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Educational and Career Aspirations of University Honors and Non-Honors Students

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Educational and Career Aspirations of University Honors and Non-Honors Students

Amnah Hafsyah, PhD

University of Connecticut, 2015

Academically talented college students who participate in honors programs are generally believed to be more involved in educationally purposeful activities and to hold higher educational and career aspirations than their peers who do not participate in honors programs. Having high educational and career aspirations is beneficial for student success after college. However, the effects of students' involvement in an honors program on students' aspirations is unknown. This study examined the aspirations and involvement of two groups of college students—honors students and non-honors students—by class standing (lower division compared to upper division) and gender (male and female) at a single large public university. All students at the university were invited to complete a survey that includes an educational aspiration scale, a career aspiration scale, and questions about student involvement. The final sample included 434 honors students and 366 non-honors students. A series of ANOVAs and regressions were performed to investigate the potential differences. The results of this research study supported a positive effect of the honors program on both career and educational aspirations. Aspirations were greater for upper division honors students compared to lower division honors students. Additionally, higher academic involvement was related to higher aspirations and may be a mechanism by which the honors program influences aspiration.

Educational and Career Aspirations of University Honors and Non-Honors Students

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University of Connecticut

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APPROVAL PAGE

Doctor of Philosophy Dissertation

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CHAPTER ONE: INTRODUCTION TO THE STUDY

Many colleges and universities are recruiting higher numbers of academically talented students to increase their institutional academic rankings, test scores, and competitiveness (Rinn & Plucker, 2004). Institutions of higher education often develop special honors programs to serve and support their most academically talented students and work diligently to provide them with opportunities to realize their highest potential. College and university honors programs are designed to address the educational and developmental needs of these talented students (Rich, 1991). Membership in honors programs is usually based upon several factors such as high school GPA, ACT/SAT scores, letters of recommendation, extracurricular activities, essays, interviews, college GPA, or other application information (Driscoll, 2011). As such, only the most capable students are offered entry into honors programs. These types of programs are considered important as they provide advanced university students with academic and social supports that differ from typical college offerings (Austin, 1986). These supports are meant to assist advanced students in reaching their potential (Rich, 1991).

College honors students are generally expected to have more successful professional careers than non-honors students for several reasons (Scager et al., 2012). For example, some researchers have suggested that students who excel in academics may be more invested and/or more prepared to find employment after college to pursue advanced degrees (Astin, 1999). Honors program also better prepare students for more professional and prestigious careers (Scager et al., 2012). Very little research, however, has examined the potential effects of student involvement in an honors program on career and educational aspirations, which is the area addressed in this study.

Literature Review Summary

This study investigates whether participation in an honors program, a type of advanced learning community, has an effect on students' educational and career aspirations. College or university honors programs, and learning communities generally, can be designed in several different ways, including as curriculum-based programs, classroom-based programs, interest-based programs, or residential learning communities (Zhao & Kuh, 2004).

The general basis for developing college or university honors programs is the belief that gifted students benefit from a differentiated education that takes their special learning needs into account and helps to support their educational goals so students can reach their highest potential (National Collegiate Honors Council [NCHC], 2015b). One way in which academically gifted and talented students differ from other students is that gifted students tend to have a more internal locus of control, and because of this, may experience more pressure to perform in a way that fits with their more narrow definition of what constitutes "success" in school (Stephens & Eison, 1986-87). Participation in honors programs has been shown to support the needs of gifted students, and those students who continue in honors until graduation generally graduate at a higher rate and have higher college GPAs when compared to students who started in honors but who did not complete the program and those who did not participate at all (Cosgrove, 2004).

Astin (1999) predicted that participation in honors programs can have a positive impact on both the educational and the career aspirations of gifted students and may help to encourage students who are contemplating continuing their education beyond undergraduate to obtain master's or doctoral degrees. Participation in honors programming can also help gifted students with advanced skills or talents in multiple areas (i.e., multipotentiality) narrow their options to

focus on educational and career paths that best fit their skills and their interests (Robinson, Shore, & Enersen, 2007; Rysiew, Shore, & Leeb, 1999).

Both male and female academically talented students can benefit from participation in honors programs; the type of support they need varies however. Female students have been found to be more likely to experience gender-stereotype pressure in choosing their career path or whether they will choose to continue their education or start a family (Leung, Conoley, & Scheel, 1994). It is important that both male and female academically talented students are supported and are able understand that it does not have to be an “either-or” situation—a student of either gender can have both a career and a family and need not sacrifice one for the other (Reis, 2002).

Students benefit from participation in honors programs in many ways. For example, a differentiated curriculum can challenge academically talented students, as can acceleration, individual advanced study, access to research in their chosen field, and contact with peers of similar or advanced skill levels (McClung & Stevenson, 1988; NCHC, 2015b; Pflaum, Pascarella, & Duby, 1985; Robinson, 1997). Gifted students also benefit from working more closely with their advising faculty so that they can discuss their educational and career aspirations, narrow their focus, and appropriately designate their time to get the greatest benefit from their education (Gasser, 2013; Lunsford, 2011; Wilson et al., 1975).

Statement of the Problem

What type of university programming will positively influence the career and educational aspirations of academically talented college students? Gerrity, Lawrence, and Sedlacek (1993) suggested that an educational aspiration difference exists between honors and non-honors students as they found that the most common motivation honors students reported for attending

college was to prepare for a post-baccalaureate education. Rinn (2005) expanded upon this in her research that “the majority of honors students in each class aspired to earn a doctoral degree, followed by a master’s degree” (p. 164) and that “upon graduation, honors students are more likely to complete graduate or professional school than non-honors students, and honors students indicate higher satisfaction with their jobs than non-honors students” (p. 160). Most research on students’ career and educational aspirations involves middle and high schools (e.g., Cobb, McIntire, & Pratt, 1989; Feldhusen & Willard-Holt, 1993; Mau & Bikos, 2000; Watson, Quatman, & Edler, 2002). Some research has been conducted on students’ aspirations at the college level (Chung, Loeb, & Gonzo, 1996; Gasser, Larson, & Borgen, 2004; Grant, Battle, & Heggoy, 2000; Miller & Cummings, 2009; Nauta, Epperson, & Kahn, 1998; Pascarella, 1984; Rinn, 2007; Schroer & Dorn, 1986); however, little attention has been directed towards the career and educational aspirations of college honors students (Rinn, 2005, 2007). This lack of research is a problem because honors directors and university officials do not understand if current honors programming supports career and educational aspirations beyond the effect of college alone. If involvement in an honors program does increase aspirations or if certain components of the program make more of a difference, such as involvement in undergraduate research, programs can be enhanced and expanded. More research is needed to investigate which aspects of honors programs could increase career and educational aspirations.

Purpose of the Study

The purpose of this study was to assess the influence of an honors program on aspirations above and beyond the influence of college itself or pre-existing differences in honors and non-honors students. Astin’s (1999) student involvement theory applied to the context of honors

programs and their influence on students' aspirations predicts increased educational and career aspirations for those honors students most involved in the honors program.

Astin (1999) found that students' learning and personal development increase once they are more involved in college. This personal development includes knowing more about themselves and the ways they learn and work best. Astin (1999) integrated three major theories of pedagogy (subject matter theory, resources theory, and individualization or eclectic theory) to predict that development occurs when the content of the instruction elicits student effort and when resources for engagement are available, but he also found that each student needs an individualized curriculum to be most engaged. Astin (1999) defined involvement as "the amount of physical and psychological energy that the student devotes to the academic experience" (p. 518). The basic postulates of the involvement theory include the ideas about both the properties of involvement and its effects. The level of involvement differs between students and each student can be involved to a different extent based on the subject. The amount and quality of students' involvement is positively related to academic and personal success.

Honors programs exemplify examples of Astin's (1999) optimal curriculum as they provide opportunities for intelligent students to learn more about themselves beyond the standard course work and requirements. University honors curricula usually provide honors students with more opportunities than non-honors students to become involved with deeper and more complex subject matter and other interest-based opportunities (NCHC, 2015b). Some other factors that have been found to increase students' involvement include living in a campus residence, maintaining a part-time on-campus job (where student and faculty interactions are likely, versus an off-campus job that decreases involvement), joining social fraternities or sororities,

interacting with faculty frequently, and participating in athletics or extracurricular clubs (Astin, 1999). Astin (1999) also found that

frequent interaction with faculty is more strongly related to satisfaction with college than any other type of involvement; students who interact frequently with faculty members are more likely to express satisfaction with all aspects of their institutional experience, including student friendships, variety of courses, intellectual environment, and the administration of the institution. (p. 525)

Based on these findings regarding the importance of a wide variety of types of involvement, in this study involvement was conceptualized as engagement with academic material, extracurricular activities, faculty, peers, and academic research.

Definition of Terms

In this dissertation, the following operational definitions are used:

Gifted: “Children and youth with outstanding talent perform or show the potential for performing at remarkably high levels of accomplishment when compared with others of their age, experience, or environment. These children and youth exhibit high performance capability in intellectual, creative, and/or artistic areas, possess an unusual leadership capacity, or excel in specific academic fields. They require services or activities not ordinarily provided by the schools. Outstanding talents are present in children and youth from all cultural groups, across all economic strata, and in all areas of human endeavor” (Office of Educational Research and Improvement, 1993, p. 26).

Honors program: A program that is established in a college or university to provide support and academic enrichment to academically gifted and advanced students.

Aspiration: “A students’ ability to identify and set goals for the future, while being inspired in the present to work toward those goals” (Quaglia & Cobb, 1996, p. 130)

Educational aspiration: Educational aspiration is defined as when the aspirational goals relate to educational achievement (Quaglia & Cobb, 1996).

Career aspiration: Career aspiration is defined as when the aspirational goals relate to career achievement (Quaglia & Cobb, 1996).

Involvement: “The amount of physical and psychological energy that the student devotes to the academic experience” (Astin, 1999, p. 518).

CHAPTER TWO: LITERATURE REVIEW

This research study addressed participation and involvement in honors programs as contributing factors in students' educational and career aspirations. In this chapter, the research literature related to honors programs, known group differences between honors and non-honors students, the key dependent variables of educational aspirations and career aspirations, and the benefits of components of honors programs will be reviewed.

Honors Programs

Honors programs are one of the most common applications of learning communities in colleges and universities. According to Zhao and Kuh (2004), there are four general types of learning communities:

1. Curricular learning communities comprised of students co-enrolled in two or more courses (often from different disciplines) that are linked by a common theme.
2. Classroom learning communities in which the classroom is the locus of community-building, featuring cooperative learning techniques and group process learning activities as integrating pedagogical approaches;
3. Residential learning communities organized on-campus living arrangements enabling students taking two or more common courses to live in close physical proximity, which increases the opportunities for out-of-class interactions and supplementary learning opportunities; and
4. Student-type learning communities, especially designed for targeted groups, such as academically underprepared students, historically underrepresented students, honors students, students with disabilities, or students with similar academic interests, such as women in math, science, and engineering. (p. 116)

Honors programs can include any or all of the four types of learning communities.

As with any educational institution with a heterogeneous intellectual student body, two groups of students may be disadvantaged by the offerings of the regular curriculum: the groups at the opposite ends of the ability continuum. On one end are students whose level of ability, preparation, or motivation leaves them unable to meet the challenges of the standard curriculum. At the other end of the spectrum are the students who are so academically or intellectually advanced that the standard curriculum fails to offer them sufficient challenges. The general purpose of honors programs is to provide additional challenges that enable advanced students to achieve to their highest potential:

In general, Honors programs are based on the belief that superior students profit from close contact with faculty, small courses, seminars or one-on-one instruction, course work shared with other gifted students, individual research projects, internships, foreign study, and campus or community service. (NCHC, 2015b, para. 2)

Compared to the learning environments in the colleges and universities that contain them, honors programs provide students with enhanced and enriched experiences in and out of class. This academic enrichment can be achieved through offering an honors program based on the academic setting, students needs, and abilities of the faculty (NCHC, 2015b).

The National Collegiate Honors Council (NCHC) has identified 17 basic characteristics that honors programs need to meet to be considered fully developed. These 17 characteristics identify various guidelines for the way collegiate honors programs should be designed and implemented, for increased student and faculty involvement, and for the use of multiple types of learning styles as appropriate for the differences in learning styles of each student (NCHC, 2014). The newest characteristic identified by the NCHC is a criterion that programs will give

priority enrollment to honors students active in the program to help accommodate their unique and often very busy scheduling needs (Spurrier, 2008). As the cost of tuition continues to rise at a faster rate than the median family income, honors programs enable prospective students to have opportunities similar to what they would find at an Ivy League school while still paying the state university price (Seifert et al., 2007).

Honors programs in college generally take one of two main forms: university-wide honors and department-based honors programs (Cosgrove, 2004). The essential difference between the two types is that, as the name suggests, university-wide honors programs support and encourage honors students in all areas of education and do not focus on any one content area specifically. Department-based honors programs focus on the development of the honors skills in their specific subject—for example, an English department-based honors program would focus on developing English skills and talents for those gifted in English. Overall, most research has been conducted on university-based honors programs rather than department and content-based programs (Chancey, 2013; Cosgrove, 2004; Rinn, 2005).

Additionally, research on honors programs has more often examined honors programs at community colleges (Bulakowski & Townsend, 1995; Byrne, 1998; Crooks & Haag, 1994). This leaves a gap because honors programs are most heavily concentrated at public four-year institutions (Long, 2002). In 2002, honors programs at public two-year colleges represented only six percent of all honors programs nationally (Long, 2002).

Group Differences Between Honors and Non-Honors Students

Honors students and non-honors students have been found to differ in their personalities, motivations, and abilities (Gerrity, Lawrence, & Sedlacek, 1993; Scager et al., 2012). In a broad study comparing honors and non-honors students, Mathiasen (1985) found that honors students

were more prompt in completing assignments, reported less procrastination, more effectively used their study time, participated in more extracurricular activities, and had a greater number of varied interests than non-honors students. Relatedly, Lease (2002, as cited in Kem & Navan, 2006) found honors students to be more autonomous than non-honors students.

In a study comparing honors and non-honors freshmen and sophomores, Stephens and Eison (1986-87) surveyed 93 honors students and 258 non-honors students on a variety of concepts regarding their education and school experience. They found that honors students were more likely to have an internal locus of control, when compared to non-honors students, and often displayed more intrinsic interest in learning and less in letter grades earned; however, honors students had a more ambitious idea of what they accepted as “good grades.” Additionally, honors students were less likely to worry about money or school, but they were more likely to worry about time than non-honors students. Both honors and non-honors students were equally likely to be concerned with their health and appearance, social relationships, and career development. Stephens and Eison also found that honors students were more likely to enjoy and become invested in courses that allowed them to exercise independent thought and initiative and incorporate theories and concepts themselves.

According to a study by Gerrity, Lawrence, and Sedlacek (1993), more honors students than non-honors students reported having college-educated parents. Both the fathers and mothers of honors students were more likely to have college degrees, with 81 percent of the fathers, as compared to 67 percent of non-honors fathers, and 65 percent of honors mothers compared to 50 percent of non-honors mothers holding a college education. Additionally, 40 percent of the parents of honors students had earned a graduate or professional degree, compared to only 26 percent of non-honors parents. While parental influence played a small part in the decision for

both honors and non-honors students to attend college, the two groups identified different motivations as to why they decided to attend college. The top four motivations for honors students were to prepare for graduate school, to learn more, to get a better job, and to gain a general education. The top five motivations for non-honors students were to get a better job, to gain a general education, and to prepare for graduate school, to learn more, and to make more money. Aspirational differences between honors and non-honors students were also suggested by Gerrity and colleague's study and will be discussed later.

In a study by Long and Lange (2002), honors and non-honors students were given the Student Attitude Survey (SAS) that asked for information about various aspects of their lives, including behaviors related to their courses and social lives. The results of the survey illustrated some key differences between honors and non-honors students. According to their self-reports, honors students were more likely than non-honors students to “ask questions in class, rewrite a paper, discuss grades and academic ideas with a professor, socialize with faculty outside of class, participate in an art activity and hear a guest speaker” (p. 26). Additionally, according to the Student Attitude Survey, honors students “consumed less alcohol per week, spent fewer nights a week drinking with friends, and less money on alcohol” (p. 26). However other variables showed no differences between honors and non-honors students including “their preparation for class, tutoring of other students, work with faculty on research or their participation in musical activities” (p. 26). The researchers concluded that honors students seemed to have a more intense academic focus and demand more resources from their school.

When investigating whether honors college students have different characteristics than non-honors, Scager et al. (2012) found only slight differences between honors and non-honors

students in intelligence and persistence. However, honors and non-honors students were significantly different in creative thinking, desire to learn, and the drive to excel.

These findings about the differences between honors and non-honors students express a general difference in intellectual ability, parental education, academic engagement, aspirations, reasons and motivation to attend college, and relation with faculty. Also college honors students have been found to have different social and emotional needs than non-honors students. As Long and Lange (2002) noted, the individual differences between honors and non-honors students are frequently smaller than expected, and each group has variation among its members. However, these differences cannot be ignored and make the study of the effect of honors programs difficult because honors and non-honors students differ before they enter a college or university. The current study has been designed to address this concern by comparing honors and non-honors students at the beginning and end of their college experiences.

