

# **Learning and Motivational Characteristics of Urban High School Students**

December 15, 2008

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The work report herein was supported at University of Southern California by Mental Health America of Los Angeles (MHA) through a grant from The California Endowment. The opinions, findings and conclusions or recommendations expressed in this material are those of the authors and do not necessarily reflect the views of MHA.

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## Executive Summary

The Human Services Academy model, a “school within a school,” combines classroom education with real-world hands-on community-based work to encourage low-income students to pursue a career in human services. There has been some research done on career academies, but there is a lack of solid research that focuses on learning and motivational characteristics of the target student population, particularly those in urban high schools. Such information would provide a strong foundation for the curriculum and professional development aspects of the Academy Model. To begin to address this need, the current study was an initial step in developing a research approach to provide data on the learning, motivation, and career-related characteristics of underserved minority high school students.

Two hundred students in a central city, underserved minority high school in Los Angeles were administered a specially designed survey which assessed learning, motivation, and academic engagement. The psychometric characteristics of the measures for this population were assessed, and the performance of the sample on the measures was reported. The reliable subscales were then used in a predictive analysis which used academic engagement as the outcome variable. It was found the learning and motivational variables were predictive of academic engagement for these students.

While these findings parallel those with non-minority samples, these questions have been understudied with urban students. Motivational variables, in particular, are often given minimal attention, in spite of the abundant literature which demonstrates a connection to academic outcomes. The findings should also be used as the foundation for further study of these variables using larger samples and more powerful multivariate techniques. The factors examined in the study are amenable to intervention, although they are not often employed with low achieving students in urban schools, nor do teachers receive extensive professional development in these areas. The findings will assist the academy in applying the research to future program development efforts.

## Introduction and Purpose

Recent mental health reform efforts have targeted the secondary school sector as a major focus area (see Mental Health Services Act of 2004). Efforts directed toward understanding the academic achievement of the underserved student population in south Los Angeles and its impact on achieving a competent mental health workforce pipeline is the objective of this report.

As with all reform, there is a need to review and refine educational models to ensure they continue to produce graduates and prepare them for a demanding workforce. For example, the Human Services Academy model is defined as a “school within a school” that combines classroom education with real-world hands-on community-based work to encourage low-income students to pursue a career in human services. Although there has been some research done on career academies (see Maxwell & Rubin, 2000 & Kemple, & Snipes, 2000), there is a lack of solid research that focuses on learning and motivational characteristics of the target student population that will serve as the basis of future program development efforts. The current project was developed to help begin to address this gap.

This study represents the initial step in developing a research approach to provide data on the learning, motivation, and career-related characteristics of underserved minority high school students. This research project will generate recommended approaches to help expand career education for students, while addressing their support needs, and explore options for increasing a well-trained mental health workforce to serve underrepresented communities. The overall approach of the program is to bring together various academic and industry partners to create a collaborative consortium, consisting of a mental health agency, secondary school, post-secondary (two-year college and four-year university), as well as certificated programs. The results of the study reported here will help the funding agency develop and refine the instructional components of the program as well as provide information for professional development efforts for teachers and staff.

The overall goal of this study is to provide data that will help to increase the south Los Angeles community investment in planning to meet career education needs of high school students, to increase options for student education and exposure to the mental health/human services field, and to improve a system for identifying student support needs and creating links to services. The measure developed as part of the current work is designed to provide an empirical look at students' academic-related learning characteristics in order to help the funding agency in understanding and addressing students' support needs. It provides a descriptive look at how students' motivational beliefs, educational and occupations aspirations and expectations, perceived family and school support are related to their engagement and learning strategies and ultimately to their academic outcomes.

The remainder of the report provides a basic overview of Career Technical Education, including Career Academies and Regional Occupation Center and Programs (ROCPs) as potential career models to increase student academic achievement and improve linkages between career and technical curricula of public secondary and post-secondary education. The report then discusses relevant research on learning, motivation, and sociocultural variables as a backdrop to the current work. Next, the specific questions guiding this work and the measure developed in

the study are described, and details of the study and test of the measure are provided. The final section of the report describes the implications and potential future stages of the work.

## A Review of Relevant Work

### *Career Technical Education (CTE)*

*History and background.* Career Technical Education is one of the main goals of California's public education system, as well as the community college system. California's CTE infrastructure core includes CalWORKS, California Partnership Academies, adult schools, public and private four-year universities, and the industry sector. Federal programs include the Carl D. Perkins Career and Technical Education Improvement Act of 2006 and the Smaller Learning Communities Program. In middle school, the goal of CTE is to spark an interest in students and engage them in career exploration opportunities. In high school, students focus on career orientation and take the next steps towards preparing for futures in certain career pathways. For example, career preparation programs offered by local Regional Occupational Centers and Programs (ROCPs) provide work-based learning opportunities for students to work under the guidance of a professional mentor. Other schools create academies or smaller learning communities in which students are tracked according to interests and work collaboratively with other students and teachers towards common goals. In a 2008 report from the California Department of Education (CDE), about 39 % of California's high school students are enrolled in CTE programs, and the numbers have been declining in past years. Specifically, in 1993 there were 61 % students enrolled in at least one CTE course compared to 31 % in 2006. The 2008-2012 California State Plan for Career Technical Education calls for providing students with industry-linked programs that make it possible for students to reach their career goals and acquire the skills necessary for "economic self-sufficiency" (page 52).

*Goals of CTE.* The goals of CTE respond directly to changes in our society, as our population grows, graduation rates drop, and necessary workplace skills change. CTE addresses the major issues faced by education policymakers in regards to "fixing" our schools. As stated in the California State Plan for Career Technical Education, "Many of the school reform efforts currently viewed as ways to help our failing schools (e.g. smaller learning communities, academies, multiple pathways) emphasize the new four Rs: rigor, relevance, relationship, and results. Research cited in this document also supports the notion that students are less likely to drop out of high school and become more engaged when they are provided rich experiences that are relevant to their life after school. These experiences, in addition to the four Rs, include individualized instruction, mentoring programs and work-related learning opportunities, all of which are the foundation of CTE. In addition to improving our K-12 schools, CTE seeks to improve the workplace skills of the labor force. As our society moves from an industrial to a globalized economy, many local workers are threatened by their skills being outsourced to workers in other countries. It is estimated that 60 % of future jobs will mandate specialized training that only 20 % of the workforce possesses. In order to offset this threat, CTE offers programs that teach skills that are not taught in traditional schools and colleges.

*Career academies and ROCPs.* Academy programs in high schools are one major component of CTE. Regional Occupational Centers and Programs (ROCPs) are another element

of CTE that guide students toward a career and/or postsecondary education. ROCPs operate as career technical training and job placement centers in conjunction with multiple school districts, county offices, or single districts themselves. High school and adult students are welcome to attend, and focus is given to preparing beginners and refining current employees skills (CDE, 2008). Though integral to the success of CTE, ROCPs will not be the focus of this review, as the concern is with programs that take place within high schools.

Career Partnership Academies are a type of CTE that integrate CTE with high school curricula. The California Partnership Academies are organized as “schools within schools” on high school campuses with a specific career theme focus. These academies are based on the vision shared by federally supported programs for smaller learning communities, and often work in partnership with industry organizations (CDE, 2008). A career academy is defined as “a type of school-within-a-school that provides a college-preparatory curriculum with a career-related theme” (Stern, Dayton & Raby, 2000). They foster important partnerships with employers and community-based organizations, as well as with higher education (Conchas & Clark, 2002). Career academies are the most reliable component of school reform that involves dividing large schools into smaller groups (Stern et al., 2000). Since they are among the most effective approaches to improving education, the number of academies has increased over the years.

