

In Theory...

From Aspirations to Access: The Individual and Contextual Factors that Facilitate or Impede Postsecondary Education Attendance

Kristen K. Williams
Heidelberg University

Abstract

Using data from the Educational Longitudinal Study of 2002, sponsored by the National Center for Education Statistics, this study presented an ecological approach to examining the individual, family, and school factors that facilitated or impeded postsecondary education attendance. Historically, a core of factors including academic achievement, parents' educational attainment, parents' educational aspirations, and household income, has been consistently identified as predicting college attendance. In addition to those variables, this study revealed three additional factors: extracurricular activities, employment, and parents' educational aspirations for their child, which provided a unique contribution above that of the aforementioned core factors to the outcome of college attendance.

Keyword: Postsecondary, Higher education, College access, Rural education

There are no guarantees in life, with or without a college diploma...but the odds are increasingly stacked against those with the least education and training. (Gladieux, 2004, p. 18).

In its influential report, *Measuring Up 2000*, the National Center for Public Policy and Higher Education (NCPPE; 2001) identified preparation for and participation in postsecondary education among the most important policy issues because not all students are attaining postsecondary education at the same rate (Cameron & Heckman, 2001; Goetz, 2001). A postsecondary education holds economic and social value at the individual, local, and national levels (Baum & Payea, 2004). In dramatic contrast from what may have been experienced by past generations, it has become a necessary credential for many well-paying, secure jobs in today's society (Strauss & Howe, 2005). Those aged 25-34 who hold at least a bachelor's degree earn significantly more income than those with less education (Wirt, Choy, Rooney,

Provasnik, Sen, & Tobin, 2004). To improve rates of college access and eventual attainment, we must learn more about the individual factors that facilitate or impede attendance.

Educational outcomes are not created in a vacuum; rather, they are products of the person as well as the environment in which that person lives. Bronfenbrenner (1977) asserted "the understanding of human development demands going beyond the direct observation of behavior on the part of one or two persons in the same place; it requires examination of multiperson systems of interaction, not limited to a single setting" (p. 514). Therefore, in examining influences on educational outcomes it is necessary to investigate relationships from an ecological perspective

by considering the context within which the individual develops.

Many educational and vocational researchers (e.g., Albert & Luzzo, 1999; Ali & Saunders, 2006) have used The Social Cognitive Career Theory (SCCT; Lent, Brown, & Hackett, 1994), developed from Bandura's Social Cognitive Theory. SCCT provides an ecological framework for examining the processes through which people develop interests, make decisions, and attain varying levels of success in their career and educational pursuits. SCCT addresses how cognitive-person variables, other person variables, and environmental variables interact with each other to ultimately influence educational or career outcomes. Although SCCT had yielded a number of inquiries on cognitive-person variables, few studies have examined environmental variables. A Concentric Model of Environmental Influences, proposed by Lent, Brown, and Hackett (2000) within the SCCT, whereby one's environment is conceived as a series of embedded layers with the individual residing in the innermost circle surrounded by the immediate environment (i.e., family), which is encircled by the larger social context (i.e., school), served as the framework for the proposed study.

The Current Study

The current study examined the relations among individual, family, and school variables from the students' sophomore year of high school and postsecondary education attendance. The following research question was addressed: *Based on enrollment at a 2- or 4-year college within two years after high school graduation, what individual, family, and school factors predict postsecondary education attendance?*

Pathways to postsecondary education are considered to be multi-stage processes that involve the formation of educational aspirations, academic preparation, and enrollment in college (Hu, 2003). To enroll in a postsecondary institution and attain a higher education, one must first gain *access*, through engaging in preparatory behaviors, applying, and gaining acceptance to an institution of higher education. Students with the most difficulty accessing and attending college are often those who are the first generation in their family to attend, children from immigrant families, and those from low SES homes (Reid & Moore, 2008). Researchers must recognize the factors that facilitate or impede postsecondary education attendance in order to create and implement interventions that prepare all students for higher education (Reid & Moore, 2008).

There is a dearth of studies which have examined the individuals, programs, and experiences that students perceive as influencing their decision to pursue and attain a higher education. Most recently, Snyder (2004) examined this issue from a contextual perspective, presenting limitations which may have compromised the ability to fully conceptualize an understanding of this issue. The predictor variables were all derived from data collected during the students' senior year of high school even though similar data from the sophomore year were available from the NELS: 88 data set. Research has consistently indicated that preparation for postsecondary education begins well before the student's senior year of high school (Gándara, Gándara, & O'Hara, 2001). In fact, contextual factors, such as home resources, parent's educational aspirations,

and school resources, in a student's life can be influential to their enrollment in college.

Factors Related to Postsecondary Outcomes

Individual Factors

Educational aspirations and expectations have been linked with adolescents' likelihood of college attendance (Chenoweth & Galliher, 2004) and educational attainment (Marjoribanks, 2003; Yan, 2002). The aspirations of youth, based upon dreams and desires, are generally higher than their expectations, which involve the acknowledgement of resources, abilities, and requirements. Expectations generally decline with age, while aspirations remain high (Hansen & McIntire, 1989). Educational aspirations also have been strongly and positively linked with parental education whereby students' expectations might be hindered by a lack of family and community role models with higher education (Van Hook, 1993).

There are ethnic group differences in adolescents' educational aspirations and in the nature of the relationship between those aspirations and educational attainment (Hurtado, Inkelas, Briggs, & Rhee, 1997; Marjoribanks, 2003). Hurtado et al. (1997) found that among 10th grade students, Asian Americans had the highest expectations (42%) for postsecondary attainment with nearly 42% expecting to attend both college and graduate school. Latinos reported the lowest expectations for degree attainment with 11% expecting only to finish high school or less and 27% expecting to attend graduate school. Ten percent of African Americans expected to finish high school or less compared with 8% of white students (Hurtado et al., 1997).

Academic performance at the beginning of secondary school has an important impact on the formation of adolescents' educational aspirations (Marjoribanks, 2003) and college preparatory behaviors (Odell, 1988). A challenging high school curriculum, including honors, Advanced Placement, and International Baccalaureate courses may facilitate college attendance. Indeed, Yan (2002) found that students who did not attend college were more likely to be in a non-academic high school program than those who enrolled in college. Advanced high school coursework provides students with a perception of preparedness and is strongly related to college aspirations (Chenoweth & Galliher, 2004; Odell, 1988). First-generation students, particularly those from low-income families, often lack the rigorous academic preparation of their peers with college-educated parents because their parents do not understand the importance of taking challenging courses (Martinez & Klopott, 2005).

