variables, self-concept and academic effort ( $b = 0.228$  and  $b = 0.473$ ). The model explained about 21% variance in grades. In African-American sample, only significant variable was school belonging ( $b = 0.392$ ). The model explained about 14% variance in the grades. For details see Table 6.

These results highlight the differences in the two groups. In none of the models self-concept was related to academic engagement and achievement while belonging played a significant role in academic engagement and achievement-related outcomes for African-American students. For Caucasian-American students' self-concept was a significant variable for academic engagement and achievement. Academic engagement composites also had comparatively larger effects on achievement and were strongly correlated with each other. Data analyses confirm the hypotheses of higher self-concept and lower grades among African-American students.

## 5 Discussion and implications

Because academic underachievement is a major concern and affects African-American students disproportionately (NCES 2007), it is critical to understand the factors that influence the achievement motivation and achievement in high-school students of different ethnic background. Theory and research confirm that beliefs about self affect actual achievement outcomes because of their motivational effect (Marsh and Craven 2006; Marsh 2005; Ryan and Deci 2000; Wigfield and Eccles 2002). The goal of this study is to examine the relation of self concept, school belonging, and school engagement to academic achievement and to determine if these constructs had differential relationship with school grades for African-American students. For both the samples of students these constructs had positive relationship to achievement but the magnitude of the relationship varied by ethnicity.

These findings are both theoretically and practically significant. Self-concept, school belonging, and school engagement were found to have positive correlations with each other and to achievement in both the groups although the magnitude of relationships of different constructs varied in the two groups. A different pattern of results emerged for each group. For African-American group, self-concept did not play a strong role in academic outcomes, although they reported higher self-concept. Self-concept had no significant relationship with either measures of engagement or grades. These results provide support for disidentification hypothesis with educational goals in self-evaluation among African-American students (Steinberg et al. 1992; Steele 1997). These results confirm the earlier findings that African-American youth are likely to disengage their self-esteem from educational domain due to stereotype threat (Harris-Britt et al. 2007; Major et al. 1998). In contrast to self-concept, school belonging was a significant predictor of both school engagement and grades for African-American students. This finding also confirms earlier research which has shown the importance of belonging, need for affiliation and teacher support for minority and at-risk students (Booker 2006; Brewster and Bowen 2004).

The finding that school belonging is a significant influence on school outcomes for minority youth has significant policy implications. Schools can design and implement practices that can enhance sense of belonging and community for students. Schools can play only a limited role in boosting global self-concept but they can play a more significant role in strengthening the sense of community and belonging. A fair and warm environment with stronger focus on relationships with teachers, peers, and counselors will lead to a better sense of community among students. Clear rules and fair discipline are also ways to improve the school belonging of the students.

Although this research focused on U.S. students it has implications for students everywhere. Because of the growing minority communities in many countries these findings have salience in different settings. Many students feel alienated and disconnected with schools. Schools can improve feelings of belonging and membership by changing the school policies

to be student-centered and by enhancing opportunities to interact with teachers and with each other. This research also emphasized the role of school engagement in school achievement. Because school engagement is presumed to be malleable and responsive to the context and environment, it can be increased by changing the learning environment and instructional practices.

Since this study is based on correlational data we can only draw limited and tentative conclusions about the nature of these relationships. Despite the strength of relationships and consistency of these findings with previous research it is not possible to draw causal inferences due to the cross-sectional observational data of this study. It is necessary to carry out research on longitudinal data to establish the causal effects of these variables on educational processes and outcomes. Educational researchers are increasingly interested in models of learning that take into account social and cultural factors. Because of the persistent gap in the achievement of minority youth it is necessary to examine these contextual constructs with more rigorous methods.

This study suggests some future directions for research. There is clear need for more empirical research on social and psychological variables that are differentially related to school process and achievement outcomes for different groups. In addition, the role of behavioral engagement in academic achievement warrants more exploration, particularly because African-American students reported higher levels of academic engagement (effort) yet effort had weak relationship with achievement for them. Researchers have advanced alternative explanations for disassociation of self-evaluation variables and achievement among African-American students such as external attributions of success and disidentification with educational domain (van Laar 2000; Steele 1997). Such explanations need to be empirically investigated. This study further highlights the role of social psychological variables such as school belonging and engagement in achievement, and suggests potential interventions where school personnel can make an impact—increasing enjoyment and effort in learning.

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