General Outcomes of Honors Programs

Research indicates that participating in honors programs can potentially have many benefits for students. Research by Zhao and Kuh (2004), for example, has shown that learning communities, such as honors programs, are related to “enhanced academic performance, integration of academic and social experiences, gains in multiple areas of skill, competence, and knowledge, and overall satisfaction with the college experience” (p. 131).

Honors students have higher rates of retention and graduation than non-honors students. Slavin and colleagues (2008) found that although the majority of both honors and non-honors students returned in the fall for their sophomore year, the percentage of returning students was greater for honors students than non-honors students. Comparing honors college students who completed the program to partial honors students (those who started honors program but did not

finish) and high-ability non-honors students at a single institution, Cosgrove (2004) found that partial honors and non-honors students took longer to graduate than honors students.

Honors students also demonstrate higher academic performance overall than non-honors students. Cosgrove (2004) found that students who completed the honors program earned a mean GPA of 3.71—significantly higher than the 3.48 for students who only completed part of the honors program and the 3.22 for high ability students who chose not to participate in honors. In a separate study, students in honors programs had significantly higher levels of self-reported growth in the areas of liberal arts and science and technology than did their non-honors peers (Seifert et al., 2007). Interestingly, Cosgrove (2004) reported that “the outcomes of partial honors students are more like those of high-ability students (students who could potentially qualify for honors but do not seek inclusion) than they are like those of honors program completers” (p. 51). One explanation for this result is that the benefits of the honors program did not accrue until the later part of students’ college careers.

Research that investigates the positive outcomes of participation in the honors programs is essential for the continued success and growth of these types of programs. The funds needed to hire specialized faculty and provide the additional services needed by honors students require evidence of the positive effect of those funds (Lanier, 2008). Thus far, research on the effect of honors programs has been positive. However, evidence of the effect of honors programs on success after college is lacking. The current study will assess student aspirations, which have an effect on the students’ success after college.

Student Aspirations

This study uses the operational definition of aspiration proposed by Quaglia and Cobb (1996): “a students’ ability to identify and set goals for the future, while being inspired in the

present to work toward those goals” (p. 130). Educational and career aspirations often revolve around the ambition and inspiration of the student. Ambition, as defined by Quaglia and Cobb (1996) is “the perception that an activity is important as a means to future goals” (p. 130). If the student has a desire to achieve an outcome, then he/she will be more ambitious and strive for the goals he/she sets for himself/herself. Quaglia and Cobb further stated “inspiration reflects that an activity is exciting and enjoyable to the individual and the awareness of being fully and richly involved in life here and now” (p. 130). Inspiration is an important component of aspiration because students seek to do what they enjoy. Aspiration requires both ambition and inspiration because ambition provides the desire to work and inspiration provides direction for the work. Aspiration is both short term (working hard on a project in a subject students enjoy) as well as the long term (working hard in all coursework to advance their GPA and focus on career aspirations).

Aspirations can be influenced by the interaction between personal factors, such as ability and self-efficacy, and environmental factors, such as peer influence and school setting (Quaglia & Cobb, 1996). The school setting created by the presence of an honors program may result in increased aspirations because of the norms set in place by the university environment as well as the professors and educators. As Festinger (1954), Moos and Bromet (1976), Marsh (1987), and more recently Marsh et al. (2014) found, individuals do conform to the aspirational norm of their social group. Quaglia and Cobb (1996) concluded, “Assuming that students’ aspirations can be impacted in some way, and assuming that the best way to go about that is to do so indirectly via changes in whole group aspirations, there are enormous implications for schools (e.g., create an environment which fosters aspirations)” (p. 131).

General self-concept is an example of a personal factor that is related to aspiration. General self-concept, more commonly referred to as self-esteem, comprises all of the information we know about ourselves and is an interpretation of that information (Rinn, 2005). In theory, the higher the self-concept, the higher the level of aspiration for the student (Marsh, 2014). Research consistently indicates that college students of all ability levels experience an increase in their general self-concept throughout their college years (Reynolds, 1988). This could be attributed to age, increased maturity, or it could be related to their increase in knowledge and achievement. The increase in self-concept over time may lead to an increase in aspirations over the college years as well.

Educational Aspirations

As previously discussed, Quaglia and Cobb (1996) define aspiration as “a student’s ability to identify and set goals for the future, while being inspired in the present to work toward those goals” (p. 130). Educational aspirations are those in which the goals are related to educational achievement. Having educational aspirations can have a positive impact on the student. Expecting to complete high school improves adolescents’ general social and behavioral adjustment (Dubow, Arnett, Smith, & Ippolito, 2001; Wyman, Cowen, Work, & Kerley, 1993). Additionally, adolescents who have this expectation of success are more likely to actually succeed, especially when their academic abilities facilitate their success.

Pascarella (1984) studied over 5,000 White college students across 100 universities at the beginning of their freshmen year and again at the end of their sophomore year, finding a positive influence of academic competition at selective colleges on educational aspirations. This effect was stronger for men than women; however, much has changed in the expectations of men and women in society over the last three decades, so this relationship may or may not still exist.

Additionally, Pascarella (1984) found that students with higher educational aspirations entering college also had higher aspirations after two years in college, suggesting that differences among students at the beginning of college are likely to persist.

With respect to gender differences, theoretical literature suggests that women have higher educational aspirations than men. Women tend to follow a contingency approach, defined as when female students simultaneously plan for their career and for the possibility of starting a family (Arnold, 1993). In following the contingency approach, women can create more options and opportunities for their future career if they aim for more education. Accordingly, women are likely to have higher educational aspirations than men, who generally do not need to follow a contingency approach. Mau and Bikos (2000) found differences in a nationally representative sample of men and women that persisted from 10th grade until two years beyond high school. Women had consistently higher educational aspirations than men. However, more recently, Perry, Przybysz, and Al-Sheikh (2009) did not find gender differences in educational aspirations among high school students in a mid-western city. Additionally, gender differences may change in college compared to high school, as Leung, Conoley, and Scheel (1994) found that among gifted high school juniors, women were more likely than men to aspire to a college or master's degree, but less likely to aspire to a doctoral or professional degree.

Educational aspirations of academically talented students. Participation in a college honors program is expected to increase aspirations for higher education (Shushok, 2002). Many researchers believe that honors students will be more invested and therefore more motivated to continue their education beyond high school, and ultimately beyond their undergraduate education (Astin, 1999). This prediction has been supported as research suggests that honors program students are more likely than non-honors students to pursue a graduate degree instead of

discontinuing their education journey after graduating from undergraduate (Randall, Salzwedel, Cribbs, & Sedlack, 1990). Similarly, Astin (1999) conducted several studies of honors programs, finding that these students are more likely than the average students to persist in college and to aspire to complete professional degrees.

Differences in students' motivation to attend college suggest differences in the educational aspirations of honors and non-honors students. Gerrity, Lawrence, and Sedlacek (1993) compared the motivations of honors and non-honors students, finding that the two groups had different foci as their main reason for attending college. The freshmen non-honors students that were studied were motivated to attend college first to get a better job (34%), then to gain an education (16%), followed by preparation for graduate school (16%), learning more (13%), and finally, making more money (10%). In contrast, honors students were motivated to prepare for graduate school first (34%), followed by learning more (19%), and getting a better job (18%). Their research also found that as compared to honors students, non-honors students thought more about the possibility of not attending college and expected less from their classes than their honors counterparts. Honors students may have higher aspirations because their motivation has more to do with moving on to graduate school and learning while in college.

Students' year in school may play a role in their educational aspirations. Research regarding the educational aspirations of college students is mixed, particularly with regards to gifted students. One researcher has speculated that first year college students may aspire to high educational goals, regardless of their ability, as their aspirations are more idealistic than realistic (Rinn, 2005). However, Noldon and Sedlacek (1998) stated gifted students enter college with realistic expectations for their success based on their ability. In one study of student educational aspirations at Stanford, a university of high achieving students, nearly half of freshmen students

reported intending to earn a doctoral degree, followed by a third of the remaining students intending to earn a master's degree, and about 20 percent intending to finish their education with their bachelor's degree (Katchadourian & Boli, 1985). By the time the students reached their senior year in college, their educational aspirations had increased overall, with less than 10 percent of students content with only earning a bachelor's degree and the rest of the students split almost evenly between intending to earn a master's degree or a doctoral degree. This increase in aspirations for advanced students after experiencing college fits with the profile of gifted students discussed earlier. Academically talented students gain more enjoyment out of the challenge the learning environment provides, so it stands to reason that honors students would be more motivated to continue on with their education, remain in an academic setting, and seek degrees beyond an undergraduate degree.

Rinn (2005, 2007) directly studied the association between honors programs and aspirations. Comparing samples of honors and non-honors gifted college students, Rinn (2007) found that gifted honors students, measured across class standing, had higher academic achievement and academic self-concepts than equally intelligent students who did not participate in the honors program. Her results did not show any significant differences in student aspirations; however, due to the small size of the non-honors population, further research with larger sample sizes would be necessary before drawing any strong conclusions. The current study examines these relationships in more detail.

Career Aspirations

Career aspirations are defined as aspirational goals, as discussed by Quaglia and Cobb (1996), that relate to career achievement. High career aspirations have been found to predict later career attainment (Holland & Lutz, 1967), even after controlling for career interest inventories

(Schoon & Parsons, 2002). As Greene (2006) highlighted, career attainment has a major effect on people's lives because they spend 30-35 years on average in their careers. The study of career aspirations alongside the study of educational aspirations is critically important because, as Rinn (2005) noted, not all careers require the attainment of a graduate or professional degree. For students who wish to join one of those careers such as the arts, athletics, and primary and secondary education, career achievement does not require further educational achievement.

When studying the career aspirations of both honors and non-honors students, Gerrity, Lawrence, and Sedlacek (1993) asked freshmen about the most important factors in their career choice. Results varied, but 37 percent of honors students as compared to only 17 percent of non-honors students selected "Intrinsic interest in the field" as the most important factor in career choice. Also, the top factor for non-honors students was "high anticipated earnings" selected by 22 percent of non-honors students compared to 17 percent of honors students. Both groups cared about enjoying their career and earning a living, but their focus was different.

Career aspirations of gifted students. Fostering talent and encouraging career aspirations are two important roles that honors program faculty play in the lives of their gifted students. Kerr and Sodano (2003), citing their previous research studies, noted:

Despite the choice of nearly 200 college majors, more than half of the high-scoring students in 1988 crowded into just five majors: business, engineering, communications, premed, and prelaw. Among students who scored perfectly on sub-tests of the ACT—indicating an extraordinary grasp of English, mathematics, social studies, or natural sciences—relatively few expected to major in their area of great expertise. Instead, these students chose pragmatic, applied majors associated with high-salary, plentiful jobs. (p. 173)

This disparity between students' abilities and their chosen career paths indicates that additional guidance from faculty could help them choose a career that is more aligned with their interests and abilities.

One issue that gifted college students may face in the development of their career aspirations is multipotentiality. As defined by Kerr and Sodano (2003), multipotentiality is “the ability to select and develop any of a number of diverse career options” (p. 169). They elaborate by explaining, “Gifted students are often multipotential because they possess a high level of general ability, which makes them capable of performing capably in almost any intellectual endeavor” (p. 169). Unlike average students who tend to focus on the areas at which they most excel for their career aspirations, gifted students excel in many areas and have several potentially good career choices (Reis, 2002; Rinn & Plucker, 2004). The narrowing of career choices can prove difficult for individuals with multipotentiality, and they may need extra assistance, due to their advanced ability, extreme motivation and enthusiasm for new experience (Greene, 2006; Robinson, Shore, & Enersen, 2007; Rysiew, Shore, & Leeb, 1999). This can lead to a phenomenon called “overchoice syndrome” where the multipotential individual has so many options to choose from that he/she puts off making any decision at all, and can potentially end up falling behind their peers both in career and in life stages (getting married, creating their own independent family, etc.; Rysiew, Shore, & Leeb, 1999).

High ability students can be faced with indecisiveness about their future career that honors programs should help to address. These gifted students feel pressure from outside sources like their teachers and parents, as well as internal pressure they put on themselves to make the “right” decision for their future, and narrowing down what that is can be difficult for students who are gifted in several areas (Kerr & Sodano, 2003; Schroer & Dorn, 1986). Career counseling

for gifted students could help them decide which of their many options will be best for them. This counseling for gifted students, will help them choose a career based on their strengths, but also based on individual interests and values that may not be promoted by society, such as fairness to the environment and others in society (Kerr & Sodano, 2003). The career counseling of at least one university seems to be working; Rinn (2005) compared honors college students' career aspirations to determine whether they differed on class standing and found that seniors had higher career aspirations than juniors.

Gender Differences in Aspirations

Research on gender and career aspirations shifted in the 1990s. Older research showed a clear distinction between the career aspirations of male and female students, with female students often defaulting to what has been labeled “family safe” career choices (Eccles, 1985; Kerr, 1983). Additionally, newer research has consistently found a gender difference when studying gifted students (Noldon & Sedlacek, 1998; Reis, 1991). Mau and Bikos (2000) found that career aspirations among students differed between men and women in a nationally representative longitudinal sample. Women consistently had higher career aspirations from 10th grade until 2 years after high school. In another study, Howard and colleagues (2011) also found that middle and high school women from a midwestern state had higher career aspirations than men.

In their research of career aspirations of gifted boys and girls, Leung, Conoley, and Scheel (1994) did not find a gender difference in the level of career prestige to which students in the 14 years and older age group aspired. For the same participants, they did find a gender difference in educational aspirations. Although women showed more aspiration than men in attaining a master's degree, they were less inspired than men in obtaining a doctorate or professional degree. Leung, Conoley, and Scheel (1994) interpret these findings as women

having unrealistic career aspirations because the level of academic degree obtained influences the prestige of career a person is able to reach. The researchers speculated that together the findings are due to women having expectations of their future family life that prevent or result in barriers in higher education. Their speculation is supported by a study by Eccles (1994), who found that in a survey, men rated family and occupation as of equal importance, while women rated family as more important than their occupation. Reis (2002) also discussed the societal expectations of family life and female behavior and how these expectations conflicted with what is needed to be successful. All together, this research indicates that women have special academic and career counseling needs because of the gender differences in aspirations. Women and students in general, should have counseling that incorporates issues the students will face both in their careers and outside of their careers to help them balance the multiple roles they will play in their lives (Greene, 2006). Career counseling is one of the ways honors programs aim to support students.

Benefits of Honors Program Components

Much of the research literature about gifted education, including the characteristics of gifted students and how gifted educators can best support those students, is focused on students who are in K-12. Not as much attention is paid to the characteristics of gifted undergraduate, graduate, and professional students, their unique challenges, and the ways that educators can best support them (Robinson, 1997). With respect to gifted college students, Robinson (1997) identified several techniques for supporting their needs including “admission without high school graduation; credit for previous advanced work; identification during and after admission; advising by specifically designated personnel; career planning; and special programs such as honors programs, admission to graduate courses, mentorships, and research opportunities” (p.

217). These needs are similar to the needs of academically talented K-12 students because the gifted students' learning needs remain the same, but their situational demands change over time (Kem & Navan, 2006; Robinson, 1997). Honors programs in more than 1000 colleges and universities in United States provide highly motivated and talented college students with the challenging academic programs and experiences to fulfill these needs (NCHC, 2015a).

Claims have been made about benefits that gifted and talented students receive from honors program offerings such as advising, including close relationships with faculty and one-on-one meetings; practical research experience, including research project opportunities, practicums, and career-building internships; as well as interaction with other gifted students (McClung & Stevenson, 1988; NCHC, 2015b; Pflaum, Pascarella, & Duby, 1985; Robinson, 1997). Each of these areas will be discussed in detail below.

Faculty Contact

Good academic advising leads to better outcomes for students in college, whether they are considered average or gifted. Metzner (1989) studied academic advising quality and found low quality was related to attrition from the school, but an absence of advising was related to even higher attrition. Metzner's result may relate to attrition from honors programs, as better outcomes may also be due to the support academic advisors provide in an unknown environment. This benefit of advising was also shown in an analogous context to college, the workplace. In the workplace mentoring provides more benefits toward career outcomes than no mentoring, as Allen and colleagues showed in a 2004 meta-analysis. The amount of faculty contact a student has can have a direct impact on the educational experience of the student. Gasser (2013) found in her research that "students who had more contact with faculty at research universities were more

likely to have higher educational aspirations” (p. 365). Good academic advising improves the plans of the students and may improve outcomes after college.

The definition of good academic advising depends on both the advisor and the student (Lunsford, 2011; Wilson et al., 1975). Kerr (1986) indicated that for gifted college students, structured career advising is preferred. In interviews with undergraduate students in honors programs, Lunsford (2011) asserted that those with good mentoring relationships were more likely to have career plans after school. Similarly, having more interactions with faculty outside of class was associated with greater certainty in career choice (Wilson et al., 1975). While these researchers did not confirm that those students found careers, it is inferred that having specific plans will increase the likelihood of finding a career after school.