There are three primary features of career academies: 1) a school-within-a-school, 2) college-preparatory curriculum with a career theme, and 3) partnerships with employers. A school-within-a-school consists of small clusters of students who share similar teachers and classes for at least two years in high school. Evidence supports the idea that “students in small schools, or in smaller units within large schools, are relatively less alienated, more engaged, more likely to pass their courses and accumulate credits toward graduation, and less likely to drop out” (Stern et al., 2000). Decisions about curriculum and exposure to career-related material are made by the teachers in a collaborative manner. The curriculum is college-preparatory in nature and career-related in content. Common themes of curriculum include health care and business, and these themes are embedded in the academic work that students are given. Opportunities to network with industry professionals are offered in conjunction with coursework, as well as guidance for career selection and/or college admission. The partnerships with employers that academies foster are organized under an advisory group. This group includes representatives from local businesses, the school district and school faculty. Each representative serves the students by providing guidance and support in their related field, such as internships and giving advice on curricula (Stern et al., 2000).

There is more than sufficient evidence that career academies affect positive change in schools. In their comprehensive and thorough review of the history, purpose, and evidence for academies, Stern and his colleagues (2000) cite several studies that provide mostly quantitative evidence of improvement of student performance in career academies. In their review, they include evaluation studies and experiments that support the finding of improved attendance, grades, discipline, and graduation rates over those students who did not participate in academy programs. Maxwell and Ruben (2000) focused on the higher grades that academy students earned over their non-academy counterparts, and emphasized that the subjects in academies were actually graded harder and that earning these rigorous grades led to the higher rate of college attendance. Performance in college was also found to be better among academy students, namely

those from low-income backgrounds (Maxwell & Rubin, 2000). In order to control for possible selection biases that may occur in studies where students choose to participate in academies and are compared to those who do not, Kemple and Snipes (2000) conducted an experiment with both the control and experimental groups consisting of students who applied to the academy, with the control group being denied admission. Although this approach might raise some ethical concerns and questions regarding the impact that denial has on rejected students, the authors found that the positive effects (attendance, grades, and graduation rates) of academies are strongly supported. Though most of the literature focuses on academics, occupational outcomes have been impacted as well. For instance, students from academies are more likely to have higher employment rates after high school. Also, longer retention in high school is correlated with higher earnings (Levin, 2000).

A recent study evaluated the components of the Human Services Academy model from two southern California high schools. This evaluation was conducted after the academy model completed its 10<sup>th</sup> year of operation by asking current and former students of the Academy to provide information about their experiences as participants of the Academy. The researchers tapped into internal constructs (students' aspirations, students' perceived quality of the academy, adult impact on students' college attendance) as well as external factors (academic engagement and satisfaction with life). The authors found that an academy model with key student support components can have a significant impact on the experiences of students, and can be effective in increasing high school graduation and college attendance rates. More importantly, the authors presented six central features to fostering aspirations and college access for at-risk youth within an academy program: 1) strong instructional leadership, 2) flexibility in recruiting committed students, 3) small size, 4) high and fair academic standards, 5) ability to impact students' social development, and 6) an established a college-going culture.

### The Role of Motivation and Learning in a Pipeline Model

A growing body of research over the last few years has looked at the role of career academies and programs in urban high school settings, and how they foster a sense of belonging, increased motivation and better performance for ethnic minority students. Academies that provide students with specialized curricula designed for certain career fields (e.g. healthcare) and other school-business partnerships within schools have been shown to improve the confidence, sense of belonging, interest and overall achievement and motivation of Latino youth (Oscos-Sanchez, Oscos-Flores, & Burge, 2008; Scales et al., 2005). It should be noted that these effects relate to the students' feelings toward their chosen career field, as well as their academic experience in general. In regard to pursuing entrepreneurial careers, students with higher levels of self-esteem, motivations and aspirations show more interest in going into these fields (Wilson, Marlino, & Kickul, 2004). However, motivation was measured much differently in this latter study, as the authors defined it as desired job characteristics (e.g. helping others, freedom with schedule, etc.). These studies of the career trajectories of high school students, namely those from Latino backgrounds, promote better preparation of students for the workforce by understanding their motivational backgrounds and providing them with experiences that will expose them to numerous occupational opportunities.

The student learning and motivational characteristics for the present study is centered around 11 constructs. What follows is a brief overview of what the literature says about each of these constructs.

*Sociocultural factors: community context, socio-economic status (SES), language and cultural considerations.* Much of the work conducted on minority high school students' achievement and motivation is grounded in the cultural beliefs and values of these students and their families. A primary reason seems to be the need to respond to prevailing deficit-theories that portray ethnic youth as products of families that do not value education and thus fall behind academically (Suarez-Orozco & Suarez-Orozco, 1995). Researchers in the last decade have provided sufficient evidence that this is not the case. For example, Fuligni (1997) found that students from immigrant families received just as much, if not more, parental and peer support for their academic endeavors as their Caucasian counterparts. Although his study focused more on achievement than motivation, its status in the literature is important because it was one of many studies that began to look at the role of parental expectations and aspirations, as well as support, on their children's academic outcomes.

Demographic variables, such as socio-economic status and parents' highest level of schooling, also influence academic achievement, but do so in a more indirect manner. (Davis-Kean, 2005) Additionally, demographic variables interact with other constructs mentioned here, such as parental expectations (Davis-Kean, 2005). College enrollment has been found to be influenced by academic, personal, social and economic factors, some of which have been mentioned here. For instance, Eccles et al. (2004) found that high school achievement, family expectations, mother's education level and family income were predictors of college enrollment.

Some studies in the literature on motivation for Latino adolescents looked at how certain identity characteristics impacted their motivation in school. These characteristics were more specific than their cultural identity in general. The strength of one's ethnic identification was found to correlate with motivation, which was described in terms of utility and intrinsic value of school, self-concept and sense of belonging. The degree of identification with a group of people and sharing a common purpose was key, much more than the ethnic label (e.g. "Chinese," "Latino," etc.) itself (Fuligni, Witkow & Garcia, 2005). In a similar study, Abrego (2006) examined the relationship between being an undocumented high school youth and academic achievement. Her findings indicated that these youth faced more difficulties enrolling in college and pursuing a promising career because of their undocumented status. She goes on to suggest that these experiences often result in decreased motivation and increased tendency of dropping out.

*Motivation.* Motivation is among one of the most studied topics in educational psychology. The construct itself is so wide-ranging that sub-categories are warranted to provide for a more thorough understanding of just what the word "motivation" means. Rooted in the Latin word "to move," motivation generally describes the relationship between the internal processes of beliefs, values and goals with the external expression of action, such as choice, persistence and performance (Eccles & Wigfield, 2002; Wigfield & Eccles, 2000). Popular theories in motivation describe achievement motivation as that most relevant to the field of educational and developmental psychology, and emphasize a focus on expectancy-value models of behavior.

Expectancy is one's belief about how well they will perform on a task in the future, while value is the incentive one has to do the task. These theories have heavily influenced school-based research, since they are found to be associated with academic effort and higher grades (Esparza & Sanchez, 2008; Eccles, 1983).

In addition to the individual processes associated with motivation (e.g. the student himself) are those external and environmental influences that equally impact student outcomes. Students' social knowledge is informed by the events they have engaged in and been exposed to in the past, and predicts how they will act in the future. Additionally, individuals are influenced by the explicit instruction from important others such as parents and peers (Burks, Dodge, Price, & Laird, 1999). Bandura supported the notion of situated learning, and his social cognitive theory posits that learning is mediated between individuals and their environment, where the context, or situation, plays an important role (Bandura, 1986; Schunk, 2004). This theory emphasizes that learning occurs in a social environment through the use of models and observation. Additionally, individuals learn about potential consequences and outcomes of their behaviors by observing models, and base their beliefs about their abilities on these models.