Youth who participate in school and community activities are more likely to enter college than those who do not (Blackwell & McLaughlin, 1999; McGrath, Swisher, Elder, & Conger, 2001). School activities help form social and cultural capital by facilitating the formation of school and community networks (Blackwell & McLaughlin, 1999). Extracurricular activities may require parent participation, thus increasing parent-child and parent-parent interactions.

In the United States, most students begin to adopt a work role during adolescence (Entwisle, Alexander, & Olson, 2000). Eighty-percent of high school students work at some point during high school and approximately 30% of those students work over 20 hours each week

(Singh, Chang, & Dika, 2007). There are three theoretical perspectives on adolescent employment. The first theory posits that work complements school by emphasizing the values of the workforce, which creates a smoother transition from school to work (Staff & Mortimer, 2007; Leventhal, Graber, & Brooks-Gunn, 2001; Mortimer, 2003). Contrarily, the zero-sum model of adolescent employment purports that time is limited and time spent at work detracts from time spent engaged in school including homework and extracurricular activities (Marsh & Kleitman, 2005). The third perspective asserts that adolescent work exhibits curvilinear effects on academic outcomes whereby low-level to moderate work facilitates academic achievement and attainment and more intense work patterns deteriorate such outcomes (Quirk, Keith, & Quirk, 2001).

Student attitudes, such as the importance of postsecondary education and whether the student finds school interesting and challenging, may be related to postsecondary attendance. Beliefs about the importance of postsecondary education also may influence whether students pursue and attend college. Reasons students gave for not attending college included being able to make enough money without a degree and not liking school (Chenoweth & Galliher, 2004).

Family Factors

Students' educational outcomes are shaped by the family and community (Blackwell & McLaughlin, 1999; Roscigno, Tomaskovic-Devey, & Crowley, 2006) to the extent that parents may have the greatest impact on students' career goals (Richards, 2004). The decision of youth to enter college is strongly influenced by the expectations of parents as students have reported that parents influenced their

career choice more than any other factor in their life (Kotrlík & Harrison, 1989). Family level decisions about educational investments are related to the availability of family resources, such as income (Marjoribanks, 2003), family structure (Roscigno & Crowley, 2001), and parents' educational attainment (Chenoweth & Galliher, 2004; Davis & Kean, 2005; Smith, Beaulieu, & Seraphine, A., 1995). Those resources are mediated through household investments, such as parental expectations (Odell, 1988; Fan & Chen, 2001), household educational items (Blackwell & McLaughlin, 1999; Israel, Beaulieu, & Hartless, 2001; Roscigno & Crowley, 2001), and cultural capital (Roscigno & Crowley, 2001), each of which have independently predicted college attendance (Smith et al., 1995). Moreover, conversations between parents and students about college attendance are beneficial to college access and attainment. Yan (2002) found that most students who attended college reported that they "sometimes" or "often" discussed postsecondary education with their parents and very few reported that they "never discussed" college.

School Factors

Public schools are funded largely by the property taxes of local citizens. Therefore, the values and attitudes of families and communities can significantly influence the character of these schools and can orient children toward their future position in society (Israel et al., 2001). Educators and school boards will likely invest in accordance with their perceived needs of the local population and the demands of the local labor markets (Roscigno & Crowley, 2001).

There is much discussion in the literature about the effects of school size and about which size is optimal (e.g.,

Howley, Strange, & Bickel, 2000; Kimber, 2003; Lay, 2007). Some have suggested that a preponderance of the evidence favored smaller schools (Howley et al., 2000; Irmsher, 1997; Raywid, 1999) whereas other studies caution those against the potential detriments of smaller schools (Kimber, 2003; Lay, 2007). It is uncertain as to whether the benefits of small school size on academic achievement will actually translate to benefit postsecondary education attendance rates. In fact, Chenoweth & Galliher (2004) found that greater school belonging, a characteristic of small schools, was not associated with plans to attend college. Currently, there is a paucity of research on the influence of any other aspects of school size on postsecondary attendance.

School resources make a difference in students' educational outcomes; yet, unfortunately, for some schools, laboratory, technology, and library resources are limited (Davies, Crow, Hamilton, & Salois, 2006). Differences in these resources along with limited course offerings, including fewer advanced courses (Spicker, Southern, & Davis, 1987), and inadequately heated or cooled buildings have been identified as potential reasons for disparities in academic achievement and educational attainment (Jones & Southern, 1992). Additionally, teachers' higher expectations have improved academic achievement and decreased the likelihood of dropping out of high school (Roscigno & Crowley, 2001). Therefore, teacher expectations and academic pressure may be equally important for one's likelihood of seeking a postsecondary education.

Research on educational outcomes, such as college attendance, will benefit greatly from the acknowledgement of the interrelationship between the family and

school (Reid & Moore, 2008). Strong social and academic support networks provide students with the necessary social capital that they will need for attending a postsecondary institution (Adelman, 2007; Martinez & Klopott, 2005). Like Bronfenbrenner (1977) and others (Adelman, 2007; Marjoribanks, 2003; Martinez & Klopott, 2005; Reid & Moore, 2008; Roscigno et al., 2006) supported multi-contextual approaches to educational research in their assertion that, "recognizing the embedded nature of families and schools and the consequences for resources and investment disparities across place offers a more dynamic and fluid picture than do overly individualistic frameworks of educational processes and outcomes" (p. 2139). Therefore, rather than examining a single ecological context (e.g., only individual), it is beneficial to study the influence of multiple contexts (i.e., individual, family, and school) simultaneously, as was done in the current study.

Methods

Dataset

This study employed a secondary analysis of data from the Education Longitudinal Study 2002 (ELS: 2002), sponsored by the U.S. Department of Education's National Center for Educational Statistics (NCES). NCES datasets are large and nationally representative. ELS: 2002 addressed issues related to the transitions of today's American youth from high school into postsecondary education and the workforce. ELS: 2002 data were collected through stratified sampling procedures by randomly selecting schools then selecting random students and families from within those schools (NCES, 2008), thus supporting the ecological framework of this study.