Students also believe they are benefiting more from mentoring when career guidance is given; however, the benefits from mentoring were also found to depend upon the students (Lunsford, 2011). Some gifted undergraduates were not ready to be mentored: they did not seek a change in mentor after being assigned to an inappropriate mentor. Robinson (1997), in her review of the literature, concluded that some students do not participate in mentoring because they have too little information, low self-esteem, low ambition, or shyness. Honors students are given more information about the importance of advising and have higher self-esteem and higher ambition (Astin, 1999), so they may be more likely to take advantage of the resource of academic advising offered to all students.

Compared to their non-honors counterparts, gifted students need additional guidance from their instructors to make the best choices for themselves (Blackburn & Erickson, 1986). Specifically, gifted students may require more advice and guidance in such areas as relationships, career development, expectations of others, plans for after graduation, delayed

gratification, and early career closure, and questioning of others' expectations (Myers & Pace, 1986). Counselors should encourage students to explore all career options that are suitable for them, regardless of gender stereotypes, and should encourage female students to continue their studies and realize that there is a balance to education, career, and traditional family roles so these students do not feel that they have to choose one over the other (Greene, 2006; Leung et al., 1994). As previously mentioned, gifted students are likely to have multipotentiality, with many interests and abilities, and one of the most important roles of the academic advisor is to help these students decide which of the many options they have is most suitable and appropriate for them (Carduner, Padak, & Reynolds, 2011). To give advice of such a detailed nature, the advisor should know about the students' own needs to pursue high prestige occupations, along with society's pressure on them to do the same, and about their lives in and out of school, including abilities, interests, goals, families, and peers (Kelley & Lynch, 1991; Leung, Conoley, & Scheel, 1994). If an academic advisor is successful, students can decide to pursue one of their options and as a result, have higher educational or career aspirations.

Academic advising is needed at critical times in a student's time in college. Carduner, Padak, and Reynolds (2011) interviewed a multipotential gifted student who expressed a disappointment at not having advising help when she changed majors. Another student the researchers interviewed received critical help when he first decided on a major: the advisor introduced him to the field of finance accounting, which combines his interests of math and international business.

Research Experience

As Merkel (2001) discusses, for a period of time, some literature criticized research institutions for focusing on faculty research projects but allowing few students to assist,

speculating that faculty research projects were coming at the expense of teaching. As a result of this, many institutions, the first of which was MIT, reexamined their procedures and this led to institutionalized ways for students to participate in the research (Merkel, 2001). Faculty members were able to continue their research, which also supports university goals, while students got the benefit of observing and assisting.

These students, in participating in research, also learned research skills (Lanier, 2008) and other transferable skills (Chickering & Gamson, 1987) and developed additional mentoring relationships with their research advisors to complement those with their academic advisors (Robinson, 1997). Chickering and Gamson (1987) defined seven principles for good practice in undergraduate education including “active learning techniques” (p. 2). They further asserted that learning is “not a spectator sport” and that students have to take an active, involved role in their learning by “making what they learn a part of themselves” (p. 4). Part of an active learning style involves learning critical thinking skills which being involved with research can teach (Merkel, 2001). Another component of excellence in active learning is the ability for students to explore self-selected opportunities (Robinson, 1997). Because self-selection is important for the learning process, the degree to which research opportunities encourage self direction in selecting research topics and discovering the next steps are likely to affect the learning process.

One researcher, Lanier (2008), quantified research as an important skill that will prepare graduates for future careers. He surveyed graduates as part of an exit study and found 62.7 percent of those responding exceeded his expectations of what students should learn from completing an honors thesis and only 4.2 percent failed to meet those expectations. However, the long-term career and educational impact of research experience on other student outcomes has not been assessed in the literature.

Peer Contact

Part of the benefit of university honors programs may be the academically successful peer context of other high ability students they provide. The honors students themselves report wanting the peer contact in working on assignments with others of the same ability (Kem & Navan, 2006), and one of the reasons honors students report joining the program is to be around similar students (Chancey, 2013). According to Zhao and Kuh (2004), learning communities, of which honors programs are an example, improved student outcomes in two ways. First, because students took multiple classes with the same set of peers, they were encouraged to support each other in making connections between the classes. Second, students' ability to connect with each other for an extended period of time enhanced students' social skills and helped each student to be an active person within an academic peer group. The social connections of learning communities supported building personality and transferring academic content to other aspects of their life (Zhao & Kuh, 2004).

Researchers have found positive outcomes from participation in learning communities. Stassen (2003) found freshmen participation to have positive influences on academic performance, retention, institutional satisfaction, engagement in learning, and the quality as well as the quantity of learning. Zhao and Kuh (2004) also found positive effects on retention. Ficano (2012) examined the interaction of peer contact with gender of self and peers, finding that male peers influence males, but male-female and female-female pairs do not influence each other. This relates to honors programs when there is often greater contact with honors students when in the honors program. Research in this area could expand to isolate whether this peer trend of only 'males-influencing-males' holds true for students within the honors program population.

Outside of learning communities, Kuh (2003) found that first year students were more likely than other students to report that their school encouraged interaction with students from various different backgrounds. This was likely at least partially due to the importance universities place on promoting diversity during new student orientations, activities that take place in dorms, and first year student seminars. By senior year, most students were living off campus and were less exposed to those activities on campus that promoted diversity and experienced fewer naturally occurring opportunities for interaction with students who were different from themselves. These findings indicate that those non-honors students who are not in learning communities have declining external support for peer interactions, while honors students may actually have continuous support.

CHAPTER THREE: METHODOLOGY

This study investigated career aspirations and educational aspirations in honors and non-honors college students. Specific attention was paid to the two groups' levels of involvement as a possible explanatory factor for group differences, and class standing was used to explore the effect of time in college on student aspirations. This study was structured around five questions:

1. Are there differences in career and educational aspirations, after controlling for the effect of gender, between honors and non-honors students?
2. (a) Are there differences in career and educational aspirations, after controlling for the effect of gender, between lower division students (freshmen and sophomores) and upper division students (juniors and seniors)? (b) Do those differences vary between honors and non-honors students?
3. (a) Are there differences in levels of involvement, after controlling for the effect of gender, between honors and non-honors students? (b) Do these differences vary based on class standing?
4. (a) Is there a relationship between level of involvement and career and educational aspirations, after controlling for the effect of gender? (b) Does this relationship vary between honors and non-honors students?
5. (a) Is there a relationship among level of involvement, class standing, and career and educational aspirations, after controlling for the effect of gender? (b) Does this relationship vary between honors and non-honors students?

Research Site

This quantitative study was conducted at a large public university ("State U") located in the northeastern United States. The university has a particular pattern of strong admission

characteristics that influences student outcomes. The following information about the State U honors program was found on the websites for the university and the university's honors program and confirmed with State U administrators and honors staff. State U is classified as a Research University (very high research activity) under the 2010 Carnegie Classifications and is ranked among the top 20 public research universities in the United States. Over 30,000 students enrolled in 2014, with over 20,000 undergraduate students across multiple campuses.

The university-wide honors program has approximately 2,000 participants across almost all academic majors. The size of the honors program has increased over time, with the class of 2014 being the largest graduating class of honors students in the school's history. Honors students participate in honors classes all four years, including at least 20 percent of their courses, and complete honors theses prior to graduation.

Academic advising is one way in which various levels of academic involvement may be facilitated. Non-honors students at State U have contact with an advisor in their major area but the amount of contact is lower than for honors students. Honors students are assigned faculty advisors in their majors who help students with course planning, provide advice about their major, assist in finding research experience and internships, and guide career planning. The State U honors program also has professional advisors to provide additional help to students who are undecided about their majors or otherwise need extra assistance. The extra time spent with academic advisors is theorized to increase the involvement of honors students.

To encourage a successful transition to college, the State U honors program provides special orientation sessions in which incoming students receive advice about classes and are able to register for classes immediately. The first year honors students live in a residential learning

community where they participate in enrichment events and enroll in specialized first year experience seminars with State U faculty members.

Research experience is required for honors students and optional for most non-honors students. Some majors require a research class to be taken and give the option to all students of completing a senior thesis. The thesis is an original research project undertaken under the mentorship of a faculty member. Honors students are required to complete a thesis; however, this experience typically takes place at the very end of the student's undergraduate experience. The benefits of earlier research experience and mentorship are available in most disciplines to both honors and non-honors students. Honors students do receive additional encouragement to participate in research early through a fellowship offered to first year honors students and through posting of requests for research assistants.

With respect to peer contact, honors housing also provides contact with other honors students with similar academic abilities. More contact with honors peers is available through multiple honors student organizations and events. This will theoretically lead to positive peer effects discussed earlier. In addition, students can attend career panels and talk to the university alumni about their experiences during and after college.

Participants

For this study, the entire student body was invited to participate. Emails through daily campus announcements were sent to every student at the university, regardless of class or academic standing (see Appendix A). Additionally, to ensure participation by honors students, they were asked to participate through an identical email sent by a staff member in the State U honors program, who agreed to help sponsor this research. The email described the study purpose and the importance of their participation to education research and the university. The

purpose of the study was described as “discovering the importance of university programming in influencing student outcomes.” The students were also told that by participating their email addresses could be entered into a raffle for one of five \$100 Amazon gift certificates.

Of the 836 total responses, the final sample included 434 honors students and 365 non-honors students. The 29 honors non-completers students, who were excluded from further analysis, were accepted into the honors program but they either decided not to continue or were asked to leave the honors program. Eight additional participants were excluded because they were currently enrolled in the honors program but had not yet taken an honors class. These students were excluded from the analysis because they could not be considered honors students or non-honors students. Table 3.1 shows the demographics of the participants. Within honors students, the number of honors credits earned is broken down by year in college in Table 3.2.

The response rate was approximately 22 percent of approximately 2,000 honors students and approximately 2 percent of approximately 18,000 non-honors students. The difference in response rate is likely due to the targeted recruitment of honors students, which was done to have similar numbers of respondents in the two groups. Importantly, the number of participants exceeds the minimum needed to analyze the research questions using the analytic method described below. A power analysis in G*Power was conducted for each research question assuming a moderate effect size of $f = 0.25$ or Odds Ratio = 2.5, type I error rate (α) of .05, and power of .8. The maximum sample size needed for any of the planned analyses was 128.

Table 3.1

Participant Demographics

Category	Honors	Non-Honors	Total
Total	434	365	799
<u>Gender</u>			
Male	168	98	266
Female	258	265	523
Other or Prefer Not To Respond	8	2	9
<u>Class Standing</u>			
Freshmen	118	68	186
Sophomore	115	98	213
Total Lower Division	233	166	399
Junior	104	101	205
Senior	97	97	194
Total Upper Division	201	198	399
No response	0	1	1
<u>Age</u>			
18 years old	116	67	183
19 years old	113	92	205
20 years old	102	86	188
21 years old	88	71	159
22 years old	12	26	38
Over 22 years old	2	22	24
No response	1	1	2

Table 3.2

Honors Credits Earned by End of Current Semester by Year in College

Credits	Freshmen		Sophomores		Juniors		Seniors	
	<i>N</i>	%	<i>N</i>	%	<i>N</i>	%	<i>N</i>	%
0 credits	0		0		0		0	
1-6 credits	54	45.8	8	7.0	12	11.5	3	3.1
7-12 credits	51	43.2	29	25.2	13	12.5	17	17.5
13-18 credits	8	6.8	55	47.8	22	21.2	23	23.7
19-24 credits	0		17	14.8	36	34.6	27	27.8
More than 24 credits	0		6	5.2	20	19.2	26	26.8
No or invalid response	5 ^a	4.2	0		1	1.0	1	1.0
Total	118	100.0	115	100.0	104	100.0	97	100.0

^a Five freshmen honors students indicated that they would have earned more than 24 honors credits by the end of the current semester. This was not possible at State U.

Measures

Participants in this study completed an online survey with demographic questions as well as items about career and educational aspirations and involvement. The complete survey is in Appendix B.

Demographic questions. Participants were asked their gender, age, and how many semesters they had been enrolled full-time in a college or university. The number of semesters (1-2, 3-4, 5-6, 7-8, or 9 or more) was recoded to traditional class standings (freshman, sophomore, junior, or senior), which in turn was collapsed into “lower division” (freshman and sophomore) and “upper division” (junior and senior) for the purpose of analysis. The initial question wording was designed to capture the amount of time a student had spent in college, which may not match a student’s official class standing.

Participants were also asked “Have you ever been accepted into the State U Honors Program?” If their answer to this question was “yes,” they were asked “Are you currently a member of the State U Honors Program?” and “After the current semester, how many honors credits will you have earned?” Students were classified as non-honors if they had never been accepted into the honors program ($n = 365$) and were classified as honors students if they reported currently being members in the honors program and earning at least one honors credit ($n = 434$). Therefore, students who were accepted into the honors program but were no longer members were excluded ($n = 29$), as were students who reported being members of the honors program but not earning any honors credits ($n = 8$).

Career aspiration scale. Developed by O’Brien (1992), the Career Aspiration Scale (CAS) is a 10-item, 5-point, Likert-type scale that ranges from (0) not at all true of me to (4) very true of me. The scale is designed to measure participants’ goals and plans within their chosen careers. Scores on the CAS range from 0 to 40, with higher scores representing higher career aspirations. Example of CAS items include “I hope to become a leader in my career field” and “I plan on developing as an expert in my career field.” This scale was developed to assess women’s career choices, but has been used with men as well (Constantine & Flores, 2006; Reynolds & Constantine, 2007). Internal consistency reliability of CAS has been stated as a Cronbach’s alphas of 0.80 (Nauta, Epperson, & Kahn, 1998) and 0.77 (Dukstein & O’Brien, 1994) for college women, 0.92 for minority college men (Constantine & Flores, 2006), and 0.86 for international student minority college men (Reynolds & Constantine, 2007). In the current study the reliability of the 10 items was 0.82. The third item (“I would be satisfied just doing my job in a career I am interested in”) had an item-total correlation of -0.04. This item was deleted

from the analysis, leading to a final nine-item reliability of 0.86 and possible scale scores ranging from 0 to 36.

Educational aspiration scale. Students' educational aspirations were measured by asking them to select the highest educational degree they intend to obtain, as is typically done in the literature (e.g., Gasser, 2013). The degree options given were associate's, bachelor's (BA/BS), master's (MA, MS, MBA, etc.), and doctorate (PhD, MD, JD, etc.). There were five participants who chose "associate's degree." To make the educational aspiration scale more interpretable, the associate's and bachelor's categories were collapsed into one "bachelor's or lower" category. The modified scale ranged from 1 to 3, with higher numbers indicating higher educational aspirations. This one item measure has been used to demonstrate the effect of academic achievement on educational aspirations (Drew & Astin, 1972) and the difference between junior honors students and senior honors students (Rinn, 2005).

Students' involvement scale. This scale included 10 items selected and modified from The National Survey of Student Engagement (NSSE) and 2 items based on the First-Year Engagement Scales (Krause & Coates, 2008). The details of the modifications are given in Appendix C. The NSSE, developed by Kuh (2001), was designed to measure the amount of student involvement in educational practices and the benefits they gain from their institutions. Since 2000, more than 1,500 college and universities have used the NSSE to identify the programs and activities that promote student engagement, and the scale has been shown to be reliable (NSSE, 2014). Eleven items from the NSSE and First-Year Engagement Scales were modified so that students could rate how often they had been true during the current academic year using a 5-point Likert scale ranging from "Never" (1) to "Extremely frequently" (5). One item, from the NSSE, concerning the number of hours spent each week on co-curricular

activities, was reworded and responses coded from “None” to “7 or more hours weekly.” In the current study the reliability of the 12 items was 0.80. The item regarding the number of hours spent on co-curricular activities had an item-total correlation of 0.09 and was removed from further analysis, leading to a final 11-item reliability of 0.81.

Data Analysis

Research Question 1. Are there differences in career and educational aspirations, after controlling for the effect of gender, between honors and non-honors students?

A two-way ANOVA was conducted with the career aspiration scale as the dependent variable. Because educational aspiration is an ordinal variable, an ordinal logistic regression was used to assess differences in educational aspiration. The independent variables in each analysis were honors status (honors and non-honors) and gender, and the models included the interaction term.

Research Question 2. (a) Are there differences in career and educational aspirations, after controlling for the effect of gender, between lower division students (freshmen and sophomores) and upper division students (juniors and seniors)? (b) Do those differences vary between honors and non-honors students?

For the first part of this research question, a two-way ANOVA was conducted with the career aspiration scale as the dependent variable. An ordinal logistic regression was used to assess differences in educational aspiration. The independent variables in each model were class standing (lower division and upper division) and gender, and the interaction terms were included. For the second part of this research question, honors status (honors and non-honors) was added as an independent variable to each of the models in part (a), with all interactions included.

Research Question 3. (a) Are there differences in levels of involvement, after controlling for the effect of gender, between honors and non-honors students? (b) Do these differences vary based on class standing?

For the first part, a two-way ANOVA was conducted with the involvement scale score as the dependent variable. The independent variables were honors status (honors and non-honors) and gender, and the interaction term was included. For the second part, a three-way ANOVA analysis was conducted with the involvement scale score as the dependent variable. The independent variables were honors status (honors and non-honors), class standing, and gender, and all interaction terms were included.