Two important contexts to consider are those at school, and in the student's culture and family. Researchers have found that school-related forces, such as the instructional practices employed by teachers and the campus climate, have considerable effects on students' motivation, and thus performance, in their work (Eccles & Midgley, 1989). Cultural and family-related values play an integral role in modeling student perceptions and motivation as well, especially in populations of students from minority backgrounds (Alfaro, Umana-Taylor, & Bamaca, 2006; Plunkett & Bamaca-Gomez, 2003; Plunkett, Henry, Houlberg, Sands, & Abarca-Mortensen, 2008; (Esparza & Sanchez, 2008; Fuligni, Tseng & Lam, 1999).

*Intrinsic motivation.* The source of motivation for individuals can come from internal or external reward systems. People who are motivated to engage in a task for personal gains, such as enjoyment or interest, are said to be intrinsically motivated, while those who engage in the task purely for external rewards, such as money, are extrinsically motivated (Eccles & Wigfield, 2002; Deci & Ryan, 1985). The self-determination theory of Deci and Ryan (1985) combines aspects of the level of stimulation and need for competence that leads to intrinsically motivated individuals. For instance, they argued that people will seek out tasks that are optimally challenging because they demonstrate competence and are intrinsically motivating. A self-determined person is one whose intrinsic motivation is maintained by competence and personal causation (Eccles & Wigfield, 2002). Some recent theorists have argued that intrinsic motivation is not only situational, but enduring as a trait within the individual. These researchers describe this trait-like construct as consisting of a preference for challenging tasks, learning that is curiosity-driven, and the need for competence and mastery (Gottfried, 1990; Eccles & Wigfield, 2002). In general, students who are intrinsically motivated have higher rates of achievement, namely in regards to the quality of their learning and the level of their creativity (Ryan & Deci, 2000).

*Interest.* Interest refers to a student's attraction to, or liking of, a certain subject, such as mathematics or reading (Pintrich & Schunk, 2002) and serves as a function of informing the utility value of a subject, which leads to motivation (Eccles et al., 1998). Interest is unique in its

status as a motivational variable in its reference to affective and cognitive processes, its biological roots in human behavior, and its condition as an outcome of the interaction between a student and subject or task (Hidi & Ainley, 2008). Cognitive and affect components of interest are among those often observed in the literature. Many researchers consider interest to be an initial emotion, which gradually becomes more cognitive in nature, thus reflecting a motivational belief. This cognitive state creates a predisposition to engage in a particular task (Renninger, 2000). Neuroscientists posit that interest is an evolutionary trait that has guided adaptive behavior through generations of human (Panksepp, 2000). Finally, some researchers believe that interest is something that is initiated within a person, but is not complete as a construct until the resultant contextual behavior is considered (Krapp, 2000). For instance, the classroom environment of a student guides the direction that the expressed interest will take, and thus shapes the development of that interest.

*Control expectations.* Control theories describe the extent to which one feels control over their successes and failures (i.e. locus of control) (Eccles & Wigfield, 2002; Rotter, 1966). Attribution theories (Weiner, 1992) and those that integrate control with needs for competence and goal-directed behavior all describe the purpose of feelings of control. Weiner (1992) classified his attribution theory into multiple categories and sub-categories, examining achievement attributions (e.g. ability, effort) and causal factors (locus of control, stability, controllability, each of which exists on a continuum). In general, the researchers claimed that each category impacts different types of achievement outcomes. For instance, a student who attributes success to internal causes or those that are stable over time will experience positive emotions, as well as attribute future success to similar causes. With respect to competence, children's need to feel competent increases as they feel more in control of their achievement outcomes, and this in turn is influenced by external forces from family and peers (Connell & Wellborn, 1991). In terms of goal-directed behavior, control beliefs describe the expectancy that one can reach a desired outcome (Skinner, 1995). Both types of control theories ultimately explain how achievement is impacted by students' beliefs in their education.

*Self-concept.* Feelings about the self are important to understanding how students perceive their own learning strategies and processes that direct their learning. Self-concept describes an individual's perceptions of him or herself that are a result of experiences and interaction with the environment (Marsh, Shavelson & Byrne, 1992). Additionally, evaluations by others and one's own attributions contribute to the development of one's self-concept. Like the constructs interest and control expectations, self concept is not an individual trait within the individual alone, but instead reflects the prediction of how a person acts and will act in the future (Marsh & O'Mara, 2008). Self-esteem is an important component of self-concept, in that it enables an evaluative aspect to the construct. For instance, a student with high self-esteem may have the self-concept that they are good at a particular task. In regards to academics, students' self concepts differ among certain subjects. Self-worth theory (Covington, 1992) adds a motivational component, in that it describes how an individual strives to maintain a positive sense of the self. Covington has argued that students' competence and achievement are linked to self-worth, and that students will strive to achieve in class to sustain a good sense of worth (Covington, 1992; Eccles & Wigfield, 2002). In other words, how a student perceives him or herself is influenced by math and verbal achievement, but the effects are isolated in each domain. For instance, math achievement positively influences self-concept in math, but not self-concept in verbal, and vice versa. More

importantly, achievement in both areas is correlated with one another, but self-concept in both areas is not (Marsh, 2005). This supports the importance of looking at each domain separately to evaluate how we might improve performance in specific subjects.

*Aspirations and expectations.* Aspirations and expectations are present in families as well as students themselves. A common belief is that aspirations and expectations are low for students of poor families, in particular those from Latino and African American backgrounds. There is some evidence, however, that this is not rooted in fact. For example, Goldenberg and his colleagues (2001) looked at how the aspirations and expectations of immigrant Latino families impact student performance. This study found that low performing students do not come from families with low expectations. In fact, the contrary was found; immigrant families hold high expectations and aspirations for their children's current and future performance in school. Additionally, these beliefs are influenced by their children's performance in school, rather than the beliefs influencing performance (Goldenberg et al., 2001), and these beliefs later affect students' enrollment in college (Davis-Kean et al., 2001).

Another role the family plays is how students feel about their family. This influences the academic goals they create for themselves. Students who strive to perform well in school for the sake of pleasing their family may end up adopting performance-avoidance goals, where they do not engage in a task that may end up making them look incompetent, and thus results in ambivalent feelings toward school. This notion applies more to collectivist families than individualistic, nonimmigrant families (Urdu, 2004). Finally, family plays a role in the direct support youth need to succeed. Students need both emotional and informational support from their parents, as well as teachers (Kumar & Hrudu, 2001). This support is different from expectations as well as feelings about family, in that it reflects direct involvement with important authority figures to enhance the student's self-efficacy and future expectations, and decrease skepticism about school.

*Perceptions about school environment.* The way students perceive their experiences in high school is an important factor in predicting their engagement with their school work. A feeling of belongingness, or connection and acceptance with, describes the outlook students have on their relationships with peers, teachers and administrators at school. More importantly, students who report higher levels of belongingness tend to have greater academic achievement, while those who feel rejected tend to display problematic behaviors and are at risk of dropping out (Osterman, 2000). Furthermore, a sense of community increased a student's overall well-being (Sanchez, 2005). Certo, Cauley and Chafin (2003) found that high school students reported that they were more engaged in school when their learning experiences were authentic and interactive, when their teachers were challenging and showed interest in their students, and when peer-to-peer interactions were encouraged. Instruction that reflects real-life situations has been shown to increase engagement and camaraderie among high schools students (Marks, 2000). In addition to the impact of teachers and peers on academic achievement, the structure of the school environment can also have an impact on students' sense of belongingness. Many schools' organizational practices undermine the positive effects that teachers and peers have on students' academic achievement and often results in student isolation (Osterman, 2000). Overall, teachers and peers are significant sources in creating a school culture that promotes a sense of belonging and academic engagement.