Sample

In the current study, there were 2,068 high school student participants; 53% were female. Seventy-six percent of the participants were White, 5% were Asian, 7% were African American, and 8% were Hispanic. Twenty-one percent of the participants lived in rural areas, 29% lived in urban areas, and 50% lived in suburban areas. Student participants of ELS: 2002 were high school sophomores during the base-year (BY), high school seniors during the first follow-up, and had been out of high school for at least two years at the time of the second follow-up.

Measures

The variables selected for inclusion in the analysis were based upon previous studies that had indicated potential relationships between those variables and high education outcomes, including attendance and attainment, as discussed in the literature review. The dependent variable, *postsecondary education attendance* was a student report of whether or not they had attended any two- or four-year postsecondary education institution at any time during the two years after high school. The student demographic variables of *sex* and *race/ethnicity* were derived from the ELS: 2002 base year data.

Individual variables. Several factors, reported by the student, were used to measure students' academic and co-curricular characteristics, including: *high school credential, high school program, AP exam, standardized test score-composite, GPA, employment hours, extracurricular activity hours, and community service participation*. Certain variables, assessed during the base-year, were used to gauge students' attitudes about factors that may influence their likelihood of college attendance. Those included whether the

student: *finds classes interesting or challenging, finds getting a good education important, finds getting away from local area important, finds living close to friends and family important; and the student's: expectations of their highest level of educational attainment, perception of mom's educational aspirations for them, perception of dad's educational aspirations for them, and perception of their favorite teacher's educational aspirations for them.*

Family variables. Several parent demographic factors were reported by parents during the BY. These factors included: *parents' native language, family composition, parents' educational attainment, parents' educational aspirations for the student, and total household income*. Additionally, students reported on *number of home resources* and *level of parent involvement* during the BY of data collection.

School variables. School variables were reported by the school administrator in the base year of the study (i.e., sophomore year). These variables were: *school enrollment, percentage of free lunch, poor facilities and resources, career preparation, percentage in a college prep program, percentage in a vocational/technical program, academic press, and school mentoring*.

Statistical Analyses

Data analysis occurred in stages. First, the researcher tagged the variables of interest, including the sophomore cohort flag, F2 panel weight, and school ID, within the ELS: 2002 restricted file. The researcher imported the tagged variables into the Statistical Package for the Social Sciences (SPSS), version 16.0. Various rare student populations and school types have been disproportionately included in the ELS: 2002 due to the over-sampling of

underrepresented populations by NCES. To account for the effects of the complex sampling procedures employed by NCES, such as over-sampling, and to ensure appropriate generalization of the results, a weighting variable must be applied to the data (NCES, 2003). The weighting variable used for the current study was the F2 panel weight, which is appropriate for studies examining variables from the base year and second follow-up. An alpha level of .05 was used to determine statistical significance in each of the analyses.

Multiple linear regression analysis is frequently used as a technique in predicting a continuous dependent outcome with a set of predictors. The use of a dichotomous outcome variable violates the assumption of normality and homoscedasticity for ordinary least squares regression; therefore, a direct logistic regression, the most appropriate analysis for predicting the presence or absence of an outcome variable (Tabachnick & Fidell, 2007), was conducted. Logistic regression is used often as a between-subjects strategy. However, the complex sampling procedures of ELS: 2002 resulted in several participants being from the same school, thus violating the assumption of independence of errors and potentially inflating the Type I error rate for the predictors (Tabachnick & Fidell, 2007). Therefore, to account for the lack of independence of errors, as suggested by Tabachnick & Fidell (2007), a logistic regression model was estimated using Generalized Estimated Equations in SPSS 16.0. GEE accounts for clustering of students and the correlations of responses by school that may occur as a result of the sampling procedures (Molenberghs & Verbeke, 2005) employed by NCES. One logistic regression model was estimated, which included the individual factors, family

factors, and school factors along with the interaction terms and the outcome variable. Unlike linear regression, logistic regression is based on a nonlinear response function, known as the logit, (Tabachnick & Fidell, 2007). This is produced by taking the natural log of the probability of being in one of the outcome categories divided by the probability of being in the other outcome category with the best linear combination of predictors (Tabachnick & Fidell, 2007).

In addition to the B coefficients produced with multiple linear regression, logistic regression provides an odds ratio value for each predictor variable. The B coefficients in logistic regression are the natural log of the odds ratios and, thus, the odds ratios are the exponential value of each B expressed as $\text{Exp}(B)$. The significance of each predictor variable was examined through Wald's Test and the resulting p -value. If significant, the odds ratio, or $\text{Exp}(B)$, was analyzed to determine the relative odds of being in one of the two outcome categories (i.e., postsecondary education attendance or not) when the value of the predictor increased by one unit (Tabachnick & Fidell, 2007).

Results

The research question guiding this study was: *Based on enrollment at a 2- or 4-year college immediately after high school, what individual, family, and school factors predict postsecondary education attendance?* One logistic regression model was estimated including the individual, family, and school and the outcome variable of postsecondary attendance.

For some of the independent variables the algorithm did not achieve convergence, requiring their removal from the model. Those variables were *parents' native language, importance of*

getting a good education, percentage college prep programs, percentage of vocational/technical programs, and academic press. It is plausible that this occurred as the result of too many variables relative to the few cases in one outcome. Additionally, combinations of certain discrete variables within the model may have resulted in cells with no cases (Tabachnick & Fidell, 2007).

Statistical significance was determined using the Wald statistic for each predictor variable. There were five individual variables (see Table 1) that significantly predicted postsecondary attendance. The *high school credential variable* was significant, indicating that earning a high school credential other than a high school diploma, negatively (36% less likely) predicted attendance. The *achievement test composite score* was significant, indicating the odds of college attendance was 4% more likely for each one-point increase in the achievement test composite score. High school *GPA* significantly predicted college attendance as well, indicating that the likelihood of college attendance was 3.06 times more probable for each unit increase in *GPA* (e.g. from 2.0 to 3.0). Time spent participating in

extracurricular activities positively predicted postsecondary education attendance, indicating that the probability of college attendance increased by 4.0% for each one-unit increase in extracurricular activity participation. Contrarily, student *employment* negatively predicted college attendance, indicating a 2.0% decreased chance of college attendance for each hour increase in time spent at a job.