Research Question 4. (a) Is there a relationship between level of involvement and career and educational aspirations, after controlling for the effect of gender? (b) Does this relationship vary between honors and non-honors students?

For the first part of this question, two regression analyses were conducted. The first was a least squares linear regression with career aspiration as the dependent variable, and the second was an ordinal logistic regression with educational aspiration as the dependent variable. Both analyses included involvement, gender, and their interaction as independent variables. For the second part of this question, honors status (honors or non-honors) and the associated interactions were added to each regression model.

Research Question 5. (a) Is there a relationship among level of involvement, class standing, and career and educational aspirations, after controlling for the effect of gender? (b) Does this relationship vary between honors and non-honors students?

For the first part of this question, two regression analyses were conducted. The first was a least squares linear regression with career aspiration as the dependent variable, and the second

was an ordinal logistic regression with educational aspiration as the dependent variable. Both analyses included involvement, class standing (lower division or upper division), gender, and all interactions as independent variables. For the second part of this question, honors status (honors or non-honors) and the associated interactions were added to each regression model.

Limitations

One limitation of this study was that this research focuses solely on one university setting. It is recognized that honors programs vary across the country. There are different structures of honors programs, ranging from being completely self-contained within the gifted population to incorporating gifted guidance into a regular curriculum. Any conclusions drawn from this study are limited in application to honors programs that are similar in structure to this program situated in similar universities to State U. More research should be conducted to examine additional types of college honors programs at a variety of colleges and universities.

There were differences in response rates between honors and non-honors students. The difference may be due to motivational differences between honors and non-honors students, but could also be due to the targeted recruitment of honors students. The number of students responding was different across honors status, which is a potential threat to statistical validity. The class standing cell sizes were approximately equal. The honors and non-honors sample size differences caused unequal cell sizes in the ANOVA analyses, which is especially a problem with factorial designs with interaction terms as done here. The unequal cell sizes change the standard errors, which could change the result of the test of statistical significance. However, for the dependent variables, the honors and non-honors groups did not differ significantly in the standard deviation of their responses. For career aspiration, honors had a standard deviation of 0.89 compared to 1.03 for non-honors students. For educational aspiration, honors had a standard

deviation of 0.74 compared to 0.78 for non-honors students. For student involvement, honors had a standard deviation of 0.67 compared to 0.64 for non-honors students. Because of these similarities of standard deviation of responses, the unequal sizes of honors and non-honors groups should not pose a threat to the results.

CHAPTER FOUR: RESULTS

The purpose of this study was to explore the effect of the honors program on career and educational aspirations and whether academic involvement played a part in the effect on aspirations. The data included survey responses from 434 honors students and 365 non-honors students. Women comprised 65.5 percent of the sample and 33.3 percent were men. The number of responses from lower division and upper division students was equal. The research questions and the analyses that guided the study were introduced in Chapter Three. This Chapter describes the results for each research question. The questions build from less complex to more complex analyses.

Research Question 1: Differences in Aspirations Between Honors and Non-Honors

Are there differences in career and educational aspirations, after controlling for the effect of gender, between honors and non-honors students?

The analysis of the effect of honors status on career aspirations will be presented first, followed by the effect on educational aspirations.

Career Aspirations

A two-way ANOVA on career aspirations showed non-significant main effect for honors status, $F(1,783) = 0.64, p = .423$; non-significant main effect for gender, $F(1,783) = 1.69, p = .193$; and non-significant interaction effect between honors status and gender, $F(1,783) = 0.09, p = .770$. Because the interaction term was not statistically significant, the ANOVA model was run again without interaction. The main effects only model again showed statistically non-significant effects of honors status, $F(1,784) = 0.94, p = .333$, and gender, $F(1,784) = 1.89, p = .170$. No effect of honors status on career aspirations when controlling for gender was found.

Educational Aspirations

An ordinal logistic regression was conducted to determine the effect of honors status on educational aspirations. Gender and the interaction of honors status and gender were also included in the model. The result of the parallel lines test, $\chi^2(3) = 3.59, p = .309$, supported the proportional odds assumption necessary for ordinal logistic regression. The overall model fit was statistically significant, $\chi^2(3) = 55.37, p < .001$. Honors status was a statistically significant predictor of educational aspirations, $B = 1.33, \chi^2(1) = 30.40, p < .001$, as was gender, $B = 0.68, \chi^2(1) = 9.51, p = .002$, but not the interaction term, $B = -0.55, \chi^2(1) = 3.59, p = .058$. Because the interaction term was not statistically significant, the ordered logistic regression was run again with main effects only. For this final model, shown in Table 4.1, the proportional odds assumption was again supported, $\chi^2(2) = 3.89, p = .143$.

Table 4.1

Ordinal Logistic Regression on Educational Aspirations by Honors Status and Gender

Predictor	<i>B</i>	Wald $\chi^2(1)$	<i>p</i>
Threshold			
Edu Asp = 1	-0.70	21.89	.000
Edu Asp = 2	1.08	50.30	.000
Honors Status	0.96	7.75	.000
Gender	0.37	0.61	.010

Note. Overall model fit $\chi^2(2) = 51.77, p < .001$. Edu Asp = Educational Aspirations.

In this model, honors status was found to have an effect on educational aspirations when controlling for gender. Converting the coefficients into odds ratios showed that the odds of an honors student having high educational aspirations were 2.60 times higher than the odds of a

non-honors student of the same gender having high educational aspirations. The odds of a woman having high educational aspirations were 1.45 times the odds of a man having high educational aspirations, when honors status was held constant. The mean predicted probabilities of members of each group selecting each level of educational aspiration are depicted in Figure 4.1.

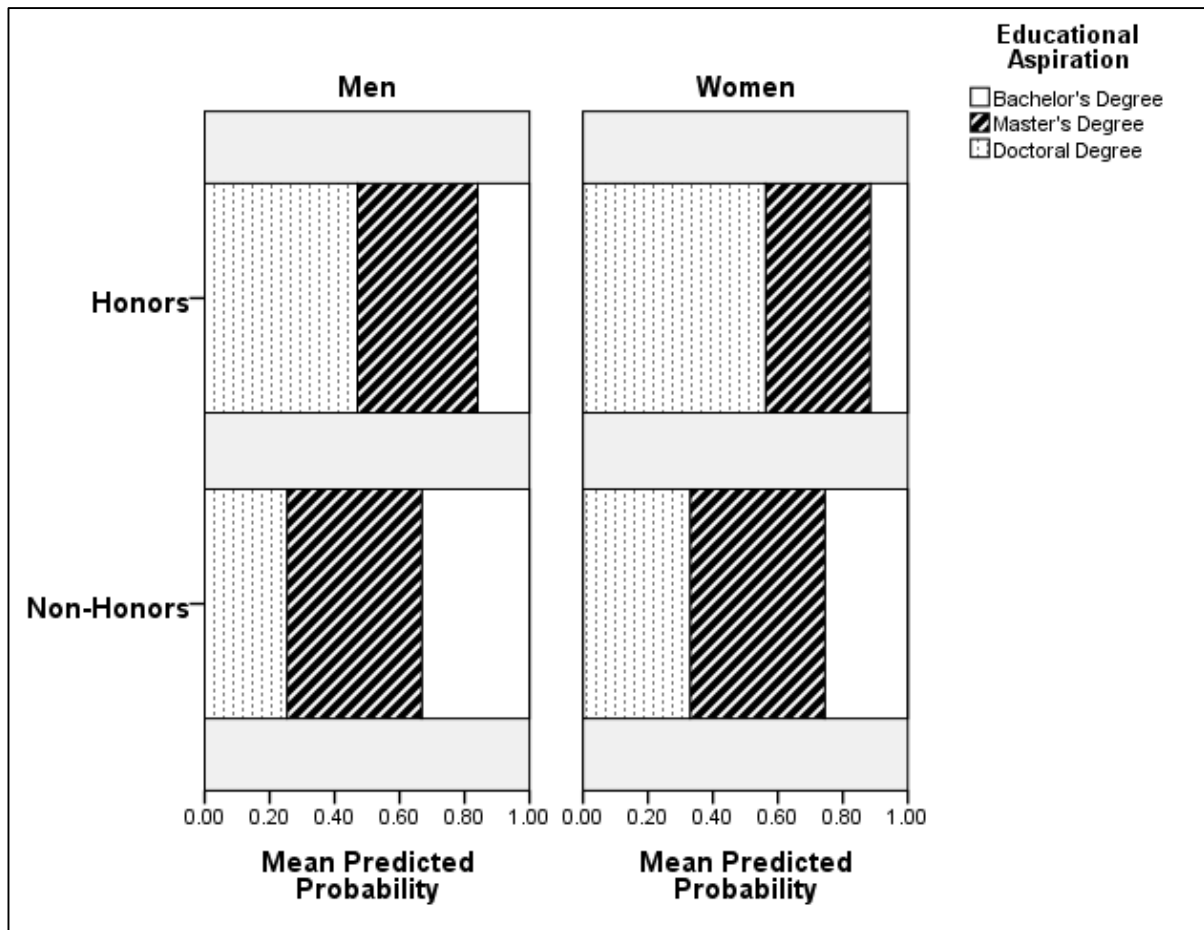


Figure 4.1. Predicted probability of selecting each educational aspiration category by honors status and gender.

Research Question 2: Differences in Aspirations Between Class Standings and Honors Statuses

(a) Are there differences in career and educational aspirations, after controlling for the effect of gender, between lower division students (freshmen and sophomores) and upper division students (juniors and seniors)? (b) Do those differences vary between honors and non-honors students?

The analysis of the effect of class standing on career aspirations will be presented first, followed by the effect on educational aspirations. Then another set of analyses will assess the effect of honors status and class standing together on career aspirations and educational aspirations.

Part A: Effect of Class Standing

Career aspirations. A two-way ANOVA on career aspirations showed non-significant differences based on class standing, $F(1,821) = 0.77, p = .381$, gender, $F(1,821) = 1.32, p = .250$, and the interaction between gender and class standing, $F(1,821) = 0.20, p = .652$. When the interaction was removed, the main effects only model showed the class standing, $F(1,822) = 0.59, p = .441$, and gender, $F(1,822) = 1.35, p = .247$, still to be statistically non-significant.

Educational aspirations. An ordinal regression analysis was conducted on educational aspirations, with gender, class standing, and the interaction between gender and class standing as independent variables. The result of the test of parallel lines was statistically non-significant, $\chi^2(3) = 7.19, p = .066$, supporting the assumption of proportional odds. The overall model fit was non-significant, $\chi^2(3) = 4.02, p = .259$. All of the predictors were statistically non-significant: gender, $B = 0.37, \chi^2(1) = 3.67, p = .058$; class standing, $B = 0.22, \chi^2(1) = 0.99, p = .321$; interaction, $B = -0.28, \chi^2(1) = 0.99, p = .319$. The interaction term was removed, and the

predictors were found to be statistically non-significant. The proportional odds assumption was supported ($\chi^2(2) = 3.88, p = .144$). Neither the overall model fit, $\chi^2(2) = 3.05, p = .218$; nor the main effect of gender, $B = 0.24, \chi^2(1) = 2.92, p = .088$; nor the main effect of class standing, $B = 0.04, \chi^2(1) = 0.08, p = .773$, were statistically significant.

Part B: Effect of Honors Status by Class Standing

Career aspirations. To investigate the effect of honors participation on any differences in career aspirations between lower division and upper division students, honors status was added to the ANOVA model containing gender and class standing, and all interactions were included. In the full model, none of the effects were statistically significant: class standing, $F(1,778) = 1.58, p = .210$; gender, $F(1,778) = 1.71, p = .192$; honors, $F(1,778) = 0.84, p = .360$; interaction between class standing and gender, $F(1,778) = 0.09, p = .749$; interaction between class standing and honors, $F(1,778) = 0.03, p = .863$; interaction between gender and honors status, $F(1,778) = 0.3, p = .847$; three-way interaction, $F(1,778) = 0.91, p = .341$. The non-significant three-way interaction term was removed, and the analysis was repeated on a model including main effects and all two-way interactions. Again, no model coefficients were statistically significant. The statistically non-significant interaction terms were removed from the model. The main effects only model again showed no statistically significant effect of gender, $F(1,782) = 1.70, p = .192$; class standing, $F(1,782) = 1.41, p = .236$; or honors status, $F(1,782) = 1.16, p = .281$.

Educational aspirations. In this analysis the effect of honors status, assessed in Research Question 1, is tested for differences between the two class standings. Honors status and all interaction terms were added to the ordinal regression model on educational aspirations. The result of the parallel lines test, $\chi^2(7) = 12.67, p = .081$, supported the proportional odds

assumption necessary for ordinal logistic regression. The overall model fit was significant, $\chi^2(7) = 64.84, p < .001$. The statistically significant effects were honors status, $B = 1.36, \chi^2(1) = 15.58, p < .001$, gender, $B = 1.09, \chi^2(1) = 10.73, p = .001$, and the interaction between gender and honors status, $B = -0.98, \chi^2(1) = 5.49, p = .019$. The other effects were not statistically significant: class standing, $B = 0.39, \chi^2(1) = 1.04, p = .307$, interaction between honors status and class standing, $B = 0.09, \chi^2(1) = 0.03, p = .855$, and the interaction between gender and class standing, $B = -0.78, \chi^2(1) = 3.04, p = .081$; three-way interaction, $B = 0.70, \chi^2(1) = 1.40, p = .236$. This term was removed, and a model including main effects and all two-way interactions was run. The result of the parallel lines test, $\chi^2(6) = 8.33, p = .215$, supported the proportional odds assumption. The overall model fit was significant, $\chi^2(6) = 63.44, p < .001$. The effects of gender, $B = 0.89, \chi^2(1) = 10.40, p = .001$, and honors status, $B = 1.14, \chi^2(1) = 16.54, p < .001$, were statistically significant, and the main effect of class standing, $B = 0.11, \chi^2(1) = 0.13, p = .715$, was not. The interaction between honors status and gender was statistically significant, $B = -0.64, \chi^2(1) = 4.74, p = .029$, as was the interaction between class standing and honors status, $B = 0.57, \chi^2(1) = 4.24, p = .040$. The interaction between class standing and gender was not statistically significant, $B = -0.39, \chi^2(1) = 1.76, p = .185$. To simplify interpretation, the non-significant interaction between class standing and gender was removed from the model.

For the final reduced model, shown in Table 4.2, the result of the parallel lines test, $\chi^2(5) = 3.69, p = .595$, supported the proportional odds assumption. Converting the coefficients into odds ratios showed that, after controlling for gender, the odds of upper division honors students having high educational aspirations were 1.54 times greater than the same odds for lower division honors students. An odds ratio greater than 1 indicated that upper division honors

students had higher educational aspirations than lower division honors students. For non-honors students, the same odds ratio was 0.84; the odds ratio less than 1 indicated that upper division non-honors students had lower educational aspirations than lower division non-honors students.

Among lower division students, the odds of having high educational aspirations were larger for honors students than non-honors students, with the difference being greater for men ($OR = 2.94$) than for women ($OR = 1.62$). Similar differences between honors and non-honors students were found among upper division students, but at increased magnitudes for both men ($OR = 3.79$) and women ($OR = 2.97$). Figure 4.2 shows the differences discussed.

Table 4.2

Ordinal Logistic Regression on Educational Aspirations by Honors Status, Gender, and Class Standing

Predictor	<i>B</i>	Wald $\chi^2(1)$	<i>p</i>
Threshold			
Edu Asp = 1	-0.57	6.65	.010
Edu Asp = 2	1.23	29.69	.000
Honors Status	1.08	15.45	.000
Gender	0.68	9.49	.002
Class Standing	-0.18	0.82	.365
Honors * Gender	-0.60	4.20	.040
Honors * Class Standing	0.61	4.95	.026

Note. Overall model fit $\chi^2(5) = 61.69, p < .001$. Edu Asp = Educational Aspirations.