*Family orientation.* Many researchers have looked at the role of family and parental support as an important influence on the motivation of their students. These authors surveyed high school students about the academic support they regularly receive from their parents, and focused primarily on Latino students since they tend to have higher dropout rates and are most often represented as unmotivated in the literature (Sanchez, 2005; Suarez-Orozco & Suarez-Orozco, 1995). Some authors (Alfaro, Umana-Taylor, & Bamaca, 2006; Plunkett & Bamaca-Gomez, 2003; Plunkett, Henry, Houlberg, Sands, & Abarca-Mortensen, 2008) draw on resiliency as a framework for describing the motivational beliefs of high school students. The primary descriptors for motivation as a variable in these studies were effort, importance of school, engagement, value of school, aspirations, and expectations. Overall, these studies suggest that different parental characteristics, such as education level and support, positively influence the motivation of their students, and that Latino families do in fact value education. Researchers have concluded that it is through the channels of familialism that educational beliefs are passed on to children, thus those who are closer and more supported by their families result in greater academic motivation.

*School engagement.* School engagement describes a student's active involvement in a classroom task or activity. Engagement can be categorized in three ways--behavioral, emotional and cognitive (Fredericks, 2005). Behavioral engagement describes the positive conduct a student displays that represents their commitment to school, such as prosocial behavior, staying on task and participating in classroom discussions. Emotional engagement is the affective reaction a student has to teachers and peers, such as feelings of belongingness and emotional reactions to others in class. Cognitive engagement is the psychological investment a student places in his/her work, above and beyond the regular demands of teachers. School engagement is a motivational issue that is dependent on influences from a student's social environment. For instance, Patrick, Ryan and Kaplan (2007) found that "when students feel a sense of emotional support from their teacher, academic support from their peers, and...are encouraged to discuss their work, they are more likely to use self-regulatory strategies and engage in task-related interaction" (page 93). Engagement is also associated with persistence in school and increased performance (Fredericks et al., 2004). It is often seen as the answer to prevent dropping out, boredom and poor performance in school.

*Learning strategies.* The importance of learning strategies is that they allow students to control their learning and achieve their academic goals. Learning strategies are the plans that students engage in to carry out their learning goals (Marsh, 2005). Cognitive and metacognitive describe the two main types of learning strategies that students typically employ. Elaboration and memorization are two types of cognitive techniques. Elaboration involves transfer and integration of material, where the student relates what he or she has learned to other contexts. Memorization describes the process of forming verbatim representations and storing them in memory through repetition in order to over-learn general material and free up cognitive space for other information. Control strategies are metacognitive in that they are used to self-regulate the learning process and ensure that goals are reached (Marsh, 2005).

## *Research with Diverse Learners*

Though the literature on learning strategies for ethnic minorities is small, there are important studies that examine different approaches used by different groups. For instance, Garcia et al. (1993) examined gender and ethnic differences in science achievement. The design was a pre-post test at two different times to examine changes in patterns of motivation and learning strategies. Latino and African-American students' success was correlated with motivation and prior achievement, and not with learning strategies. Also, minority students (African American, Latino and Asian) reported a higher extrinsic motivation orientation over their Caucasian counterparts. These strategies included metacognitive awareness (e.g. planning, monitoring, regulating) and effort management. The authors conclude that gender and ethnicity do not affect achievement outcomes, but preparedness, motivation, and use of learning strategies do. Stough's (1994) qualitative study interviewed 28 college students to examine the role of teacher instruction and learning strategies for successful students (identified as persisting in school and having a GPA of over 2.0). Learning strategies defined in this study were reading books, working supplemental problems, asking for help and working with peers on homework. Additionally, successful students were more articulate about their use of learning strategies and more metacognitively aware of their application than non-successful students. In one of the first studies to look at cross-cultural differences in self-regulated learning and learning strategies, Purdie, Hattie, and Douglas (1996) looked at conceptions of learning and use of strategies, suggesting that conceptions inform strategies used. They found that Japanese students use strategies of rote memorization, the use of textbooks and do not seek help from others. Both groups used learning strategies (e.g. "environmental structuring," "self-evaluating") at similar frequencies and the only differences in strategies was which ones were used more by both groups ("reviewing previous work" was the least used strategy of both groups). In other words, there were no between-group differences in types of strategies used.

The above literature suggests that research on motivational variables and academic engagement has come to the forefront as an important body of work (e.g. Fredricks, Blumenfeld, & Paris, 2004; Patrick, Ryan, & Kaplan, 2007). However, an important gap is that few studies have examined these associations with adolescents in urban school settings (e.g. Long, Monoi, Harper, Knoblauch, & Murphy, 2007; Oyserman, Bybee, & Terry, 2006; Sanchez, Colon, & Esparza, 2005; Yowell, 2000; Urdan, 2004). This study therefore contributes to the growing body of work regarding adolescents' academic motivation and needs and assists in understanding the motivational beliefs and needs of underserved minority high school students in urban high schools.

The primary purpose of this study was to develop and assess the characteristics of a measure of learning, motivational, and sociocultural factors which are suitable for use with urban secondary students and informative of academy program development efforts. Components of the measure were designed to tap into students' motivational beliefs, aspirations and expectations, perceived family and school support, engagement, learning strategies, and ultimately achievement that could lead to recommendations for these high schools. An additional goal was to make recommendations on designing and implementing sound comprehensive student-oriented programs for improving students' experiences and academic and career outcomes.

This work was guided by one overarching question: “What are the learning and motivational characteristics for underserved minority high school students in an urban high school setting, and how do they relate to academic engagement?” The specific sub-questions were the following:

- What are the academic and career related learning and motivational characteristics of urban high school students?
- How do these variables relate to student academic engagement?

Based on social cognitive theory (Bandura, 1986) and Expectancy-Value theory (Wigfield & Eccles, 1992, 2000), as well as the research reviewed above, it was expected that students’ motivational beliefs, aspirations and expectations, and perception of social environment (family and teacher support) influence students’ engagement and learning strategies. It was also expected that student background variables would be related to motivational variables. Finally, it was expected that there would be positive associations between student engagement variables and student achievement.

### Method

The data for the current study was obtained from a questionnaire that we distributed in 10 homeroom classes at Parkside High School<sup>1</sup> during the fall of 2008. Parkside High School is a large multi-track urban public school in the south Los Angeles in California. During the 2007-08 school year, a total of 4,239 students were enrolled at the school. We provided parental consent forms in Spanish and English to the students in the weeks prior to the survey administration. Only students who returned positive parental consent forms completed the questionnaire, which took roughly 15 to 20 minutes to complete.

The questionnaire for this study consisted of 82 items that were designed to assess the dimensions of students’ school achievement, particularly those related to student demographic characteristics, educational and occupational aspirations and expectations, family orientation, motivational beliefs, learning strategies, and academic engagement.

### *Participants*

The sample for this study included 200 students from Parkside High School. As shown in Table 1, nearly two-thirds of the sample were female. The students were a mix of 9th through 12th graders, with 10th graders making up the largest proportion of the sample. In addition, the vast majority of the sample reported that they were Latino/Hispanic. Nearly three-fourths of the sample indicated that the first language they learned to speak was not English. Nevertheless, the majority of the sample reported that they could understand spoken English ( $n = 152$ ; 76.0%), speak English ( $n = 143$ ; 71.5%), read English ( $n = 137$ ; 68.5%), and write English ( $n = 134$ ; 67.0%) “very well.”

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<sup>1</sup> The actual name of the school is changed to protect the anonymity of the school and district.