There were two family variables (see Table 1) and one school variable (see Table 2) that significantly predicted postsecondary attendance. *Parents' educational attainment* positively predicted college attendance revealing a 12% increased chance for each one year increase in parents' educational attainment. *Parents' educational aspirations* for the student also positively predicted postsecondary attendance, indicating that the probability of college attendance was an 11% increased chance for each one-year increase in parents' educational attainment. *Percent-free lunch* was negatively related to college attendance, indicating a 1.0% decreased chance for each one percent increase in students receiving free lunch at school

Table 1: Regression Results for Individual and Family Variables among All Participants

| Variable | B | S.E. | Exp (B) |
|---------------|--------|------|---------|
| Intercept | -7.70* | 1.64 | 0.00 |
| Urbancity | | | |
| Urban | -1.04 | 2.22 | 0.35 |
| Suburban | 2.21 | 1.78 | 9.07 |
| Rural | 0.00 | 0.00 | 0.00 |
| Student's sex | | | |
| Female | 0.11 | 0.26 | 1.12 |
| Male | 0.00 | 0.00 | 0.00 |

* denotes significance at the .05 alpha level

(Table 1 continues)

| | | | |
|---|--------|------|------|
| Student's race | | | |
| Asian | 1.04 | 0.68 | 2.82 |
| African American | 0.18 | 0.27 | 1.20 |
| Hispanic | -0.12 | 0.31 | 0.89 |
| White | 0.00 | 0.00 | 0.00 |
| High school program | | | |
| Non-academic | -0.14 | 0.17 | 0.87 |
| Academic | 0.00 | 0.00 | 0.00 |
| High school credential | | | |
| No high school diploma | -0.44* | 0.19 | 0.64 |
| High school diploma | 0.00 | 0.00 | 0.00 |
| Achievement test composite score | 0.04* | 0.01 | 1.04 |
| GPA | 1.12* | 0.13 | 3.06 |
| Plans to take AP exam | | | |
| Yes | 0.12 | 0.18 | 1.12 |
| No | 0.00 | 0.00 | 0.00 |
| Student's educational expectations | 0.02 | 0.08 | 1.02 |
| Finds classes interesting/challenging | | | |
| No | 0.01 | 0.17 | 1.01 |
| Yes | 0.00 | 0.00 | 0.00 |
| Finds getting away from local area important | | | |
| No | | | |
| Yes | 0.37 | 0.29 | 1.45 |
| | 0.00 | 0.00 | 0.00 |
| Finds living close to family and friends important | | | |
| No | -0.33 | 0.21 | 0.72 |
| Yes | 0.00 | 0.00 | 0.00 |
| Perception of mom's desire for student after high school | | | |
| Other than college | -0.17 | 0.51 | 0.84 |
| Attend college | 0.00 | 0.00 | 0.00 |
| Perception of dad's desire for student after high school | | | |
| Other than college | -0.86 | 0.48 | 0.42 |
| Attend college | 0.00 | 0.00 | 0.00 |
| Perception of favorite teacher's desire for student after high school | | | |
| Other than college | -0.16 | 0.22 | 0.85 |
| Attend college | 0.00 | 0.00 | 0.00 |

* denotes significance at the .05 alpha level

(Table 1 continues)

| | | | |
|----------------------------------|---------------------|---------------------|------|
| Extracurricular activities | 0.04* | 0.01 | 1.04 |
| Employment | -0.02* | 0.01 | 0.98 |
| Family composition | | | |
| Less than two parents | 0.19 | 0.22 | 1.20 |
| Two parents | 0.00 | 0.00 | 0.00 |
| Parents' educational attainment | 0.11* | 0.04 | 1.12 |
| Total household income | 5.33 ^{E-6} | 3.64 ^{E-6} | 1.00 |
| Home resources | 0.16 | 0.10 | 1.17 |
| Parents' involvement | 0.05 | 0.51 | 1.05 |
| Parents' educational aspirations | 0.10* | 0.04 | 1.11 |

* denotes significance at the .05 alpha level

Table 2. Regression Results for School Variables among All Participants

| Variable Name | <i>B</i> | S.E. | Exp(<i>B</i>) |
|-------------------------------|----------------------|------|-----------------|
| School enrollment | -3.40 ^{E-5} | 0.00 | 1.00 |
| Percent-free lunch | -0.01* | 0.00 | 0.99 |
| Poor facilities and resources | -0.04 | 0.12 | 0.96 |
| Career preparation | -0.07 | 0.07 | 0.93 |
| School mentoring | -0.02 | 0.50 | 0.98 |

* denotes significance at .05 alpha level

Discussion

Not all American students are attending college and attaining postsecondary educations at the same rate (Cameron & Heckman, 2001; Goetz, 2001). Using data from the NCES ELS: 2002, this study identified the individual, family, and school factors that significantly predicted college attendance among all students. The individual factors that significantly predicted college attendance among all students were high school credential, achievement test composite score, GPA, extracurricular activities, and employment.

For the purpose of this discussion, high school credential, achievement test composite score, and GPA are conceptualized as representing general academic performance. Family factors that significantly predicted college attendance were parents' educational attainment and parents' aspirations for their children. One school factor, the percentage of students receiving free lunch, significantly predicted attendance. The relations between each of these constructs and postsecondary attendance are discussed below.

Individual Factors

Academic performance. College preparatory behaviors and subsequent postsecondary attendance are greatly impacted by students' academic performance at the beginning of secondary school (Marjoribanks, 2003). Students of high academic ability and performance are more likely to plan for college than those of lower academic ability (Odell, 1988). Such academic performance is operationalized through high school GPA, achievement test scores, and the eventual attainment of a high school diploma.

In the current study, the likelihood of attending a postsecondary institution was reduced by 36% for students who did not earn a high school diploma. Achievement test composite scores positively predicted postsecondary attendance. This finding is logical given that students who perform better on achievement tests have typically been exposed to a more rigorous curriculum and exposure to such a curriculum was found to be related to college attendance (Chenoweth & Galliher, 2004). GPA, with honors courses weighted, which is often used in college admission decisions, also positively predicted college attendance. It is likely that these three variables work in conjunction with one another. Those of lower academic ability are less likely to earn a high school diploma and, thus, less likely to have the characteristics and qualities required for admittance and attendance at many postsecondary institutions. Moreover, students of lower ability and performance may experience motivation and self-esteem issues that might prevent them from seeking information about a postsecondary education, for example, from programs offered by community colleges and trade schools. Thus, educators

should be cognizant of the fact that some community colleges have open enrollment, allowing for students with less than ideal high school performance to enroll in classes at those institutions.