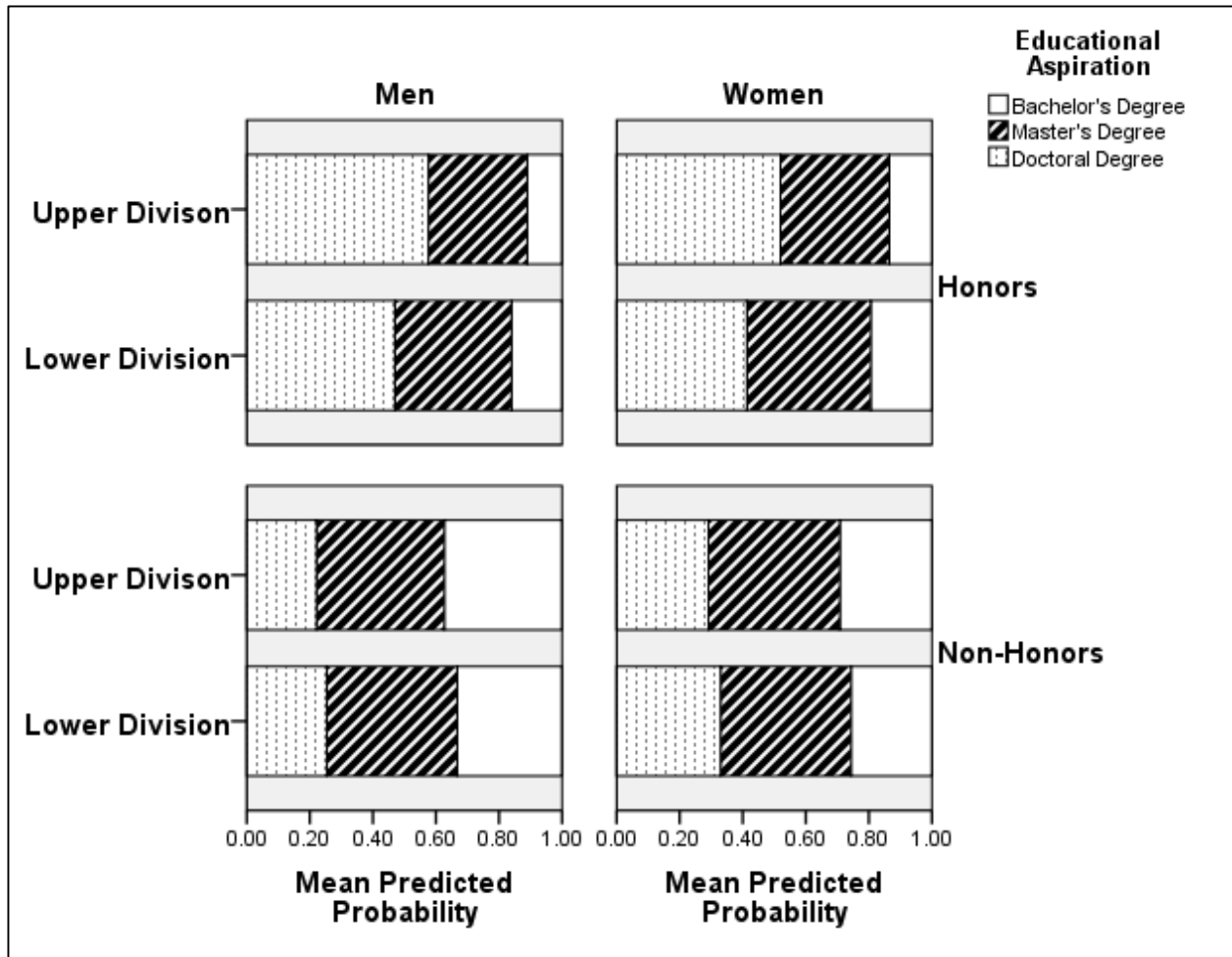


Figure 4.2. Predicted probability of selecting each educational aspiration category by honors status, gender, and class standing.

Summary

Class standing and honors status were not statistically significant predictors of career aspirations. Class standing was not a statistically significant predictor of educational aspiration on its own; however, there was an interaction between class standing and honors status. In the honors program, the educational aspiration of upper division students was greater than for lower division students. This relationship was reversed for non-honors students.

Research Question 3: Differences in Involvement Between Honors Statuses and Class Standings

(a) Are there differences in levels of involvement, after controlling for the effect of gender, between honors and non-honors students? (b) Do these differences vary based on class standing?

The analysis of the effect of honors status on involvement will be presented first followed by the effect of honors status and class standing together on involvement.

Part A: Effect of Honors Status

A two-way ANOVA was conducted on involvement. Significant main effects were found for honors status, $F(1,784) = 12.34, p < .001$, and gender, $F(1,784) = 9.03, p = .003$. The interaction between honors status and gender was not statistically significant, $F(1,784) = 2.26, p = .133$. Because the interaction term was not statistically significant, this term was removed and the model was run with main effects only. As shown in Table 4.3, the effects remained statistically significant: involvement was higher among honors students ($M = 2.83, SD = 0.67, n = 426$) than non-honors students ($M = 2.65, SD = 0.64, n = 362$), and higher among women ($M = 2.80, SD = 0.65, n = 522$) than men ($M = 2.66, SD = 0.68, n = 266$).

Table 4.3
ANOVA on Academic Involvement by Honors Status and Gender

Predictor	<i>df</i>	<i>F</i>	<i>p</i>
Honors Status	1	12.34	.000
Gender	1	9.03	.003
Error	784		

Part B: Effect of Honors Status by Class Standing

A separate ANOVA was conducted on involvement, with class standing, gender, honors status, and all interaction terms. In the full model, the statistically significant effects were of class standing, $F(1,779) = 10.47, p = .001$, gender, $F(1,779) = 7.94, p = .005$, honors, $F(1,779) = 14.31, p < .001$, and the interaction between honors and class standing, $F(1,779) = 4.14, p = .042$. The other effects were not statistically significant: interaction between gender and honors status, $F(1,779) = 1.57, p = .210$, the interaction between gender and class standing, $F(1,779) = 0.05, p = .818$; and the three-way interaction, $F(1,779) = 0.42, p = .517$. The non-significant three-way interaction was removed from the model. This reduced model showed statistically significant main effects of gender, $F(1,780) = 7.64, p = .006$, honors status, $F(1,780) = 14.36, p < .001$, and class standing, $F(1,780) = 10.06, p = .002$. The interaction between honors status and class standing was statistically significant, $F(1,780) = 5.96, p = .015$; however, the interactions between honors and gender, $F(1,780) = 1.60, p = .206$, and between gender and class standing, $F(1,780) = 0.12, p = .729$, were not statistically significant. To aid in interpretation, the non-significant interaction terms were removed from the model (see Table 4.4).

Table 4.4

ANOVA on Academic Involvement by Honors Status, Gender, and Class Standing

Predictor	<i>df</i>	<i>F</i>	<i>p</i>
Honors Status	1	21.04	.000
Gender	1	3.80	.003
Class Standing	1	12.83	.000
Honors * Class Standing	1	6.03	.014
Error	782		

As shown in Figure 4.3, for lower division students the difference in level of involvement between honors ($M = 2.69$, $SD = 0.43$, 95% CI [2.60, 2.77]), and non-honors students ($M = 2.59$, $SD = 0.05$, 95% CI [2.49, 2.69]) was not statistically significant, Mean Difference = 0.1, SE = 0.03, $t(1) = 3.52$, $p = .088$, while upper division honors students ($M = 2.97$, $SD = 0.05$, 95% CI [2.88, 3.06]), were more involved than upper division non-honors students ($M = 2.64$, $SD = 0.05$, 95% CI [2.55, 2.73]), Mean Difference = 0.33, SE = 0.01, $t(1) = 65.92$, $p = .005$.

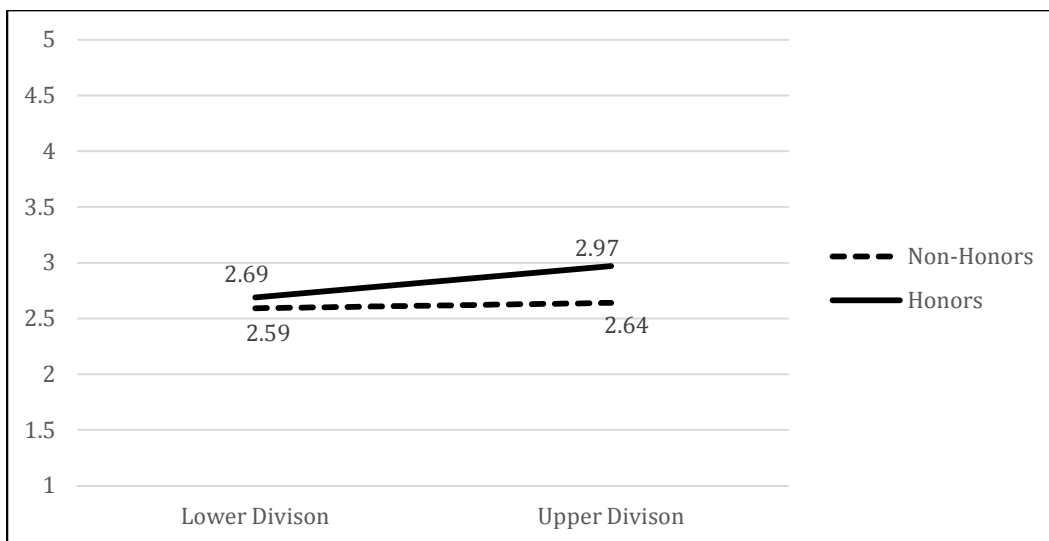


Figure 4.3. Effects of honors status and class standing on involvement. The marginal means of involvement (1 to 5 scale) for different levels of class standing and honors status are shown while adjusting for gender.

Summary

Across class standings, there was a statistically significant difference in academic involvement between honors status groups and between genders. Honors students were more involved than non-honors students and women were more involved than men. When class standing was added to the model, there was a statistically significant interaction between class standing and honors status. This indicated that the difference between honors and non-honors

was due to upper division students. The lower division students showed no difference between honors status groups. For upper division students, honors were more involved than non-honors. And again, women were more involved than men.

Research Question 4: Effect of Involvement on Aspirations by Honors Status

(a) Is there a relationship between level of involvement and career and educational aspirations, after controlling for the effect of gender? (b) Does this relationship vary between honors and non-honors students?

The analysis of the effect of involvement on career aspirations will be presented first, followed by the effect on educational aspirations. Another set of analyses will be used to assess the effect of honors status and involvement together on career aspirations and educational aspirations.

Part A: Effect of Involvement

Career aspirations. A regression analysis was conducted with career aspirations predicted by involvement, gender, and the interaction. The overall model fit was significant, $F(3,822) = 11.46, p < .001$. Involvement was a statistically significant predictor of career aspirations, $B = 0.21, t(822) = 0.2.47, p = .014$; however, gender, $B = -0.25, t(822) = -0.88, p = .378$, and the interaction, $B = 0.11, t(822) = 1.10, p = .273$, were not statistically significant. Because the interaction term was not statistically significant, the model was run again excluding the interaction. The overall model fit in the main effects only model, shown in Table 4.5, was significant, $F(2,823) = 16.59, p < .001$. Higher involvement was related to higher career aspirations, while gender was not a statistically significant predictor.

Educational aspirations. An ordinal regression analysis was conducted to predict educational aspirations from involvement and gender. The result of the parallel lines test, $\chi^2(3) =$

6.54, $p = .088$, supported the proportional odds assumption necessary for ordinal logistic regression. The overall model fit was significant, $\chi^2(3) = 37.10$, $p < .001$. The effect of involvement was statistically significant, $B = 0.67$, $\chi^2(1) = 14.66$, $p < .001$, while the effect of gender, $B = 0.45$, $\chi^2(1) = 0.59$, $p = .443$, and the interaction between involvement and gender, $B = -0.11$, $\chi^2(1) = 0.26$, $p = .611$, were not statistically significant. Because the interaction term was not statistically significant, the model was run again with the interaction excluded. The result of the parallel lines test, $\chi^2(2) = 3.82$, $p = .148$, supported the proportional odds assumption. The overall model fit of the main effects only model, shown in Table 4.6, was significant, $\chi^2(2) = 36.86$, $p < .001$. For every one unit increase in involvement the odds of a student having high educational aspirations increased by 80 percent.

Part B: Effect of Involvement by Honors Status

Career aspirations. To assess the effect of honors status on the relationship between involvement and career aspirations, honors status and all interactions were added to the regression model containing gender and involvement. None of the coefficients were statistically significant: involvement, $B = 0.08$, $t(779) = 0.54$, $p = .586$; gender, $B = -0.06$, $t(779) = -0.14$, $p = .891$; honors, $B = -0.43$, $t(779) = -0.88$, $p = .377$; interaction between involvement and gender, $B = 0.05$, $t(779) = 0.28$, $p = .777$; interaction between involvement and honors status, $B = 0.17$, $t(779) = 0.95$, $p = .344$; interaction between gender and honors status, $B = -0.52$, $t(779) = -0.85$, $p = .397$; and the three-way interaction, $B = 0.17$, $t(779) = 0.77$, $p = .441$. This non-significant three-way interaction was removed from the model. For the reduced model, the overall model fit was significant, $F(6,780) = 6.30$, $p < .001$. The only coefficients that were statistically significant were honors status, $B = -0.73$, $t(780) = -2.45$, $p = .014$, and the interaction between honors status and involvement, $B = 0.29$, $t(780) = 2.73$, $p = .006$. The other coefficients were not statistically

significant: involvement, $B = .004$, $t(780) = 0.04$, $p = .970$; gender, $B = -0.34$, $t(780) = -1.12$, $p = .263$; interaction between involvement and gender, $B = 0.15$, $t(780) = 1.43$, $p = .152$; interaction between gender and honors status, $B = -0.06$, $t(780) = -0.41$, $p = .682$. The interaction terms that were not statistically significant were removed and the model was run again. In the simplified model, shown in Table 4.5, the overall model fit was significant, $F(4,782) = 8.92$, $p < .001$.

Table 4.5

Regression on Career Aspirations by Involvement, Gender, and Honors Status

Predictor	<i>B</i>	<i>t</i>	<i>p</i>
<u>Model 4A</u>			
Intercept	4.72	33.04	.000
Involvement	0.21	2.47	.014
Gender	-0.25	1.10	.273
<u>Model 4B</u>			
Intercept	5.16	23.96	.000
Involvement	0.12	1.52	.129
Gender	0.05	0.65	.517
Honors Status	-0.69	-2.40	.016
Involvement * Honors Status	0.26	2.52	.012

This model results in the cross-over interaction depicted in Figure 4.4. For students with moderate to high levels of involvement, being in honors was related to higher level of career aspirations than not being in honors. However, for students with low levels of involvement, that relationship was reversed. Hence, the effect of involvement in predicting career aspirations was larger for honors students compared to non-honors students.

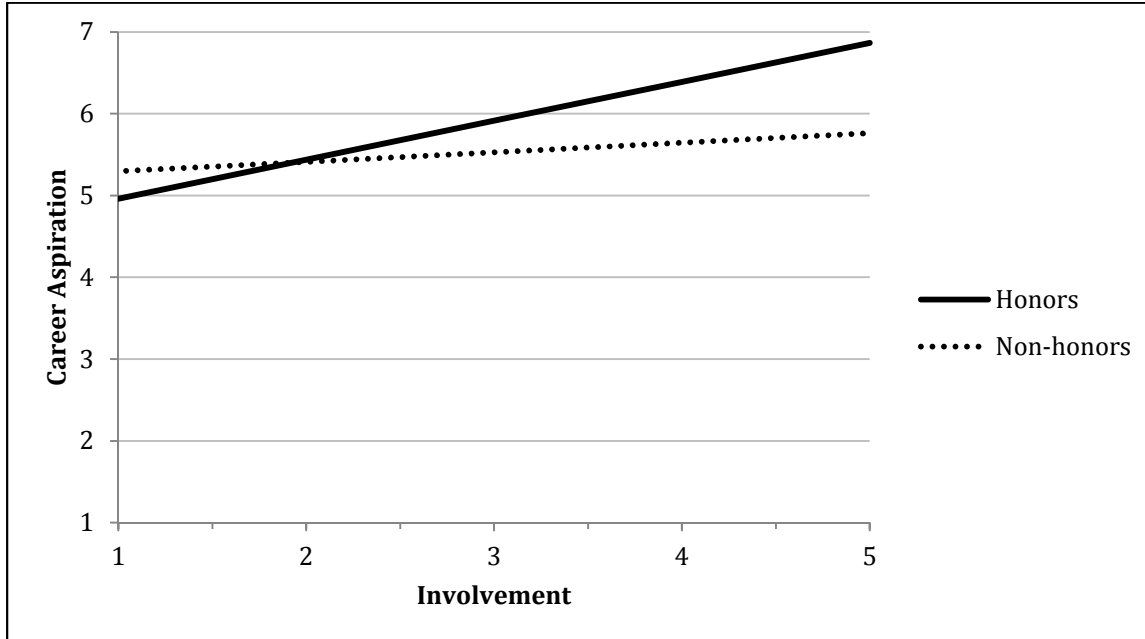


Figure 4.4. Relationship between involvement and career aspirations by honors status. The slope of involvement (1 to 5 scale) predicting career aspirations (1 to 7 scale) was greater for honors students compared to non-honors students, controlling for gender. Gender was held constant between male and female at a value of 0.50.