Table 1: Description of the Sample

<b>Variable</b>	<b>Number</b>	<b>%</b>
<b><i>Gender</i></b>		
Female	<i>n</i> = 127	63.5%
Male	<i>n</i> = 73	36.5%
<b><i>Grade level</i></b>		
9th grade	<i>n</i> = 57	28.5%
10th grade	<i>n</i> = 82	41.0%
11th grade	<i>n</i> = 32	16.0%
12th grade	<i>n</i> = 29	14.5%
<b><i>Ethnicity</i></b>		
Latino/Hispanic	<i>n</i> = 190	95.0%
African American	<i>n</i> = 1	0.5%
Caucasian	<i>n</i> = 1	0.5%
Mixed	<i>n</i> = 5	2.5%
Other	<i>n</i> = 3	1.5%
<b><i>First language was English</i></b>		
Yes	<i>n</i> = 53	26.5%
No	<i>n</i> = 147	73.5%

Ninety-five percent of the students (*n* = 190) reported that they lived with their mothers, none reported that they lived with a foster mother, and 5.0 % (*n* = 10) indicated that they lived with a “female guardian.” Slightly over two-thirds of the students (*n* = 136) reported living with their fathers, 2.5 % (*n* = 5) lived with a foster father, and 1.5 % (*n* = 3) resided with a “male guardian.” In addition, 69.0 % (*n* = 138) of the sample lived with their siblings. Small numbers of students reported living with their grandparent(s) (*n* = 11; 5.5%), other relative(s) (*n* = 18; 9.0%), or non-relative(s) (*n* = 6; 3.0%).

The parental education levels of the students are displayed in Table 2. The majority of the students who indicated they knew the education levels of their parents indicated that their mothers and fathers did not graduate from high school. Only a small percentage of mothers and fathers of the students had graduated from college. Students reported that about 45 % of the mothers and 43 % of the fathers had less than a high school education.

Table 2: Parental Education Levels

	<b>Mother’s Education</b>		<b>Father’s Education</b>	
Elementary	<i>n</i> = 17	8.5%	<i>n</i> = 15	7.5%
Junior high school	<i>n</i> = 34	17.0%	<i>n</i> = 28	14.0%
Some high school	<i>n</i> = 38	19.0%	<i>n</i> = 43	21.5%
High school	<i>n</i> = 34	17.1%	<i>n</i> = 37	18.6%
College <sup>a</sup>	<i>n</i> = 34	17.1%	<i>n</i> = 26	13.1%
Don’t know	<i>n</i> = 42	21.1%	<i>n</i> = 50	25.1%

*Note.* <sup>a</sup>College includes “some college,” “college graduate,” and “professional level degree - Ph.D., M.D., or J.D. lawyer.”

## Measures

*Educational and Occupational Aspirations and Expectations.* Consistent with past research (Farmer et al., 1981; Rosenblum, 1993; Fuligni, 1997 & Ibanez et al., 2004), Educational and Occupational Aspirations were each assessed with single items (i.e. “If you were completely free to choose any job, what would you like to do most in the future?” and “If you were free to go as far as you wanted to go in school, what level of education would you like to complete?”). Similarly, Educational and Occupational Expectations (i.e. “What job do you actually expect to end up with in the future?” and “Sometimes what we like to do is not the same as what we expect to do. What level of education do you expect to complete?”) were each assessed with single items. The students responded to the two educational items on a 1 (*less than high school graduation*) to 7 (*professional level degree – Ph.D., M.D., or J.D. lawyer*) scale. The two occupational items had a free-response format and we coded the students’ responses into categories.

*Family Orientation.* Urdan’s (2004) four item Family Orientation subscale was used to assess this construct. The students responded to items (e.g. “An important reason that I try to do well in school is to please my parents.”) assessing whether they aimed to please their family by doing well in school on a 1 (*not at all true*) to 5 (*very true*) scale. Past research with high school students has shown this subscale to have acceptable levels of reliability ( $\alpha = .72$ ; Urdan, 2004).

*Motivational Beliefs.* Eight subscales from Marsh et al.’s (2005) Motivational Beliefs questionnaire were used. The subscales included Control Expectations (e.g. “When I sit myself down to learn something really difficult, I can learn it.”), Self-Concept Reading (e.g. “I get good grades in English.”), Self-Concept Math (e.g. “I have always done well in mathematics.”), Academic Self-Concept (e.g., “I learn things quickly in most school subjects.”), Instrumental Motivation (e.g. “I study to increase my job opportunities.”), Interest in Reading (“I read in my spare time.”), Interest in Math (e.g. “When I do mathematics, I sometimes get totally absorbed.”), and Effort and Persistence (e.g. “When studying, I work as hard as possible.”). The reliabilities of these eight subscales have ranged from  $\alpha = .75$  to  $\alpha = .86$  in past research (Marsh et al, 2005).

*Learning Strategies.* The Elaboration (e.g. “When I study, I try to relate new material to things I have learned in other subjects.”), Memorization (e.g. “When I study, I memorize all new material so that I can recite it.”), and Control Strategies (e.g. “When I study, I try to figure out which concepts I still haven’t really understood.”) subscales from Marsh et al.’s (2005) Learning Strategies survey were administered. The Elaboration ( $\alpha = .81$ ), Memorization ( $\alpha = .78$ ), and Control Strategies ( $\alpha = .83$ ) subscales have shown acceptable reliability in past research (Marsh et al., 2005).

*Academic Engagement.* Fredricks, Blumenfeld, Friedel, and Paris’ (2005) 19-item school engagement scale was utilized to assess the children’s Behavioral (e.g. “I pay attention in class”), Emotional (e.g. “I like being at school”), and Cognitive Engagement (e.g. “I check my schoolwork for mistakes”). The students responded to each item on a 1 (*never*) to 5 (*all the time*) scale. Prior research with elementary school students has shown the Behavioral Engagement ( $\alpha =$

.77), Emotional ( $\alpha = .82$ ), and Cognitive Engagement ( $\alpha = .86$ ) subscales to have good reliability (Fredricks et al., 2005).

*Reliability of the Subscales with the Current Sample*

The internal consistency reliabilities (i.e. Cronbach’s alpha) of the subscales with the current sample are shown in Table 3. Alphas above .70 are generally indicative of an acceptable level of reliability for subscales. Based on this cutoff, the Control Expectations, Self-Concept Reading, and Instrumental Motivation subscales did not exhibit acceptable levels of reliability. The remaining subscales showed acceptable to excellent levels of reliability. As the sample size increases with the addition of more respondents, the alphas for the subscales with low levels of reliabilities may improve to more acceptable levels.

Table 3: Reliabilities of the Subscales

<b>Subscale</b>	<b><math>\alpha</math></b>	<b>Number of items in subscale</b>
Family Orientation	.71	4
Control Expectations	.59	5
Self-Concept Reading	.69	3
Self-Concept Math	.90	3
Academic Self-Concept	.72	3
Instrumental Motivation	.68	3
Interest in Reading	.78	3
Interest in Math	.74	3
Effort and Persistence	.76	4
Elaboration	.77	4
Memorization	.75	4
Control Strategies	.78	4
Behavioral Engagement	.74	5
Cognitive Engagement	.81	8
Emotional Engagement	.83	6

Findings

*Overview*

The results revealed that the students reported moderate levels of Self-Concept Math, Interest in Reading, and Interest in Math. On the other hand, the results showed that the students had fairly high levels of Academic Self-Concept as well as Effort and Persistence. In addition, the students reported fairly high levels of Learning Strategies (i.e. Elaboration, Memorization, Control Strategies). In terms of their Academic Engagement, the Behavioral Engagement items were rated more strongly than the Emotional and Cognitive Engagement items. Finally, the mean on the Family Orientation subscale showed that nearly all of the students aimed to please their families by doing well in school.