For students who demonstrate the ability and desire to attend college, educators may be advised to encourage those students to enroll in more advanced coursework. Exposure to such curricula is likely to improve achievement test scores and college performance (Chenoweth & Galliher, 2004). Participation in those classes also has been shown to raise educational aspirations and make students feel more prepared for college (Reid & Moore, 2008). Unfortunately, the parents of first-generation students often do not understand the importance of taking challenging courses (Martinez & Klopott, 2005). Moreover, some students decline enrollment in more difficult courses because they fear that a sub-par performance in a more advanced course may negatively impact their GPA. Educators should advise students that many institutions weight honors courses in their calculation of GPA for admission decisions and, subsequently, more rigorous courses may improve the student's likelihood of attending college.

Extracurricular activities.

Participation in extracurricular activities helps students to form social and cultural capital by facilitating school and community networks through school engagement and community commitment (Blackwell & McLaughlin, 1999; Fredricks & Eccles, 2005). In the current study, participation in extracurriculars positively predicted postsecondary attendance. These findings were congruent with the results of previous research, which indicated that youth who participated in such activities were more

likely to enter college than those who did not (Blackwell & McLaughlin, 1999). This finding is particularly important because it reveals that participation in extracurricular activities provides a unique contribution to the outcome of postsecondary education attendance. This contribution is beyond that provided by academic performance and SES, which have been identified as the most salient factors related to college attendance and attainment.

Extracurricular activities have been related to numerous educational benefits that have, in turn, been linked to an increased likelihood of educational attainment including improved academic performance (Fredricks & Eccles, 2006; Lipscomb, 2007). Extracurricular activities often require some form of parent participation, thus, increasing the likelihood for the parent's interaction with their child and other parents, and the student's interactions with other potential mentors such as coaches and advisors (Blackwell & McLaughlin, 1999). These interactions may facilitate conversations related to the college process, thereby increasing students' interest and knowledge in what it takes to "go to college."

Employment. Adolescent employment is quite common among American youth (Singh et al., 2007). Participants in the current study reported working nearly 15 hours each week. Such employment negatively predicted college attendance and each hour worked per week decreased the likelihood of college attendance by 1.6%. Similar to extracurricular activity participation, this result is particularly important as it indicates that adolescent employment provides a unique contribution to the outcome of postsecondary attendance

above other factors such as academic performance and SES.

The current findings reflect the zero-sum theoretical perspective of adolescent employment, which asserted that time is limited and time devoted to work is time away from academic-related activities, including those that serve to prepare students for postsecondary education (Marsh & Kleitman, 2005; Singh, Chang, & Dika, 2007). These findings confirm those revealed in a longitudinal study by Carr, Wright, & Brody (1996) that indicated that students who worked more hours in high school attained significantly less education than their counterparts. It is plausible that working, which has been previously linked to academic outcomes such as lower test scores and grades (Marsh & Kleitman, 2005; Quirk, et al., 2001; Singh et al., 2007), as well as higher rates of school absenteeism and dropout (Warren & Lee, 2003), may be indirectly related to college attendance. Adolescent employment prevents students from engaging in more facilitative school activities including extracurricular activities and homework (Marsh & Kleitman, 2005; Singh et al., 2007). Additionally, the work environment may have detrimental effects on students' attitudes toward attending college (Carr et al., 1996).

Family and School Factors

Parents' educational attainment. In the current study, parents' educational attainment positively predicted college attendance. Each additional year of parents' educational attainment increased the likelihood of college attendance by 11.7%. This finding corroborated previous studies that found a similar relationship between parents' educational attainment and college attendance (Davis-Kean, 2005; Reid & Moore, 2008).

Parental educational attainment is often considered a proxy for SES, which has consistently been linked to college attendance (Blackwell & McLaughlin, 1999; Chenoweth & Galliher, 2004; Smith et al., 1995). Educational attainment of the parent(s) is very important because it influences how parents structure their home and how they interact with their children within that environment. For example, more educated parents will hold higher expectations for their children than less educated parents (Chenoweth & Galliher, 2004). Such expectations have implications for the affective relationship, types of conversations, and activities that occur between the parent(s) and child(ren) (Davis-Kean, 2005). Moreover, contrary to first-generation students, who must navigate the higher education process without the knowledge and support of their parents (Bloom, 2007; Choy, 2001; Wimberly & Noeth, 2005), the experiences of parents with a college education enable them to more smoothly facilitate their children's transition to higher education (Bloom, 2007; Chenoweth & Galliher, 2004; Griffen, Allen, Kimura-Walsh, & Yamamura, 2007).

Although a significant relationship between parents' educational attainment and college attendance was revealed in the current study as well as many previous studies, this finding should be interpreted and generalized with caution. One is advised to not conclude that because a student's parents did not attend college, then that student will likely not attend college. There are many first-generation college students at institutions around our nation. Mere exposure to discussions about college and knowing someone who has gone to college has been shown to improve both college aspirations and attendance

(Chenoweth & Galliher, 2004; Gándara et al., 2001). To ensure that these students do attend college, it is important that they have mentors outside of their immediate family to guide them through the complex process (Bloom, 2007).

Parents' educational aspirations for the student. The expectations parents hold for their children have a profound influence on their children's academic outcomes (Fan & Chen, 2001; Odell, 1988). Parents' educational aspirations for the student positively predicted college attendance in the current study. For each additional year of education that parents aspired for their child to complete, the likelihood of their child attending college increased 11%. This finding is important because it reveals that the aspirations parents hold for their children's education provide a unique contribution to postsecondary education attendance above that of academic variables and SES, which have consistently been found to predict such outcomes.

Interestingly, however, students' own educational expectations did not significantly predict attendance among all students as previously reported by Blackwell and McLaughlin (1999) as well as Chenoweth and Galliher (2004). This supports the assertion that parents may have the greatest impact on their children's career goals (Kotrlik & Harrison, 1989; Richards, 2004) and that parents' expectations influence students' career decisions more than any other factor (Yang, 1981). Therefore, when families place an emphasis on education, they instill in their children the belief that a college education is important (Chenoweth & Galliher, 2004).