Educational aspirations. To assess the effect of honors status on the relationship between involvement and educational aspirations, an ordinal regression was conducted on educational aspirations with involvement, gender, honors status, and all interactions as predictors. The result of the parallel lines test, $\chi^2(7) = 8.61, p = .282$, supported the proportional odds assumption necessary for ordinal logistic regression. The overall model fit was significant, $\chi^2(7) = 79.35, p < .001$. None of the coefficients were statistically significant: involvement, $B = 0.43, \chi^2(1) = 2.09, p = .148$; gender, $B = 0.62, \chi^2(1) = 0.43, p = .512$; honors status, $B = 0.52, \chi^2(1) = 0.26, p = .611$; interaction between involvement and gender, $B = 0.01, \chi^2(1) = 0.001, p = .979$; interaction between involvement and honors status, $B = 0.30, \chi^2(1) = 0.64, p = .425$;

interaction between gender and honors status, $B = 0.08$, $\chi^2(1) = 0.004$, $p = .951$; three-way interaction, $B = -0.27$, $\chi^2(1) = 0.34$, $p = .638$. This non-significant three-way interaction was removed from the model. The result of the parallel lines test, $\chi^2(6) = 8.08$, $p = .232$, supported the proportional odds assumption. The overall model fit was significant, $\chi^2(6) = 79.03$, $p < .001$. In this model including all two-way interactions, involvement was still statistically significant, $B = 0.55$, $\chi^2(1) = 5.78$, $p = .016$, and the interaction between gender and honors status was statistically significant, $B = -0.63$, $\chi^2(1) = 4.49$, $p = .034$. The other predictors were not statistically significant.

Next the interactions that were not statistically significant were excluded and the model was run again. This final model, shown in Table 4.6, included the effects of involvement, gender, and honors status, and the interaction between gender and honors status. The test of parallel lines supported the null hypothesis of the statistical assumption of parallel lines, $\chi^2(4) = 4.83$, $p = .305$. The overall model fit was significant, $\chi^2(4) = 78.21$, $p < .001$. Higher levels of involvement were associated with higher levels of educational aspirations. Additionally, controlling for involvement, the odds of a non-honors woman having high educational aspirations were 1.88 times greater than the same odds for a non-honors man. Because this odds ratio is greater than 1, it can be interpreted that non-honors women have higher educational aspirations than non-honors men. As shown in Figure 4.5, within honors, controlling for involvement, gender did not affect educational aspirations. Comparing honors and non-honors within women, controlling for involvement, honors students have 1.95 the odds of having higher educational aspirations than non-honors students. Within men, controlling for involvement, the odds are 3.67 that honors students have higher educational aspirations than non-honors students.

Table 4.6

Ordinal Logistic Regression on Educational Aspirations by Involvement, Gender, and Honors Status

Predictor	<i>B</i>	<i>Wald</i> χ^2	<i>p</i>
<u>Model 4A</u>			
Threshold			
Edu Asp = 1	0.31	1.13	.289
Edu Asp = 2	2.03	45.61	.000
Involvement	0.59	32.75	.000
Gender	0.16	1.36	.244
<u>Model 4B</u>			
Threshold			
Edu Asp = 1	0.82	6.00	.014
Edu Asp = 2	2.64	57.31	.000
Involvement	0.51	22.46	.000
Gender	0.63	8.14	.004
Honors Status	1.30	28.62	.000
Gender * Honors Status	-0.63	4.52	.033

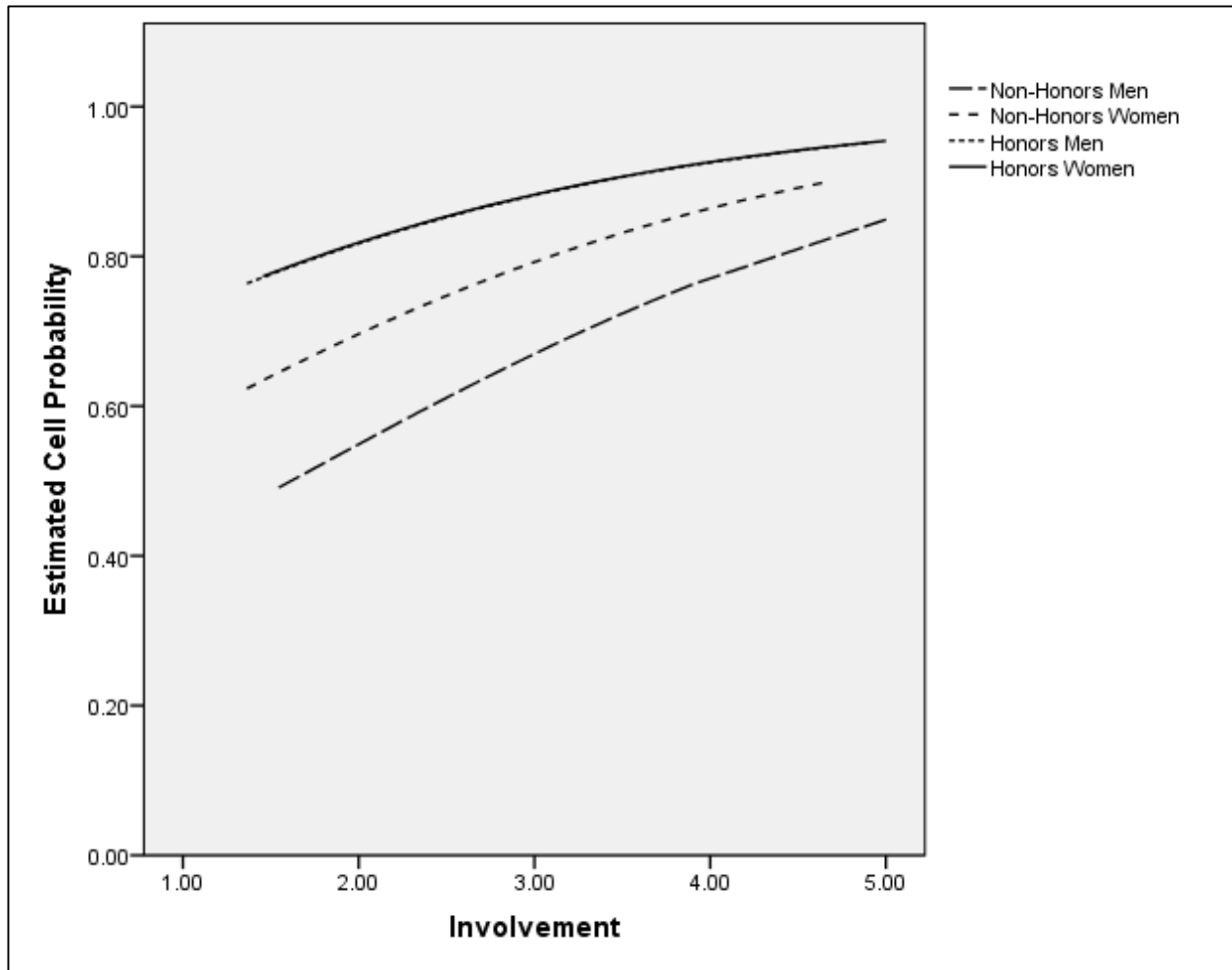


Figure 4.5. Predicted probability of aspiring beyond bachelor's degree by honors status, gender, and involvement.

Summary

Across honors status, higher academic involvement was related to higher career aspirations. When honors status was added to the model, there was a statistically significant interaction between involvement and honors status. For honors students, involvement was more related to career aspirations than for non-honors students.

Across honors status, higher academic involvement was related to higher educational aspirations. When honors status was added to the model, there was no interaction between involvement and honors status; however, there was an interaction between honors status and gender. Involvement was again positively related to educational aspirations. For men, the difference between honors and non-honors was larger than for women, but in both genders honors students had higher educational aspirations than non-honors students.

Research Question 5: Effect of Involvement on Aspirations by Class Standing and Honors Status

(a) Is there a relationship among level of involvement, class standing, and career and educational aspirations, after controlling for the effect of gender? (b) Does this relationship vary between honors and non-honors students?

The findings here build upon those discussed in the prior research questions that found that involvement predicted career aspirations and educational aspirations. For career aspirations, the effect of involvement was larger for honors students. It was also found that career aspirations were not predicted by gender, class standing, or honors status when involvement was not in the model.

For educational aspirations, gender was found to have an effect in that non-honors women had higher educational aspirations than men. Honors status also had an effect on educational aspirations after controlling for involvement. In Research Question 2, class standing had an effect on educational aspirations in that honors students had higher educational aspirations when they were upper division compared to lower division, but the reverse was true for non-honors students.

Class standing was added to each of the models described in Research Question 4 that include involvement. In Part A of this question, the effect of class standing on the relationship among involvement, aspirations, and gender will be assessed. In Part B, whether this effect holds when honors status is included will be assessed.

Part A: Effect of Class Standing

Career aspirations. Career aspirations were predicted in a regression analysis by involvement, gender, class standing, and all interactions. None of the coefficients were statistically significant: involvement, $B = 0.15$, $t(817) = 1.25$, $p = .211$; gender, $B = -0.44$, $t(817) = -1.08$, $p = .283$; upper division, $B = -0.18$, $t(817) = -0.40$, $p = .689$; interaction between involvement and gender, $B = 0.20$, $t(817) = 1.31$, $p = .191$; interaction between involvement and class standing, $B = 0.09$, $t(817) = 0.55$, $p = .582$; interaction between gender and class standing, $B = 0.32$, $t(817) = 0.56$, $p = .578$; or three-way interaction, $B = -0.15$, $t(817) = -0.71$, $p = .478$. This non-significant three-way interaction term was removed and the model including all two-way interactions was run. The overall model fit was significant, $F(6,818) = 5.75$, $p < .001$. The effect of involvement, $B = 0.20$, $t(818) = 2.04$, $p = .042$, was statistically significant. None of the other coefficients were statistically significant: gender, $B = -0.24$, $t(818) = -0.81$, $p = .418$, class standing, $B = 0.07$, $t(818) = 0.24$, $p = .807$, interaction between involvement and gender, $B = 0.12$, $t(818) = 1.15$, $p = .250$, interaction between involvement and class standing, $B = -0.003$, $t(818) = -0.01$, $p = .974$, interaction between gender and class standing, $B = -0.08$, $t(818) = -0.55$, $p = .582$. The non-significant interactions were removed from the model. For the reduced model, the overall model fit was significant, $F(3, 821) = 11.03$, $p < .001$. Higher involvement was related to higher career aspirations, $B = 0.28$, $t(821) = 5.56$, $p < .001$. The coefficients for gender, $B = 0.05$, $t(821) = 0.73$, $p = .465$, and class standing, $B = 0.01$, $t(821) = 0.15$, $p = .881$, were not

statistically significant. The findings of this final model match those of Research Question 4 in which class standing was not included in the model.

Educational aspirations. To assess the effect of involvement, gender, and class standing on educational aspirations, an ordinal regression including all interaction terms was conducted. None of the coefficients were statistically significant: involvement, $B = 0.47$, $\chi^2(1) = 3.71$, $p = .054$; gender, $B = -0.17$, $\chi^2(1) = 0.04$, $p = .836$; class standing, $B = -0.84$, $\chi^2(1) = 0.79$, $p = .373$; interaction between involvement and gender, $B = 0.18$, $\chi^2(1) = 0.33$, $p = .567$; interaction between involvement and class standing, $B = 0.36$, $\chi^2(1) = 1.08$, $p = .300$; interaction between gender and class standing, $B = 1.12$, $\chi^2(1) = 0.89$, $p = .346$; three-way interaction, $B = -0.51$, $\chi^2(1) = 1.40$, $p = .237$. This non-significant three-way interaction term was removed and the model including all two-way interactions was run. The test of parallel lines supported the null hypothesis of the statistical assumption of parallel lines, $\chi^2(6) = 9.64$, $p = .141$. The overall model fit was significant, $\chi^2(6) = 38.24$, $p < .001$. The effect of involvement was statistically significant, $B = 0.65$, $\chi^2(1) = 9.97$, $p = .002$. The other coefficients were not statistically significant: gender, $B = 0.51$, $\chi^2(1) = 0.73$, $p = .393$; class standing, $B = 0.06$, $\chi^2(1) = 0.01$, $p = .919$; interaction between gender and class standing, $B = -0.24$, $\chi^2(1) = 0.72$, $p = .395$; interaction between gender and involvement, $B = -0.09$, $\chi^2(1) = 0.16$, $p = .687$; and interaction between class standing and involvement, $B = 0.02$, $\chi^2(1) = 0.01$, $p = .936$. The non-significant interaction terms were removed from the model. For the reduced model, the test of parallel lines supported the null hypothesis of the statistical assumption of parallel lines, $\chi^2(3) = 4.85$, $p = .183$. The overall model fit was significant, $\chi^2(3) = 36.43$, $p < .001$. The effect of involvement was again statistically significant, $B = 0.60$, $\chi^2(1) = 32.87$, $p < .001$. The effects of gender, $B = 0.16$, $\chi^2(1) = 1.37$, $p = .243$, and class standing, $B = -0.06$, $\chi^2(1) = 0.18$, $p = .673$, were not statistically

significant. The findings of this final model match those of Question 4 when class standing was not included in the model.

Part B: Effect of Honors Status by Class Standing

Career aspirations. Career aspirations were predicted in a regression analysis by involvement, gender, honors status, class standing, and all interactions. In the full model, four coefficients were statistically significant: interaction between involvement and honors status, $B = 0.55$, $t(817) = 2.13$, $p = .034$; interaction between involvement and class standing, $B = 0.61$, $t(817) = 2.04$, $p = .042$; interaction among involvement, gender, and class standing, $B = -0.75$, $t(817) = -2.14$, $p = .033$; interaction among involvement, honors status, and class standing, $B = -0.73$, $t(817) = -1.99$, $p = .047$. The other coefficients were not statistically significant: involvement, $B = -0.24$, $t(817) = -1.14$, $p = .257$; gender, $B = -0.97$, $t(817) = -1.46$, $p = .146$; class standing, $B = -1.40$, $t(817) = -1.77$, $p = .078$; honors status, $B = -1.32$, $t(817) = -1.91$, $p = .056$; interaction between involvement and gender, $B = 0.44$, $t(817) = 1.77$, $p = .078$; interaction between gender and honors status, $B = 0.42$, $t(817) = 0.49$, $p = .628$; interaction between gender and class standing, $B = 1.75$, $t(817) = 1.87$, $p = .062$; interaction between honors status and class standing, $B = 1.73$, $t(817) = 1.75$, $p = .081$; interaction between involvement, gender, and honors status, $B = -0.24$, $t(817) = -0.75$, $p = .457$; interaction between gender, class standing, and honors status, $B = -1.81$, $t(817) = -1.46$, $p = .145$; four-way interaction, $B = 0.78$, $t(817) = 1.73$, $p = .084$. This non-significant four-way interaction term was removed and the model including all two-way interactions and three-way interactions was run. None of the three-way interactions were statistically significant. These terms were removed and the model including all two-way interactions was run. The overall model fit was significant, $F(10,775) = 3.80$, $p < .001$. The effect of honors status, $B = -0.72$, $t(775) = -2.35$, $p = .019$, and interaction between involvement

and honors status were statistically significant, $B = 0.29$, $t(775) = 2.71$, $p = .007$. The other coefficients were not statistically significant: involvement, $B = 0.01$, $t(775) = 0.07$, $p = .941$; class standing, $B = 0.14$, $t(775) = 0.47$, $p = .637$; gender, $B = -0.32$, $t(775) = -1.05$, $p = .296$; interaction between involvement and gender, $B = 0.16$, $t(775) = 1.47$, $p = .141$; interaction between involvement and class standing, $B = -0.02$, $t(775) = -0.23$, $p = .822$; interaction between gender and honors status, $B = -0.07$, $t(775) = -0.45$, $p = .650$; interaction between gender and class standing, $B = -0.07$, $t(775) = -0.45$, $p = .655$; interaction between honors status and class standing, $B = -0.03$, $t(775) = -0.19$, $p = .849$. The non-statistically significant interaction terms were removed and the regression model was run again. The overall model fit was significant, $F(5,780) = 7.14$, $p < .001$. In the simplified model, the effect of honors status was statistically significant, $B = -0.68$, $t(780) = -2.36$, $p = .019$, as was the interaction between involvement and honors status, $B = 0.26$, $t(780) = 2.5$, $p = .013$. The effects of involvement, $B = 0.12$, $t(780) = 1.50$, $p = .134$, gender, $B = 0.05$, $t(780) = 0.62$, $p = .533$, and class standing, $B = 0.02$, $t(780) = 0.32$, $p = .749$, were not statistically significant. The addition of class standing to the model did not affect the relationship among honors status, involvement, and career aspirations reported above.

Educational aspirations. To assess the effect of involvement, class standing, and honors status on educational aspirations, while controlling for gender, an ordinal regression including all interaction terms was conducted. The resulting model, shown in Table 4.7, contained a statistically significant four-way interaction. The test of parallel lines supported the use of ordinal logistic regression, $\chi^2(15) = 19.08$, $p = .210$, and the overall model fit was significant, $\chi^2(15) = 94.65$, $p < .001$. As depicted in Figure 4.5, being in the honors program was related to higher educational aspirations. Within honors, there was no gender difference in aspiration.

Additionally, in all except one group, there was a positive relationship between involvement and aspiration.