The students reported very high Academic Aspirations. Just over half of the students (53.6 %) indicated they would like to obtain a professional level degree and 87.8 % of the sample reported they would like to complete at least a bachelor’s degree. The students’ Academic Expectations were also high. However, their expected levels of education were not as high as their aspirations. The students listed a wide range of careers in response to the questions pertaining to their Occupational Aspirations and Expectations. The most commonly reported fields for both questions were “Healthcare Practitioners and Technical Occupations” and “Arts, Design, Entertainment, Sports, and Media Occupations.”

The path model based on the survey data provided empirical support for the Pipeline Survey Conceptual Model. The results revealed that Academic Self-Concept, Interest in Reading, and Family Orientation were significant predictors of the students’ Academic Engagement and Learning Strategies.

*Motivational Beliefs, Learning Strategies, Academic Engagement, and Family Orientation*

The means, standard deviations, minimums, and maximums for the eleven subscales that had acceptable levels of reliability are shown in Table 4. In addition, the students’ scores on these eleven subscales are plotted in Figures 1 through 11.

Table 4: Means, Standard Deviations, Minimums, and Maximums

<b>Variable</b>	<b><i>n</i></b>	<b><i>M</i></b>	<b><i>SD</i></b>	<b>Minimum</b>	<b>Maximum</b>
<b><i>Motivational Beliefs<sup>a</sup></i></b>					
Self-Concept Math	199	2.66	0.95	1.00	4.00
Academic Self-Concept	200	3.13	0.57	1.00	4.00
Interest in Reading	199	2.80	0.82	1.00	4.00
Interest in Math	199	2.57	0.80	1.00	4.00
Effort and Persistence	198	3.22	0.58	1.25	4.00
<b><i>Learning Strategies<sup>a</sup></i></b>					
Elaboration	198	3.08	0.59	1.50	4.00
Memorization	198	3.19	0.62	1.25	4.00
Control Strategies	198	3.28	0.56	1.20	4.00
<b><i>Academic Engagement<sup>b</sup></i></b>					
Behavioral Engagement	198	3.96	0.73	1.60	5.00
Cognitive Engagement	198	3.05	0.79	1.25	4.88
Emotional Engagement	198	3.48	0.82	1.33	5.00
<b><i>Family Orientation<sup>c</sup></i></b>					
	199	4.14	0.77	2.00	5.00

*Note.* <sup>a</sup>The Motivational Beliefs and Learning Strategies subscales are measured on a 1 (*disagree*) to 4 (*agree*) scale. <sup>b</sup>The Academic Engagement subscales are measured on a 1 (*never*) to 5 (*all of the time*) scale. <sup>c</sup>Family Orientation is measured on a 1 (*not at all true*) to 5 (*very true*) scale.

The mean on the Self-Concept Math subscale indicated that the average student was neutral – between 2 (*somewhat disagree*) and 3 (*somewhat agree*) – in their agreement with the statements describing high levels of Self-Concept Math. Students were roughly equally distributed across

the full range of scores on the Self-concept Math subscale (see Figure 1). Many students reported very low levels of Self-Concept Math while many other students reported relatively high levels of Self-Concept Math. The mean for the Academic Self-Concept subscale was higher than the Self-Concept Math mean. The mean showed that the average student “somewhat agree[d]” with the statements describing a positive academic self-concept. Figure 2 shows that a majority of the students reported fairly high levels of Academic Self-Concept – between 3 (*somewhat agree*) and 4 (*agree*).

Figure 1: Self-concept Math

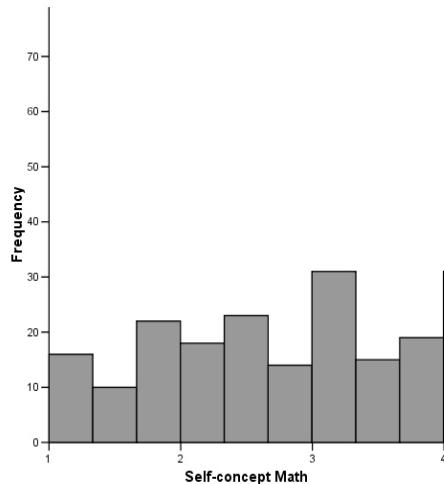
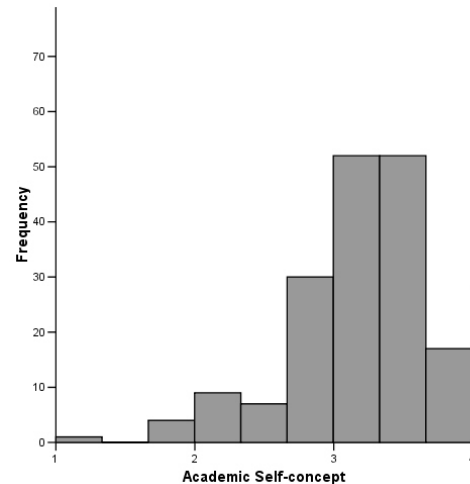


Figure 2: Academic Self-concept



The means for the Interest in Math and Interest in Reading subscales revealed that the students, as a whole, reported modest levels of interest in both subjects. Consistent with the Self-Concept Math subscale, there were students distributed across the full range of scores on the Interest in Math and Interest in Reading subscales (see Figures 3 and 4). The mean on the Effort and Persistence subscale was higher than the means for the Interest in Math and Interest in Reading subscales. In general, the students agreed with the items describing diligent and effortful academic activities. As depicted in Figure 5, the vast majority of students were above a 3 (*agree*) on the four-point scale.

The means on the three Learning Strategies subscales indicated that the students, on average, reported moderately high levels of Elaboration, Memorization, and Control Strategies (i.e. determining whether they are actually learning the material they are studying). As shown in Figures 6, 7, and 8, the bulk of the students were between a 3 (*somewhat agree*) and a 4 (*agree*) on the three subscales.