Although the significance of this variable may imply that students whose parents hold higher educational aspirations will be more likely to attend college, it

should also be recognized that students of parents who have lower educational aspirations are less likely to attend college. Parents who hold lower aspirations are likely those from lower-income households who realize the barriers that may impede the path to their children's college education (Bloom, 2007). Further, parents of lower income may be fraught with feelings of potential abandonment and a loss of connection with their children if they wish for them to attain a college education. Students sense such worries and it increases their anxieties about attending college and, in turn, decreases the likelihood of attendance among those students (Bloom, 2007).

Percent-free lunch. The only school factor that successfully predicted college attendance was the percentage of students receiving free lunch. Each percentage increase in the students receiving free lunch within a school resulted in a 1.1% decreased chance of college attendance. This finding is logical given that, due to the neighborhood districting of our nation's schools, students who attend schools with greater percentages of students receiving free lunches are likely to come from poverty themselves and students of lower SES are less likely to attend college. The percentage of students receiving free lunch is used often as an indicator of the overall socioeconomic status (SES) level of the families of students within a school. Family SES can be instrumental in shaping academic outcomes such as achievement and attainment (Marjoribanks, 2003; Roscigno & Crowley, 2001; Roscigno et al., 2006). Family decisions related to education often are connected to the availability of resources, including income, family structure, and parental educational attainment. Such resources are mediated

through household investments, such as parental expectations, household educational items, and cultural capital (Roscigno & Crowley, 2001), each of which have previously predicted college attendance (Smith et al., 1995). Interestingly, however, total household income was not significant in predicting college attendance in the current study. This implies that school SES provides a unique contribution on the outcome of college attendance above that of family SES. This may be an indirect effect of SES as mediated through school ethos and educator characteristics as well as the backgrounds and values of other students within the school setting.

Towards the end of their secondary education, students reach a crossroads and must weigh the opportunities and compromises that attending college presents to them (Bloom, 2007). Although students' educational aspirations are quite similar across class lines, "the realities on which they (low and high income students) must base their decision reflect different landscapes" (p. 356), which force low-income students to reconcile their dreams for the future with the realities of today (Bloom, 2007). Unfortunately, for many low-income students, those risks may appear too great.

The risks that low-income students take to attain a postsecondary education do not exist for those of middle and high-income families. Regardless of academic ability, low-income students face far greater financial hurdles when deciding to attend college, which often impede their chances for attendance (Chenoweth & Galliher, 2004). For example, in 2001, the average yearly costs for college were nearly 60% of the annual household income of low-income families while the same costs

represented only 5% of the income of high-income families (Gladieux, 2004). As a result, lower-income students will pay more over time for their education as it is often necessary for them to acquire more loans and, additionally, interest and fees (Bloom, 2007). Poor students are aware of the likelihood that they may be unprepared for college and potentially drop out. Thus, some low-income students will not attend college due to a refusal to take out loans as they recognize that not succeeding will leave them in a worse situation of having no degree yet owing money (Bloom, 2007).

There also are several psychological risks that low-income students must take to attend college, including potential injury to one's self-esteem as well as pioneering their own path from poverty into the middle class. For instance, the questions asked of low-income students on the Free Application for Federal Student Aid (FAFSA) and other, "seemingly benign....bureaucratic forms" (Bloom, 2007, p. 358), such as inquiries about net worth of investments and tax deferred pension plans, carry messages which can suggest that low-income students have no place in college (Bloom, 2007). Moreover, Bloom (2007) noted that the FAFSA form has requested information about parents' income even for those whose parents were dead or imprisoned or who lived with other family members or guardians. Unlike their middle class peers, low income students often do not have adults whom they can turn to for help with the complex college application and financial aid process. In fact, many middle-income students rely on their parents to complete aspects of their application and to even schedule interviews for them whereas low-income students often complete their applications alone or with minimal help from a school counselor

(Bloom, 2007). These subtle yet harsh messages may explain why many low-income students self-select out of many college applicant pools prior to receiving admission decisions (McDonough, 1997). These findings highlight the need to target schools with high percentages of students receiving free lunch and provide intervention programming to clarify their understanding of the college application and financial aid process and improve their likelihood of attendance.

Limitations of the Study

In using a national dataset, such as ELS: 2002, certain compromises are made that introduce limitation to the study. First, in using secondary data, the researcher may not have access to the exact data needed to answer the questions of interest, either in terms of variable content or variable type. Therefore, research questions may need to be adjusted to fit the data and thus may not fully explore the phenomena of interest. In the current study, for example, issues related to the influence of financial need on subsequent educational attendance were not addressed in the manner in which the researcher would have liked. Thus, aside from annual household income, the influence of finances on postsecondary attendance was withheld from the study. Additionally, many of the variables of interest for this study were captured in a manner that made it impossible to conceptualize them as continuous data, resulting in reduced variability and small cell sizes for several predictor variables, thus potentially causing misleading null results (Tabachnick & Fidell, 2007). Finally, in utilizing a secondary analysis approach, one cannot control the integrity of the data. For example, in the current study, there were many missing data, which resulted in

a reduced sample size and small cell sizes for many variables. This may have had an impact on the analyses, thus, resulting in the null findings.

The logistic regression analysis in the current study was based on a dichotomous outcome of either attending a postsecondary institution or not. However, this type of analysis may not have captured the whole picture regarding postsecondary education attendance. For example, the outcome variable asked participants whether they attended a postsecondary institution at any point within two years of leaving high school. However, this variable did not indicate whether the participant was still enrolled in the institution and, if not, why the individual was no longer enrolled (e.g., money, family, academic difficulty). Questions regarding those issues should certainly be addressed in future studies. Additionally, the predictor variables were not standardized in a manner that would allow for cross-comparisons to examine the relative influence of each variable on the outcome of college attendance. For example, in the current study, a single unit of educational aspirations was one year whereas a single unit of GPA was moving from a 2.0 to a 3.0. The lack of standardization of the predictor variables might lead some to erroneously conclude that GPA exerts the strongest influence on college attendance without considering the relativity of its contribution to that of other variables.