Non-honors men showed a difference in the interaction between level of involvement and class standing. For students one standard deviation below the mean on involvement, lower division non-honors males had greater likelihood of having high educational aspirations compared to upper division non-honors males, an odds ratio of 1.41. For students one standard deviation above the mean on involvement, the relationship reversed. Upper division non-honors males had greater likelihood of having high educational aspirations compared to lower division non-honors males, an odds ratio of 5.06. This difference is largely due to lower division non-honors males showing a negative relationship between involvement and educational aspirations. There was also an interaction between level of involvement and class standing for non-honors women. For students one standard deviation below the mean in level of involvement, lower division non-honors women and upper division non-honors women have similar levels of educational aspirations ($OR = 1.16$). For students one standard deviation above the mean in level of involvement, lower division non-honors women had higher odds of having high educational aspirations than upper division non-honors women ($OR = 2.24$).

Table 4.7

Ordinal Logistic Regression on Educational Aspirations by Involvement, Gender, Class

Standing, and Honors Status

Predictors	Model 5A			Model 5B		
	<i>B</i>	Wald χ^2	<i>p</i>	<i>B</i>	Wald χ^2	<i>P</i>
Threshold						
Edu Asp = 1	0.30	1.03	.311	-1.03	0.79	.376
Edu Asp = 2	2.02	44.67	.000**	0.82	0.50	.268
Gender	0.16	1.37	.243	-1.51	1.23	.268
Involvement	0.60	32.87	.000**	-0.29	0.43	.514
Class standing	-0.06	0.18	.673	-3.46	4.45	.035*
Honors status				-1.52	1.13	.288
Class standing x Involvement				1.49	5.86	.015*
Gender x Class standing				-4.49	2.98	.084
Gender x Involvement				1.00	3.75	.053
Honors status x Class standing				4.65	4.98	.026*
Honors status x Involvement				1.14	4.32	.038*
Gender x Honors status				2.28	1.65	.199
Gender x Class x Involvement				-1.98	7.60	.006**
Gender x Honors x Class				-4.49	2.98	.084
Gender x Honors x Involvement				-1.30	3.78	.052
Honors x Class x Involvement				-1.99	7.60	.006**
Gender x Honors x Class x Involvement				2.04	4.64	.031*

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

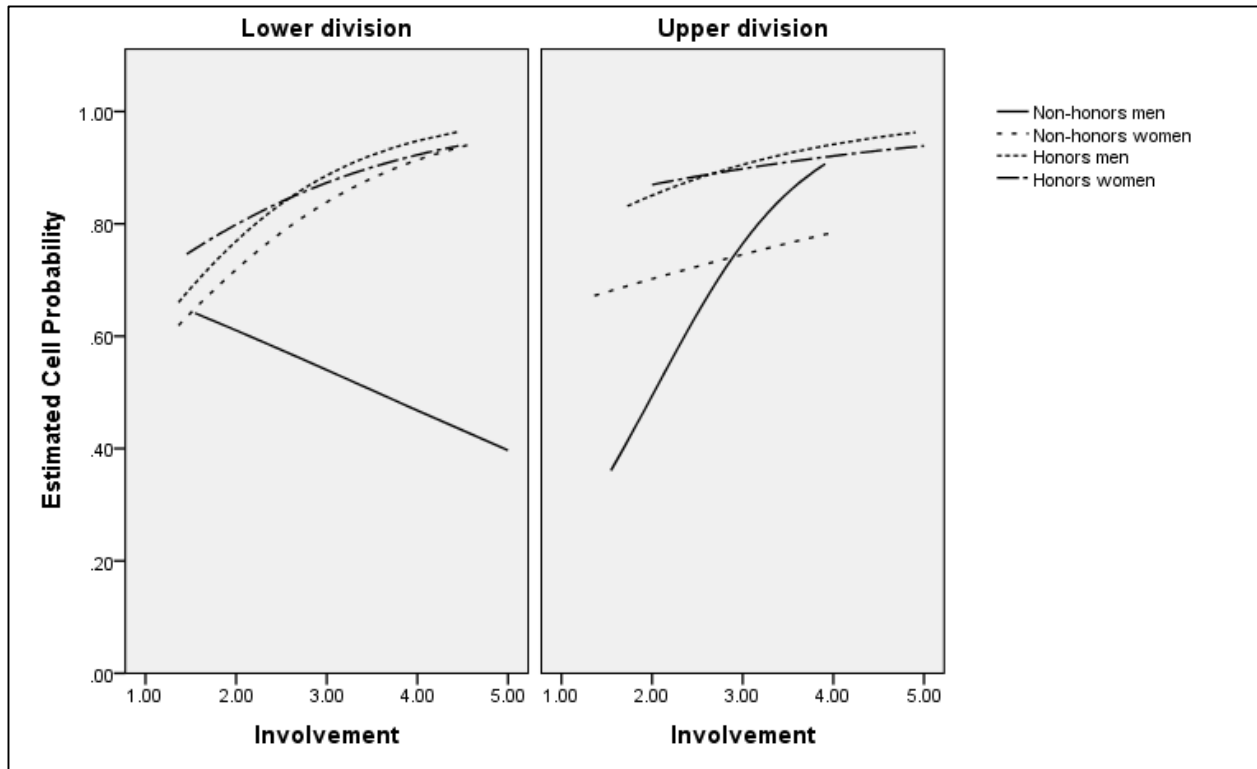


Figure 4.6. Predicted probability of aspiring beyond bachelor's degree by involvement, gender, class standing, and honors status.

Summary

For predicting career aspirations, adding class standing to the model in Question 4b did not change the relationships. For predicting educational aspirations, the introduction of class standing to the model reported in Question 4b revealed a change in the relationship between involvement and educational aspirations. In Question 4b it was shown that involvement did not interact with gender or honors status to predict educational aspirations. However, when the relationships were allowed to vary by class standing, there was an interaction among gender, honors status, and class standing in the relationship between involvement and educational aspirations.

In this chapter, the results of the study were presented, showing interesting differences between honors and non-honors students, as well as gender differences. In Chapter Five, these results are discussed and compared with the research literature and similar studies introduced in Chapter Two. The implications and suggestions for future research are also introduced in Chapter Five.

CHAPTER FIVE: DISCUSSION

Studying students' involvement and aspirations throughout participation in honors college programming, compared to non-honors programming, may enable researchers and practitioners to understand how honors programs affect potential success after college. This study adds to the literature on the effects of college honors programs on student success while in college by examining predictors of continuing success. This study was designed to control for some of the differences between students entering college and the effects of being in college. To control for these differences, groups of participants who were at the beginning and the end of their college years were surveyed.

The five research questions this study addressed were:

1. Are there differences in career and educational aspirations, after controlling for the effect of gender, between honors and non-honors students?
2. (a) Are there differences in career and educational aspirations, after controlling for the effect of gender, between lower division students (freshmen and sophomores) and upper division students (juniors and seniors)? (b) Do those differences vary between honors and non-honors students?
3. (a) Are there differences in levels of involvement, after controlling for the effect of gender, between honors and non-honors students? (b) Do these differences vary based on class standing?
4. (a) Is there a relationship between level of involvement and career and educational aspirations, after controlling for the effect of gender? (b) Does this relationship vary between honors and non-honors students?

5. (a) Is there a relationship among level of involvement, class standing, and career and educational aspirations, after controlling for the effect of gender? (b) Does this relationship vary between honors and non-honors students?

This chapter includes a summary of findings and implications of the results then discusses directions for future research. First the findings related to academic involvement are reviewed, then coverage of career aspiration and educational aspiration follow.

Involvement

This study focused on Astin's (1999) Student Involvement Theory. This theory states that the amount of students' involvement in college is associated with students' personal development. Educational aspirations and career aspirations of college students are considered here to be types of personal development. Astin (1999) defined involvement as "the amount of physical and psychological energy that the student devotes to the academic experience" (p. 518). This study operationalized the construct of academic involvement using questions that ask about the amount of the time (hours spent studying) and effort (contributed in class and working harder to meet expectations) that students put into their academic work as well as academic engagement with peers and faculty (discussing ideas outside of class or working on a faculty research project). This operationalization involves the component of involvement Astin refers to as "academic involvement" and part of what he refers to as "student-faculty interaction" (1999, p. 525). Astin discusses other types of involvement not covered here such as "place of residence," "athletic involvement" and "involvement in student government" (1999, pp. 524-526).

The findings of this study support Astin's (1999) theory that involvement improves students' outcomes related to personal development, as the results demonstrate that the more involved students were, the more they aspired toward educational and career success. All groups,

including honors, non-honors, men, women, lower division, and upper division students, followed this pattern of higher involvement positively relating to higher aspirations, with the exception of male non-honors lower division students. This group demonstrated a negative relationship between involvement and educational aspiration. Possible reasons for this notable exception will be discussed below.

Evidence from the study also supported the honors program being more successful than the standard college experience in getting students involved academically. At the beginning of college, both honors and non-honors students had similar levels of involvement. At the end of college, honors students as compared to non-honors students had higher levels of involvement. In other words, the difference between upper division and lower division in levels of involvement was larger for the honors group than the non-honors group. Causality cannot be proven because the data are cross-sectional, however this study supports the idea that participating in an honors program may increase students' involvement over and above the standard college experience. Future longitudinal research should be conducted to confirm the causal direction.

Astin (1999) made predictions specifically about honors programs by hypothesizing that honors student involvement would be enhanced by student-faculty interaction but diminished by isolation of honors students from non-honors peers. His research predicted that honors students would have less involvement because they are isolated from peers and that the gain in involvement from interaction with faculty would be smaller than the effect of isolation. However, he did not provide a further hypothesis about the strength of the effects. This study demonstrated that increasing participation and progressing in an honors program increases students' academic involvement compared to non-honors, which suggests that if Astin is correct

about peer influence and faculty interaction, the effect of faculty interaction may indeed be stronger than the effect of peer isolation. Future studies could investigate these specific effects of peers and faculty.

Career Aspirations

The result of the analysis supports the idea that participating in honors program may increase the level of more involved students' career aspirations. The unconditional effect of honors status on career aspiration was not statistically significant. This finding is consistent with Rinn (2007) who found that gifted students who participated in honors programs did not have significantly higher career aspirations than gifted non-honors students.

Anticipating the lack of direct effect, the current study examined ways that the honors program could affect career aspiration through student involvement. Examining the relationship conditional on class standing and involvement further explained some of the outcomes of the honors program. The analyses demonstrated that it is important for students to have a higher level of involvement as the results showed that within honors students, those who were more involved in the program had a higher level of career aspiration. Since the effect of involvement on career aspiration was greater for honors students, the ways students are involved in the honors program and their meaningful program experiences may lead to greater career success than involvement in other types of college programming. However, among students who had lower involvement, the honors students had lower career aspirations than the non-honors students. So there may be a null effect or negative effect of the honors program for this low involvement group. Additionally, there was no direct effect of the interaction between class standing and honors status. The implication is that, controlling for involvement, there was no effect of the honors program on career aspiration. Despite this, there is support for suggestions that the honors

program provide more direct career training to positively influence aspiration for the highly involved. Or, one might also hypothesize that the career training is more often a responsibility of students academic departments. Because, as discussed earlier, there is support for the honors program increasing academic involvement, and support for involvement increasing career aspiration, then the honors program may increase career aspiration through the mechanism of academic involvement.

Together these findings emphasize that participating in the honors program may increase career aspiration through increasing students' academic involvement, but the type of involvement needs further study. Of note, the effects of the honors program and being in college on career aspirations were the same for men and women. It is interesting that these effects were the same because as the next section will detail, the effect of college on educational aspirations was different for men and women.

Educational Aspirations

As mentioned earlier, this study aimed to examine students' educational aspirations and measure the effects of the honors program. Another goal was to better understand how students' involvement is related to their educational aspirations and participation in the honors program. As with career aspirations, the results of this study indicated that higher involvement predicts higher educational aspirations. With educational aspirations, there was an additional effect of the honors program, after controlling for involvement.

The effect of the honors program can be demonstrated following the same logic as discussed for career aspiration. There was a greater involvement among honors upper division students, as compared to honors lower division and there was a positive relationship between involvement and educational aspirations for honors students. In this study, when involvement is

not controlled, honors students had higher educational aspirations compared to non-honors students. And when involvement was controlled, there was still an effect of honors status that was even larger for upper division students (except for the notable exception of highly involved non-honors men which will be discussed).

Effect of Gender

For students not participating in the honors program, the interaction between class standing and involvement on educational aspiration varied by gender for non-honors students. The implication of the interaction with class standing as significant is that there is a gender difference in the effect of the standard college experience. It could be that the impact of society's gendered expectations is responsible for the difference. When it comes to careers, older research suggests that society restricts women's options while broadening men's options (Block, 1982; Eccles, 1994). Gendered societal socialization and expectations may have an impact on the educational and career choices of men and women by changing the value they see in different options and by limiting the options they believe are available to them (Eccles, 1994). With respect to the choice of educational attainment, women in traditionally male dominated careers obtained more post-college education compared to women in traditionally female dominated careers (Lemkau, 1979). As students move through college, the influence of societal expectations increases. For instance, there is an increased likelihood of students choosing gender-typical careers later in college (Sax & Bryant, 2006). Research also demonstrates that as students move through college, they gain additional knowledge of what they will experience in the labor market and workplace, and become more serious about choosing a career path (Pascarella & Terenzini, 2005).

Non-Honors Gender Differences

The gender difference among non-honors students involves the relationship between involvement and educational aspirations. For non-honors men, differences exist between lower division and upper division students in the relationship between involvement and educational aspiration. More involved lower division, male, non-honors students had lower educational aspirations than more involved upper division, male, non-honors students. This difference is a result of a negative relationship between involvement and education aspiration, the opposite as expected, for the non-honors, male, lower division students. The upper division comparison had the expected positive relationship between involvement and educational aspiration. For non-honors women, the results were the opposite of what was expected, as being an upper division student negatively affected their educational aspiration, as compared to lower division students, and the impact of involvement on educational aspiration was weaker for upper division compared to lower division. Interestingly, women had higher educational aspirations than men at all levels of involvement when they were lower division students, but as upper division students, more involved women had lower educational aspirations than more involved men. (Less involved women still had higher educational aspirations than less involved men.)

The non-honors men's relationship between involvement and educational aspirations may have been influenced by indecision due to societal expectations. The lower division, non-honors males were the only group to have a negative relationship between involvement and educational aspirations. The high involvement students in this group may have come to college wanting to achieve the high status career expected of them. These expectations, combined with the broad set of choices available to them (Block, 1982), may have made them uncertain about what major to choose. Similar to the concept of the "overchoice syndrome," experienced by multipotential

students, resulting in a decrease in aspirations (Rysiew, Shore, & Leeb, 1999), the uncertainty in how to proceed in college for these highly involved males could lead to lower initial education aspirations because it is easiest to choose the lowest level education. The improvement of educational aspirations between lower division and upper division among non-honors, males, may indicate that, even outside of the honor program, progressing through college affects involved male students' educational aspiration positively.

Societal expectations for women after college may have affected upper division female educational aspirations. Society expects that women after college should be more engaged in family and have more responsibilities in the home compared to men (Arnold, 1993; Reis, 2002). Eccles (1994) found that among high school seniors, women were more likely than men to believe in making occupational sacrifices for family and in finding a job that contributes to society. Women may still have aspirations for higher position but they may anticipate having to make sacrifices for other responsibilities and not believe they would have adequate time or money for further education beyond college. Women started college with higher educational aspirations, but as they approached graduation the saliency of society's expectations may have increased and their set of prescribed choices may have been restricted (Block, 1982; Sax & Bryant, 2006). Involved upper division women at this point may have had to lower their educational aspirations and as result involvement became a weaker indicator of that aspiration.

Honors Gender Differences

The effect of the honors program was the same for honors men and women. This result is consistent with the previous studies (Gerrity, Lawrence, & Sedlacek, 1993; Randall, Salzwedel, Cribbs, & Sedlack, 1990) that found that honors students were more likely to seek graduate or professional school compared to non-honors.

This influence of environment could explain why non-honors students showed gender difference while honors students did not. The Sax and Bryant (2006) study discussed earlier found that the college environment, peer and faculty interactions, impacted which students moved into more gender-typical career paths. The experiences of men and women may be more similar to each other in the honors program, when compared to the standard college experience.

The honors program directs highly involved students into appropriate classes and choices of major may have countered the differential impact of involvement for men. It could also be that honors students aspire to a peer group norm of graduate education. Resources the honors program provides to students may have also ameliorated the effect of societal expectations. The support that honors students received may have prevented the decline in educational aspiration for women in honors program. The support may have taken the form of requiring women to participate in research, a typically male field, and providing advisors that encourage choosing a path that takes advantage of their interests and abilities as opposed to fitting their gender.

Future Research

Individual Differences

The analysis of this study assumed that the response rate did not differ based on unmeasured individual differences. It is hoped that continuing data collection until the end of the semester lessened any bias by giving participants more time to respond. This study focused on two groups of students, but did not single out and take into account for comparison the traits of each individual student. There are many factors that vary from one student to another, including pre-college program structure and participation, motivation, personal investment in their chosen area of study, and family pressures. Academic ability, performance, and related attributes are important factors that differ between the honors and non-honors groups because of the admission

requirements of the honors program. These factors may be related to aspirations. In this study, the influence of the honors program was measured by comparing the difference in aspirations of lower division honors and non-honors students to the difference in aspirations of upper division honors and non-honors students, but future research should consider such individual difference factors as mediators and moderators.