Figure 3: Interest in Math

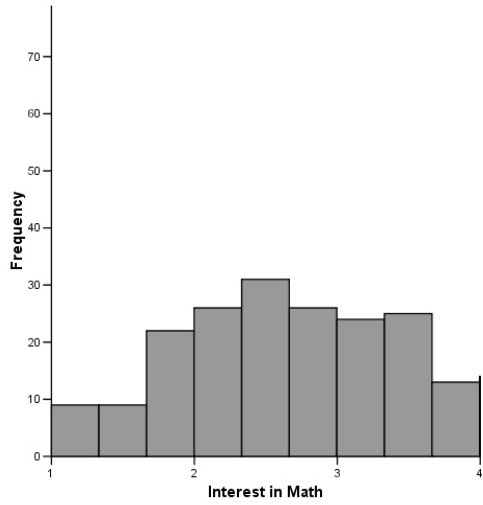


Figure 4: Interest in Reading

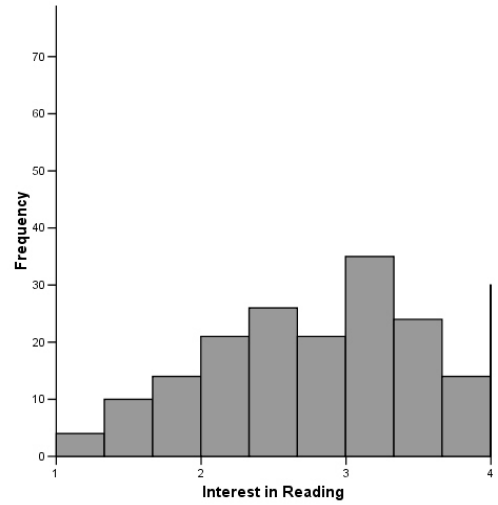


Figure 5: Effort and Persistence

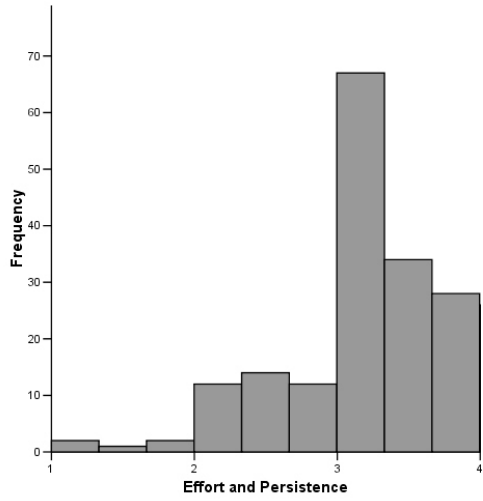


Figure 6: Elaboration

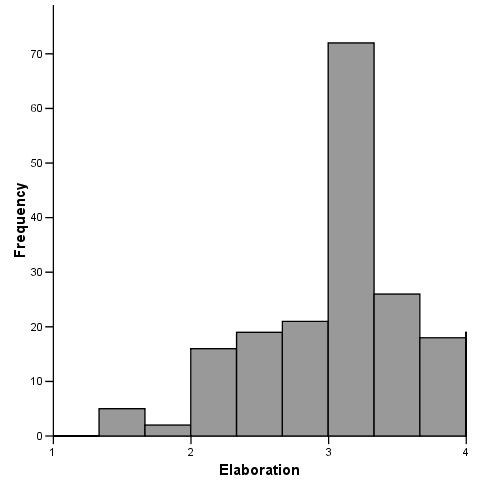


Figure 7: Memorization

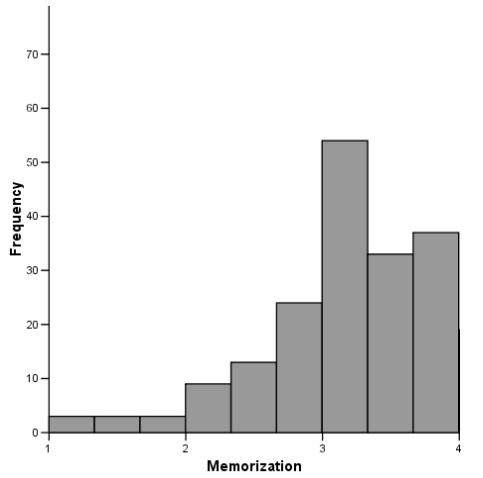
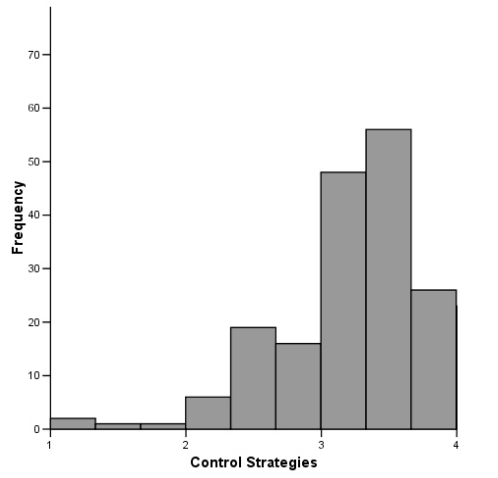


Figure 8: Control Strategies



The descriptive results for the Academic Engagement subscales indicated that the students reported greater levels of Behavioral Engagement in comparison to Emotional and Cognitive Engagement. The means showed that students had moderate levels of Emotional and Cognitive Engagement. As shown in Figure 9, the bulk of the students were near the top of the scale on the Behavioral Engagement items. On the other hand, the majority of the students were near the middle of the scale on the Cognitive Engagement items (see Figure 10).

The mean for the Family Orientation subscale revealed that the vast majority of the students aimed to please their families by doing well in school. In fact, the Family Orientation subscale received the highest ratings of all the subscales. As shown in Figure 12, nearly all of the students reported levels of Family Orientation that were near the top of the five-point scale.

Figure 9: Behavioral Engagement

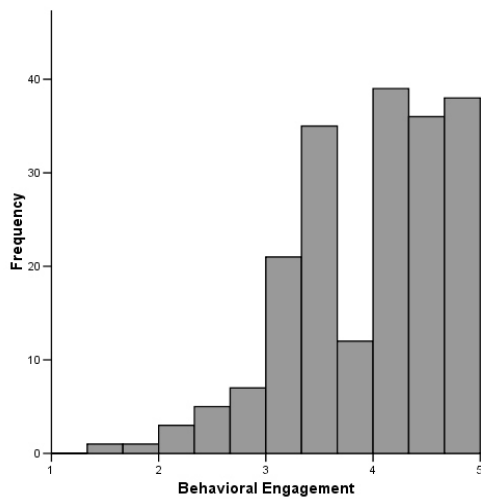


Figure 10: Cognitive Engagement

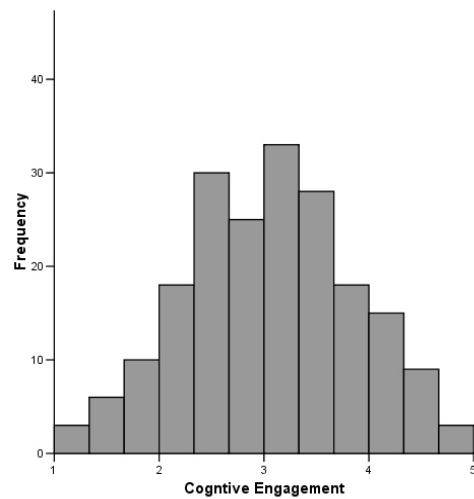


Figure 11: Emotional Engagement

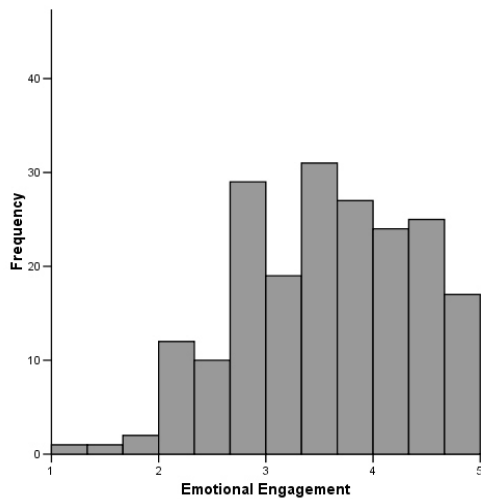
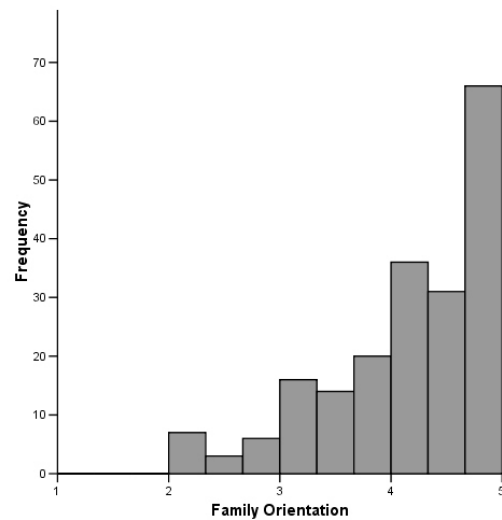


Figure 12: Family Orientation



### *Educational Aspirations and Expectations*

Overall, the students reported high Educational Aspirations. As shown in Table 5, 87.8 % of the students reported that they would like to complete a bachelor’s degree or higher. Conversely, just 6 % stated that they would like to only complete a high school diploma. The students also reported high levels of Educational Expectations. The level of education they expected to complete, however, was somewhat lower than their aspirations. For example, a much smaller percentage of students expected to complete a professional degree than the percentage that aspired to complete a professional degree (see Table 5). Nevertheless, 72.4 % of the respondents expected to receive a bachelor’s degree or higher.