Finally, as with any relational study, causation cannot be inferred. Therefore, although certain variables may have been significantly related to postsecondary attendance, there may be extraneous variables whose influence was not captured in the current study. Given that a path analysis was not used, it cannot be

determined whether students did not attend college due to self-selection, meaning that they were accepted but did not choose to attend, or whether they did not attend because they were not accepted or did not apply.

Conclusions and Directions for Future Research

This study revealed several factors related to college attendance among all students. Historically, a core of factors including academic achievement, parents' educational attainment, parents' educational aspirations, and household income, has been consistently identified as predicting college attendance. Additionally, this study revealed three factors, extracurricular activities, employment, and parents' educational aspirations for their children, which provided a unique contribution above that of the aforementioned core factors to the outcome of college attendance.

Future research should build upon the findings of this study and improve upon its limitations to further explore the variables that may predict attendance differently for students from different places. Such improvements include identifying continuous variables within national datasets that will be more robust within a regression model, utilizing longitudinal designs, which can capture the developmental trajectory of factors, and incorporating qualitative work to further understand the experiences of first-generation, low-income students who may be pioneering a path to college.

A critical mass of citizens with education and training beyond high school is a necessary requisite for the United States to be prosperous in the global economy of the 21st century. Improving

postsecondary education attendance rates for all American students will facilitate this challenging objective. These results may also be informative to educators aiming to improve the rates of college attendance among their students.

References

- Adelman, C. (2007). Do we really have a college access problem? *Change, July/August*, 48-51.
- Albert, K. A., & Luzzo, D. A. (1999). The role of perceived barriers in career development: A social cognitive perspective. *Journal of Counseling and Development, 77*, 431-436.
- Ali, S. R., & Saunders, J. L. (2006). College expectations of rural Appalachian youth: An exploration of social cognitive career theory factors. *The Career Development Quarterly, 55*, 38-50.
- Baum, S., & Payea, K. (2004). *Education pays 2004: The benefits of higher education for individuals and society*. College Board: New York.
- Blackwell, D. L., & McLaughlin, D.K. (1999). Do rural youth attain their educational goals? *Rural Development Perspective, 13*, 37-44.
- Bloom, J. (2007). Misreading social class in the journey towards college: Youth development in urban America. *The Teachers College Record, 109*, 343-368.
- Bronfenbrenner, U. (1977). Toward an experimental ecology of human development. *American Psychologist, 32*, 513-530.
- Cameron, S. V. & Heckman, J. J. (2001). The dynamics of educational attainment for Black, Hispanic, and White males. *Journal of Political Economy, 109*, 455-499.
- Carr, R.V., Wright, J.D., and Brody, C.J. (1996). Effects of high school work experiences a decade later: Evidence from the National Longitudinal Study. *Sociology of Education, 69*, 66-81.
- Chenoweth, E., & Galliher, R. A. (2004). Factors influencing college aspirations of rural West Virginia high school students. *Journal of Research in Rural Education, 19*, 1-14.
- Choy, S. (2001). *Students whose parents did not go to college: Postsecondary access, persistence, and attainment*. Findings from the Condition of Education, 2001. National Center for Education Statistics: Washington, D.C. (ERIC Document Reproduction Service No. 460 660).
- Davies, G., Crow, M. M., Hamilton, M. R., & Salois, J. E. (2006). Rural students: Common obstacles, different settings. *Chronicle of Higher Education, 53*, (11) 64.
- Davis-Kean, P. E. (2005). The influence of parent education and family income on child achievement: The indirect role of parental expectations and the home environment. *Journal of Family Psychology, 19*(2), 294-304.
- Entwisle, D. R., Alexander, K. L., Olson, L. S. (2000). Early work histories of urban youth. *American Sociological Review, 65*, 279-297.
- Fan, X., & Chen, M. J. (2001). Parental involvement and students' academic achievement: A meta-analysis. *Educational Psychology Review, 13*, 1-21.
- Fredricks, J. A., & Eccles, J. S. (2005). Developmental benefits of extracurricular involvement: Do peer characteristics mediate the link between activities and youth outcomes? *Journal of Youth & Adolescence, 34*, 507-520.
- Fredricks, J. A., & Eccles, J. S. (2006). Extracurricular involvement and adolescent adjustment: Impact of duration, number of activities, and breadth of participation. *Applied Developmental Science, 10*, 132-146.

- Gándara, P., Gándara, D., & O'Hara, S. (2001). Planning for the future in rural and urban high schools. *Journal of Education for Students Placed at Risk, 6*, 73-93.
- Gladieux, L. (2004). Low income students and the affordability of higher education. In R. Kahlenberg (Ed.), *America's untapped resource: Low-income students in higher education*. New York: The Century Foundation Press.
- Goetz, S. J. (2001). What accounts for the growing rural-to-urban income gap in the Northeast? *Rural Development Views, 7*, 1-4.
- Griffen, K. A., Allen, W. R., Kimura-Walsh, E., & Yamamura, E. K. (2007). Those who left, those who stayed: Exploring the educational opportunities of high-achieving Black and Latina/o students at magnet and nonmagnet Los Angeles high schools (2001-2002). *Educational Studies, 42*, 229-247.
- Hansen, T. D., & McIntire, W. G. (1989). Family structure variables as predictors of educational and vocational aspirations of high school seniors. *Research in Rural Education, 6* (2), 39-49.
- Howley, C., Strange, M., & Bickel, R. (2000). *Research about school size and school performance in impoverished communities*. Charleston, WV: ERIC Clearinghouse on Rural Education and Small Schools. (ERIC Document Reproduction Service No. ED 448 968).
- Hu, S. (2003). Educational aspirations and postsecondary access and choice: Students in urban, suburban, and rural schools compared. *Education Policy Analysis Archives, 11*(14). Retrieved from <http://epaa.asu.edu/epaa/v11n14/>.
- Hurtado, S., Inkelas, K. K., Briggs, C., & Rhee, B. (1997). Differences in college access and choice among racial/ethnic groups: Identifying continuing barriers. *Research in Higher Education, 38*, 43-75.
- Israel, G. D., Beaulieu, L. J., & Hartless, G. (2001). The influence of family and community social capital on educational achievement. *Rural Sociology, 66*, 43-68.
- Jones, E. D., & Southern, W. T. (1992). Programming, grouping, and acceleration in rural school districts: A survey of attitudes and practices. *Gifted Child Quarterly, 36*, 112-117.
- Kimber, M. (2003). *Does size matter? Distributed leadership in small secondary schools*. National College for School Leadership.
- Kotrlík, J. W. & Harrison, B. C. (1989). Career decision patterns of high school seniors in Louisiana. *Journal of Vocational Education Research, 14*(2), 47-65.
- Lay, J. C. (2007). Smaller isn't always better: School size and school participation among young people. *Social Science Quarterly, 88*, 790-814.
- Lent, R. W., Brown, S. D., & Hackett, G. (1994). Toward a unifying social cognitive career theory of career and academic interest, choice, and performance [Monograph]. *Journal of Vocational Behavior, 45*, 79-122.
- Lent, R. W., Brown, S. D., & Hackett, G. (2000). Contextual supports and barriers to career choice: A social cognitive analysis. *Journal of Counseling Psychology, 47*, 36-49.
- Leventhal, T., Graber, J. A., Brooks-Gunn, J. (2001). Adolescent transitions to young adulthood: Antecedents, correlates, and consequences of adolescent employment. *Journal of Research on Adolescence, 11*(3), 297-323.
- Lipscomb, S. (2007). Secondary school extracurricular involvement and academic achievement: A fixed effects approach. *Economics of Education Review, 26*, 463-472.
- Marjoribanks, K. (2003). Family background, individual and environmental influences, aspirations, and young adults'