Motivation is an important individual difference. Astin (1999) mentions motivation, which he sees as a psychological precursor to the behavior of involvement. Aspirations also have a quality of motivation, for in order to have a high career aspiration, for instance, a student must be motivated to do well in their career. Astin would likely hypothesize that motivation causes involvement and involvement causes aspiration. However, another hypothesis is that motivation is a common cause of involvement and aspiration. A future study could measure motivation and see if controlling for motivation, there is a relationship between involvement and aspiration. However, determining the direction of causality cannot be done without a longitudinal design, which will be discussed below.

Another individual difference that should be examined is academic ability. Some research suggests that academic ability may influence the effect of college on aspirations (Rinn, 2005). Rinn (2005) argues that high-ability students are more likely to seek out opportunities and become more involved with or without the push of an honors program. However, there is also reason to believe the high-ability, non-honors students may respond differently to college than high-ability honors students. Cosgrove (2004) found high-ability non-honors students to be similar in levels of academic performance to honors students who did not complete the program, and different than honors students who completed the program. To control for the academic ability of honors students, the current study planned to have a third honor status group, partial

honors. Partial honors are high ability students who were accepted into honors program but for some reason did not continue. Critically, this group has the same academic ability and achievement compared to honors students and so it would control for academic ability and achievement. This partial honors was removed from this study's analysis because the sample size was too small to make comparisons to the other honors status groups. Future studies may include the partial honors group, however it was difficult to recruit a large enough sample. For this reason, a better idea might be to control for students' academic ability and achievement prior to entering college. Using these continuous variables would give greater statistical power to the relationship between ability, achievement and career aspiration.

Causal Inference

Another constraint of this study is the cross sectional design that surveyed different students from upper division and lower division in college. There is a need for a longitudinal study to find additional evidence. The longitudinal study could follow up the same students and study their aspiration from entering college until graduation. Future study could be designed to find out how involvement in the freshmen year predicts aspiration in sophomore year and how involvement in sophomore predicts the next year's aspiration and so on. The advantage of the design is that it is possible to find how aspiration in each year could predict the next year's involvement and find when the influence of involvement is the greatest. This longitudinal design could thus measure the causal relationships from involvement to aspiration and assess whether the relationships vary by honors status and gender. One advantage of the longitudinal design is the ability to measure not just the influence of involvement on aspiration but also whether aspiration influences involvement. Some researchers hypothesize that having high aspiration causes students to seek places to become involved (Rinn, 2005).

Additionally, since academic involvement did not fully explain the effect of the honors program on educational aspiration, there is room for a longitudinal design to measure other aspects of the honors program that might explain the increase in educational aspiration. The decision of which aspects to measure could be based on Astin's Theory of Student Involvement (1977, 1999), which includes non-academic student involvement.

Recommended Use of Theory of Student Involvement

In his theory, Astin (1977), mentioned a few characteristics of college programs that affect students' outcomes. The categories Astin (1977) listed for types of involvement included place of residence, research participation, honors program, student-faculty interaction, academic involvement, athletic involvement, and involvement in student government. While honors programs were listed as a type of involvement, Astin (1999) discussed how within the honors program other types of involvement exist. There are also components of academic involvement that may have differential effects.

Which types of involvement are most important for honors student success is an important area of future research. The types of involvement that honors programs offer vary and this investigation could point to which types are most effective in increasing student aspiration. Astin (1999) noted that the more contact with faculty a student has, the more satisfied he or she reports feeling about the college experience. The satisfaction that students feel could be due to being less confused about how to proceed into their future, hence having higher aspirations. Students-faculty contact and its effect on college students' outcomes may be assessed in future studies by measuring total faculty contact. This contact would include: student advising, mentoring, working in lab, out of class discussion, career planning, independent study, research experience, service learning activities, and internship. This indicator of involvement is important

because student-faculty contact is associated with positive outcomes of college students (Astin, 1999; Pascarella, 1980).

One important way that students can increase their faculty contact is through participation in research. Students who participate in research have the ability to spend additional time with peers and faculty in their chosen field doing real-world work and seeing how to apply what they are learning in a practical way. This experience may keep students interested and ready to learn and achieve higher goals in their education. The effect of research participation on aspirations is of interest for future work, but also is the question of when the research experience is most effective. For instance, finding out if experiencing research during the first 2 years of college has a larger effect on students' aspiration than, the more common, research experience in the last 2 years of college or not gaining research experience.

Peer interaction is another characteristic that can be included in further studies investigating honors programs influence. Peer influence is an important personal factor that may effect students' aspiration (Quaglia & Cobb, 1996). Astin (1999) discusses peer interaction, such as discussing class material with peers as another way of being engaged in the material, but he also found that being academically involved is related to isolation from peers instead. Investigating the influence of different types of peer groups both in and out of the class on students' involvement and aspiration may help educators and director of honors program in arranging this relationship. The amount of contact with peers of similar ability, those with less ability, and those with greater ability could be tracked. The way each type of peer group influences the student may be different. Prior research suggests that same and greater ability peers improve student performance by providing challenge (Robinson, 1997).

Another way that students can increase their peer and faculty contact is through living and learning communities. These communities enable students to have more direct contact with peers and faculty related to their field of learning, which makes contact easier for students to seek out. The communities may also offer additional opportunities for the students to become involved in academic interests.

In this study, the aspect of living learning communities was not involved in any planned hypotheses, however participants were asked which years, if any, they lived in a living learning community. Exploratory analysis was conducted to assess whether this is an area in which future research should be conducted. This research study investigated honors program as a type of living learning community to investigate the effects on students' educational and career aspiration. Of note, first year honors students are required to live in a living learning community. An effect was found in a regression analysis predicting involvement from gender, honors status, and years in a living learning community. The longer a non-honors student lived in a living learning community, the higher the level of involvement of the student. Additionally, it was determined that career aspirations cannot be predicted, in either honors or non-honors students, based on the number of years the student spends in a living community. An aspect of living learning communities is that the students are offered the opportunity of frequent contact with like-minded peers. Additionally, these communities offer activities related to students' interests and goals. The activities are more tailored to student interests in some communities compared to others. For instance, honors-only living learning communities have just their honors status in common while students in a business-related learning community share a future career. It is possible that non-honors students are more likely to join a community based on their interests than their abilities. The increase in involvement for those in a living learning community could

be due to the communities encouraging academic involvement. However, these findings should be considered with caution because this study was not designed to answer questions about living learning communities. Future research should examine these communities further and replicate the finding of increased academic involvement. Also, additional information is needed about how different types of living learning community provide support for honors students.

Final Thoughts

The purpose of this study was to assess the effect of a university honors program on career and educational aspirations of university students at a large university in the northeast United States. Effects of the honors program on involvement and on career and educational aspirations were found. The effect on educational aspirations was the most pronounced. Based on the findings of increases in involvement being related to the increases in aspirations, especially for honors students, directors of honors programs should consider activities that enhance student academic involvement. A focus on ways of being involved that are likely to increase student aspiration should be implemented. For example, based on Astin's Theory of Student Involvement (1977, 1999), giving students more opportunities to develop a relationship with faculty members as mentors is likely to improve student outcomes such as career and educational aspirations.

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APPENDIX A: RECRUITMENT EMAIL

Subject:

Human subjects requested: Enter for \$100 at Amazon

Email text:

As a student, you are invited to participate in an anonymous survey investigating the importance of certain types of university programing in influencing student educational aspirations and outcomes.

[survey link]

If you participate, you may enter your email address and name into a raffle for one of five \$100 Amazon gift certificates.

To be entered into the raffle, please follow the link at the end of the survey to a second webpage. There you can enter your school or personal email address. Your email will not be linked to your responses, which will be anonymous.

This survey is part of a doctoral dissertation and your participation is greatly appreciated.

Thank you for your consideration,

[REDACTED]

APPENDIX B: SURVEY

Principal Investigator: [REDACTED]

Student: [REDACTED]

Title of Study: Influence of University Programming on Student Outcomes

Qualification: You must be a [Name of University] student and at least 18 years old to participate.

You are invited to participate in a study in which you will be asked to complete a survey about your academic experiences at [Name of University] and your expectations about your future. The information from this research may be used to improve programming at [Name of University].

Your participation in this study will require completion of the following questionnaire. This should take approximately 5 to 10 minutes of your time. If you complete this survey, you may choose to enter into a raffle for one of five \$100 Amazon gift certificates. If you win the raffle, you will be notified and sent the gift certificate by email by the end of the semester.

Your participation will be anonymous and you will not be contacted again in the future. Your confidentiality will be maintained to the degree permitted by the technology used. Specifically, no guarantees can be made regarding the interception of data sent via the Internet by any third parties. We believe this survey does not involve any risk to you. Although you may find it interesting to participate in this study, there will be no direct benefit to you from your participation.

You do not have to participate in this study if you choose not to complete the survey. I will be happy to answer any questions you have about this study. If you have further questions about this project or if you have a research-related problem, you may contact me at the following email address: [REDACTED]. If you have any questions about your rights as a research participant you may contact the [REDACTED IRB INFORMATION]. The IRB is a group of people who review research studies to protect the rights and welfare of research participants.

Thank you

Do you consent to participate in this research study?

- Yes
- No

If No Is Selected, Then Skip To End of Survey

Are you:

- Under 18 years old
- 18 or older

If Under 18 years old Is Selected, Then Skip To End of Survey

During the current academic year, how often have the following statements been true for you?

	Never	Occasionally	Frequently	Very Frequently	Extremely Frequently
I spend many hours preparing for class (studying, reading, writing, rehearsing, and other activities related to your academic program).	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I work harder than I thought I could to meet instructors' standards or expectations.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I study on the weekends.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I ask questions in class or contribute to class discussions.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I work with classmates outside of class to prepare class assignments.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I discuss ideas from readings or classes with others outside of class (students, family members, coworkers, etc.).	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I discuss topics, ideas, or concepts with a faculty member outside of class.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I work with faculty members on activities other than coursework (committees, orientation, student life activities, etc.).	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I work on a research project with a faculty member.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I talk about career plans with a faculty or staff member.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

During the current academic year, how many hours have you spent participating in co-curricular activities (organizations, campus publications, student government, social fraternity or sorority, intercollegiate or intramural sports, etc.)?

- None
- 1-2 hours weekly
- 3-4 hours weekly
- 5-6 hours weekly
- 7 or more hours weekly

Have you been involved in an independent research project at [Name of University]?

- Yes
- No

Have you worked in a research lab at [Name of University]?

- Yes
- No

Answer If Have you worked in a research lab at [Name of University]? Yes Is Selected

How many semesters have you worked in a research lab at [Name of University]?

- 1
- 2
- 3
- 4
- 5
- 6 or more

The following is a list of awards available through [Name of University]'s Office of Undergraduate Research. Please indicate your level of awareness of each.

	Unaware	Aware	Have applied	Have won
[Name of Award]	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
[Name of Award]	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
[Name of Award]	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
[Name of Award]	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
[Name of Award]	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

What is the highest academic degree you intend to obtain?

- Associates
- Bachelor's (BA/BS)
- Master's (MA, MS, MBA, etc)
- Doctorate (PhD, MD, JD, etc)

Indicate the extent to which you agree or disagree with each statement.

	Very Strongly Agree	Strongly Agree	Somewhat Agree	Neither Agree nor Disagree	Somewhat Disagree	Strongly Disagree	Very Strongly Disagree
I hope to become a leader in my career field.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
When I am established in my career, I would like to manage other employees.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I would be satisfied just doing my job in a career I am interested in.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I do not plan to devote energy to getting promoted in the organization or business I am working in.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
When I am established in my career, I would like to train others.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I hope to move up through any organization or business I work in.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Once I finish the basic level of education needed for a particular job, I see no need to continue in school.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

I plan on developing as an expert in my career field.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I think I would like to pursue graduate training in my occupational area of interest.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Attaining leadership status in my career is not that important to me.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Are you:

- Male
- Female
- Other
- Prefer not to respond

Including this one, how many semesters have you been enrolled as a full-time student at [Name of University] or another college or university?

- 1-2
- 3-4
- 5-6
- 7-8
- 9 or more

How old are you?

- 18
- 19
- 20
- 21
- 22
- Over 22

Have you ever been accepted into the [Name of University] Honors Program?

- Yes
- No

Answer If Were you accepted into the [Name of University] Honors Program? Yes Is Selected

Are you currently a member of the [Name of University] Honors Program?

- Yes
- No

Answer If Were you accepted into the [Name of University] Honors Program? Yes Is Selected

After the current semester, how many honors credits will you have earned?

- 0
- 1-6
- 7-12
- 13-18
- 19-24
- more than 24

How would you describe the grades you have received in college classes?

- All A's
- Mostly A's
- More B's than A's
- Mostly B's, some A's and C's
- More B's, than C's
- More C's, than B's
- More C's, than D's
- More D's, than C's
- Mostly D's and F's

Please select your current campus:

- [Names of Campus]
- [Names of Campus]
- [Names of Campus]
- [Names of Campus]
- [Names of Campus]
- [Names of Campus]

Have you ever lived in a Living and Learning Community on [Name of University]'s [Name of Campus] campus?

- Yes
- No

Answer If Have you ever lived in a Living and Learning Community on [Name of University]'s [Name of Campus] campus? Yes Is Selected

Please select which Living and Learning Communities you participated in and in what years:

	Freshmen Year	Sophomore Year	Junior Year	Senior Year
[Name of Community]	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
[Name of Community]	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
[Name of Community]	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
[Name of Community]	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
[Name of Community]	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
[Name of Community]	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
[Name of Community]	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
[Name of Community]	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
If Have you ever been accepted into the [Name of University] Honors Program? Yes Is Selected	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
[Name of Community]				
[Name of Community]	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
[Name of Community]	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
[Name of Community]	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
[Name of Community]	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
[Name of Community]	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
[Name of Community]	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
[Name of Community]	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
If Are you: Female Is Selected Or Are you: Other Is Selected Or Are you: Prefer not to respond Is Selected	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
[Name of Community]				

In which [Name of University] school or college are you currently enrolled? (If you are seeking degrees in two schools or colleges, please select the one you consider to be primary.)

- [Name of School or College]
- [Name of School or College]
- [Name of School or College]
- [Name of School or College]
- [Name of School or College]
- [Name of School or College]
- [Name of School or College]
- [Name of School or College]
- [Name of School or College]
- [Name of School or College]

Do you want to enter a raffle for one of five Amazon gift certificates?

- Yes
- No

Answer If Do you want to enter a raffle for one of five Amazon gift certificates? Yes Is Selected

Please enter your email below to be entered into the raffle for one of five \$100 Amazon gift certificates. Your email address will be stored separately from your responses to the research study, and it is not possible to connect the two.

APPENDIX C: INVOLVEMENT SCALE MODIFICATIONS

During the current academic year, how often have the following statements been true for you?

Involvement 1: I spend many hours preparing for class (studying, reading, writing, rehearsing, and other activities related to your academic program).

Modified from NSSE #1: “Number of hours per week spent on preparing for class (studying, reading, writing, rehearsing, and other activities related to you academic program)”

Involvement 2: I work harder than I thought I could to meet instructors’ standards or expectations.

Modified from NSSE #2: “Frequency worked harder than you thought you could to meet instructors’ standards or expectations during the current school year”

Involvement 3: I study on the weekends.

Modified from FYES #: “I regularly study on the weekend”.

Involvement 4: I ask questions in class or contribute to class discussions.

Modified from NSSE #12: “Frequency asked question in class or contributed to class discussions during the current school year”.

Involvement 5: I work with classmates outside of class to prepare class assignments.

Modified from NSSE #15:” Frequency worked with classmates outside of class to prepare class assignments during the current school year”.

Involvement 6: I discuss ideas from readings or classes with others outside of class (students, family members, coworkers, etc.).

Modified from NSSE #18:” Frequency discussed ideas from your reading or classes with others outside of class (students, family members, coworkers, etc.) during the current school year”.

Involvement 7: I discuss topics, ideas, or concepts with a faculty member outside of class.

Modified from NSSE #32:” Frequency discussed ideas from your reading or classes with faculty members outside of class during the current school year”.

Involvement 8: I work with faculty members on activities other than coursework (committees, orientation, student life activities, etc.).

Modified from NSSE #33:” Frequency worked with faculty members on activities other than coursework (committees, orientation, student life activities, etc.) during the current school year”.

Involvement 9: I work on a research project with a faculty member.

Modified from NSSE #35:”Have done or plan to work on a research project with a faculty member outside of course or program requirements”.

Involvement 10: I talk about career plans with a faculty or staff member.

Modified from NSSE #31: "Frequency talked about career plans with a faculty member or advisor during the current school year".

Involvement 11: I seek advice from my academic advisor.

Modified from FYES #: "I regularly seek advice and help from teaching staff".

Involvement 12: During the current academic year, how many hours have you spent participating in co-curricular activities (organizations, campus publications, student government, social fraternity or sorority, intercollegiate or intramural sports, etc.)?

Modified from NSSE #28: "Number of hours per week participated in co-curricular activities (organizations, campus publications, student government, social fraternity or sorority, intercollegiate or intramural sports, etc.)".