Table 5: Education Aspirations and Expectations

	<b>Educational Aspirations</b>		<b>Educational Expectations</b>	
Less than high school graduation	<i>n</i> = 0	0.0%	<i>n</i> = 1	0.5%
High school diploma	<i>n</i> = 12	6.1%	<i>n</i> = 21	10.7%
Vocational/technical program	<i>n</i> = 4	2.0%	<i>n</i> = 9	4.6%
Two-year college degree	<i>n</i> = 8	4.1%	<i>n</i> = 23	11.7%
Bachelor’s degree	<i>n</i> = 30	15.3%	<i>n</i> = 50	25.5%
Master’s degree	<i>n</i> = 37	18.9%	<i>n</i> = 50	25.5%
Professional degree	<i>n</i> = 105	53.6%	<i>n</i> = 42	21.4%

### *Occupational Aspirations and Expectations*

The students had a wide range of occupations that they aspired to obtain. The most commonly reported occupation type was “Healthcare Practitioners and Technical Occupations” (22.5 %). The second most commonly reported field was “Arts, Design, Entertainment, Sports, and Media Occupations” (14.5 %). The third most typical occupational category was “Legal Occupations” (11.0 %). Additional jobs listed by respondents included occupations in the education, architecture, and engineering fields. The categories of jobs that students listed as their occupational expectations were similar to the categories listed as their aspirations. Consistent with the students’ aspirations, the top two categories were “Healthcare Practitioners and Technical Occupations” (18.0%) and “Arts, Design, Entertainment, Sports and Media Occupations” (13.0 %). The third most commonly reported expected occupational category was the education field (9.5 %), which was a common occupational aspiration.

### *Path Model Predicting Academic Engagement and Learning Strategies*

Based on the review, we created a conceptual model which specified the relationships among the variables. We then tested this empirically using a path model approach that predicted the students’ Academic Engagement and Learning Strategies (see Figure 13). The model was specified using Amos 6.0. Consistent with the descriptive analyses, we utilized only the subscales with adequate levels of reliability. The predictor variables in the model were Academic Self-Concept, Math Motivation (i.e. a composite variable based on the mean of Self-Concept Math and Interest in Math;  $\alpha = .82$ ), Interest in Reading, Academic Aspirations and Expectations

(i.e., the mean of the two items;  $\alpha = .79$ ), and Family Orientation. The outcome variables in the model were Academic Engagement (i.e. a composite measure based on the three engagement subscales and Effort and Persistence;  $\alpha = .81$ ) and Learning Strategies (i.e. a composite variable based on the mean of the Elaboration, Memorization, and Control Strategies subscales;  $\alpha = .84$ ). The correlations among the predictor and outcome variables are displayed in Table 6.

We initially specified the path model with every possible path between each of the predictor variables and the two outcome variables (i.e., ten total regression paths). Non-significant paths between the predictor and outcome variables have been removed from the model in Figure 13. The fit indices,  $\chi^2(4, N = 200) = 7.73, ns, \chi^2/df = 1.93, CFI = .99$ , revealed that the theoretical model in Figure 13 provided an excellent fit to the data.

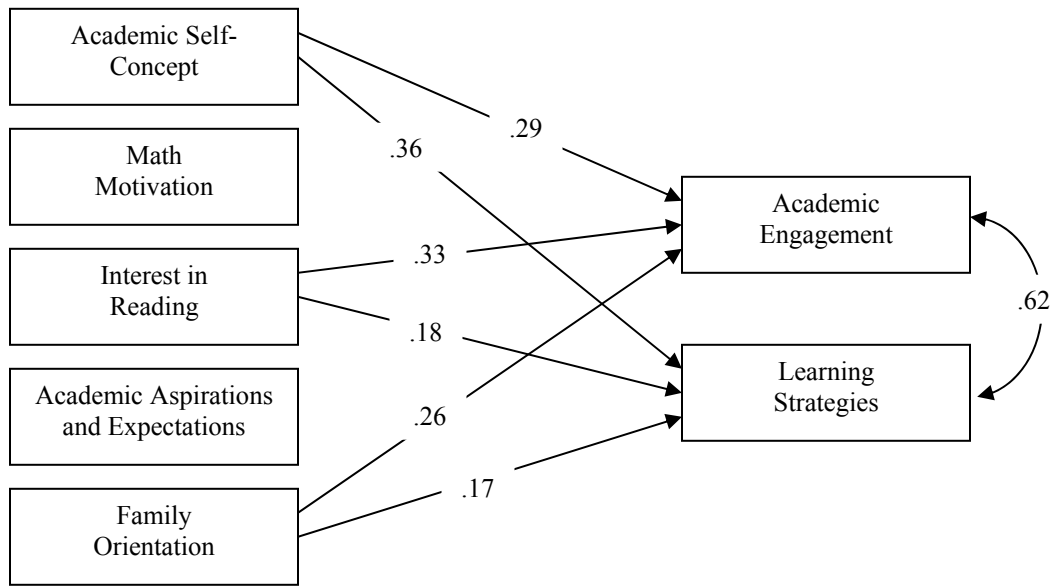
Table 6: Correlations among the Variables Utilized in the Path Model

	1.	2.	3.	4.	5.	6.	7.
1. Academic Self-Concept	-						
2. Math Motivation	.40*	-					
3. Interest in Reading	.35*	.06	-				
4. Academic Aspirations & Expectations	.22*	.11	.23*	-			
5. Family Orientation	.07	.12	.09	.07	-		
6. Academic Engagement	.42*	.30*	.46*	.23*	.31*	-	
7. Learning Strategies	.43*	.27*	.32*	.18*	.20*	.72*	-

Note. \* $p < .05$ .

As shown in Figure 13, students' Academic Self-Concept, Interest in Reading, and Family Orientation were all significantly and positively related to their Academic Engagement and Learning Strategies. In other words, students with high levels of Academic Self-Concept, for example, also had high levels Academic Engagement and Learning Strategies even after accounting for the other predictor variables in the model. All of the paths between the predictor and outcome variables were small to moderate in size. Additionally, the students' Academic Engagement and Learning Strategies were highly related in the model ( $r = .62$ ).

Figure 13: Path Model Predicting Academic Engagement and Learning Strategies



Note. All paths are significant at  $p < .05$ .

There were small but significant positive correlations between Math Motivation and Academic Aspirations and Expectations shown in Table 6. These results revealed that students with higher Math Motivation and Academic Aspirations and Expectations also had higher Academic Engagement and Learning Strategies. However, these associations did not remain significant after accounting for the effects of the other predictors. In other words, Math Motivation and Academic Aspirations and Expectations did not explain any additional variability in the Academic Engagement and Learning Strategies subscales beyond what was explained by Academic Self-Concept, Interest in Reading, and Family Orientation.

#### *Limitations and Future Directions*

A limitation of the current study was that the data was entirely based on self-report measures. The associations among the variables in the study could be inflated due to shared method variance. In other words, students that tend to rate one construct highly may also tend to rate other constructs highly even in the absence of actual associations between the constructs. Future work in the project will incorporate data from other sources, such as grades from school records, into the analyses. A second limitation of the current study was that three of the subscales did not show adequate levels of reliability and could not be included in the analyses. We will investigate rewording the items that make up these three subscales so that they are more understandable, which will hopefully improve the reliability of the measures. A final limitation of the current study was the small sample size (i.e. 200 students). The small sample size prevented us from testing more complex models based on multivariate latent variable approaches. Furthermore, future analyses with a larger sample could investigate whether the impact of the predictors varied across students with different demographic characteristics (e.g. gender, English proficiency status).

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