- educational attainment. *Educational Studies*, 29, 233-242.
- Marsh, H.W., & Kleitman, S. (2005). Consequences of employment during high school: Character building, subversion of academic goals, or a threshold? *American Educational Research Journal*, 42, 331-369.
- Martinez, M., & Klopott, S. (2005). *The link between high school reform and college access and success for low-income and minority youth*. Washington, DC: American Youth Policy Forum and Pathways to College Network.
- McDonough, P. (1997.) *Choosing colleges: How social class and schools structure opportunity*. Albany, NY: State University of New York Press.
- McGrath, D. J., Swisher, R. R., Elder Jr., G. H., & Conger, R. D. (2001). Breaking new ground: Diverse routes to college in rural America. *Rural Sociological Society*, 66, 244-267.
- Molenberghs, G., & Verbeke, G. (2005). *Models for Discrete Longitudinal Data*. Springer: New York, NY.
- Mortimer, J. T. (2003). *Working and Growing Up in America*. Harvard University Press.
- National Center for Education Statistics (2003). *NCES Handbook of Survey Methods: Technical Report*. U.S. Department of Education: Washington, D.C.
- National Center for Education Statistics (2008). *Education Longitudinal Study of 2002 (ELS: 2002): Base-year to Second Follow-up Data File Documentation*. Retrieved from: http://nces.edu.gov/pubs2008/2008347_1.pdf.
- National Center for Public Policy and Higher Education. (2001). *Measuring Up 2000*. San Jose, CA: Author.
- Odell, K. S. (1988). The educational and occupational expectations of rural Ohio tenth- and twelfth-grade students. *Research in Rural Education*, 5 (2), 17-21.
- Quirk, K. J., Keith, T. Z., & Quirk, J. T. (2001). Employment during high school and student achievement: Longitudinal analysis of national data. *The Journal of Educational Research*, 95(1), 4-10.
- Raywid, M. A. (1999). *Current literature on small schools (ERIC Digest)*. Charleston, WV: ERIC Clearinghouse on Rural Education and Small Schools, 1999. (ERIC Document Reproduction Service No. ED 425 04).
- Reid, M. J., & Moore III, J. L. (2008). College readiness and academic preparation and postsecondary education. *Urban Education*, 43, 240-261.
- Richards, A.M. (2004). Rural transition: KNOW NO BOUNDS. *Rural Special Education Quarterly*, 23(3), 36-40.
- Roscigno, V. J., & Crowley, V. J. (2001). Rurality, institutional disadvantage, and achievement/attainment. *Rural Sociology*, 66(2), 268-292.
- Roscigno, V. J., Tomaskovic-Devey, D., & Crowley, M. (2006). Education and the inequalities of place. *Social Forces*, 84(4), 2121-2145.
- Singh, K., Chang, M., Dika, S. (2007). Effects of part-time work on school achievement during high school. *The Journal of Educational Research*, 101(1), 12-22.
- Smith, M. H., Beaulieu, L. J. & Seraphine, A. (1995). Social capital, place of residence, and college attendance. *Rural Sociology*, 60(3), 363-380.
- Snyder, C. S. (2004). *The effects of rural high school on attending college and earning a bachelor's degree. A multivariate longitudinal analysis of a national cohort of high school seniors*. Retrieved from: http://irapp.moreheadstate.edu/pdf/cerl_9.pdf.
- Spicker, H. H., Southern, W. T., & Davis, B. (1987). The rural gifted child. *Gifted Child Quarterly*, 31, 155-157.

- Staff, J., & Mortimer, J. T. (2007). Educational and work strategies from adolescence to early adulthood: Consequences for educational attainment. *Social Forces*, 85, 1169-1194.
- Strauss, W., & Howe, N. (2005). The high cost of college: An increasingly hard sell. *Chronicle of Higher Education*, 52, 824-824.
- Tabachnick, B. G. & Fidell, L. S. (2007). *Using Multivariate Statistics*. New York: Pearson Education.
- Van Hook, M. P. (1993). Educational aspirations of rural youths and community economic development: Implications for school social workers. *Social Work in Education*, 15, 215-224.
- Warren, J. & Lee, J. (2003). The impact of adolescent employment on high school dropout: Differences by individual and labor-market conditions. *Social Science Research*, 32, 98-128.
- Wimberly, G. L., & Noeth, R. J. (2005). *College readiness begins in middle school*. Iowa City, IA: ACT.
- Wirt, J., Choy, S., Rooney, P., Provasnik, S., Sen, A., & Tobin, R. (2004). *The Condition of Education 2004 (NCES 2004-077)*. Washington D.C.: U.S. Department of Education.
- Yan, W. (2002). *Postsecondary enrollment and persistence of students from rural Pennsylvania*. Center for Rural Pennsylvania: Harrisburg. (ERIC Document Reproduction Service No. ED 459 986).
- Yang, S. W. (1981). *Rural youths' decision to attend college: Aspirations and realizations*. Rural Sociological Society: Ontario, CA. (ERIC Document Reproduction Service No. ED 207 765).