FROM A BLUE-COLLAR FAMILIAL BACKGROUND: GENDER AS A MODERATOR AND ATTITUDES TOWARDS WORK AND FAMILY AS A MEDIATOR OF COLLEGE MAJOR CHOICES

by

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A thesis submitted to the faculty of
The University of North Carolina at Charlotte
in partial fulfillment of the requirements
for the degree of Master of Arts in
Sociology

Charlotte

2023

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ABSTRACT

LEAH BOURQUE. From a Blue-Collar Background: Gender as a Moderator and Attitudes Towards Work and Family as a Mediator on Area of Study Choices (Under the direction of DR. ANNE-KATHRIN KRONBERG)

Many sociologists attribute inequality to social reproduction, where children repeat their parents' life situations. The influence of a parent's social background is evident when a child chooses a major or career. However, the literature fails to address *why* these decisions are made.

The current study examines blue-collar and white-collar backgrounds on area of study choices. Additionally, the study examines the interaction of gender and class on major choices. Furthermore, class-based attitudes are transferred to children across generations, influencing their future decisions. The study also examines class-based attitudes as a mediator in the moderated relationship. Finally, cultural capital is transmitted through classes by exhibiting behaviors in conjunction with or against the dominant cultural code. The study examines cultural capital as an additional mediator.

Using data from the Educational Longitudinal Study of 2002, I ran mediated-moderated, multinomial logistic regression models. In general, parental background does not predict major choices. However, interaction effects show that blue-collar women are more likely than white-collar women to choose Health. Alternatively, gender has a significant effect on every major choice, with men being more likely to choose STEM/Engineering majors over any other. Neither class-based attitudes nor cultural capital mediated the relationship. These results have implications for social reproduction, sociology, and education scholars.

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[1] With thanks to our colleagues at The Writing Center at the University of North Carolina at Chapel Hill. https://writingcenter.unc.edu/tips-and-tools/abstracts/

ACKNOWLEDGMENTS

First and foremost, I would like to acknowledge the tremendous feedback and support of my chair Dr. Anne-Kathrin Kronberg. Her guidance was instrumental in the completion of this project. I would also like to thank my committee members Dr. Roslyn Mickelson and Dr. Scott Tonidandel for their helpful contributions. Finally, I would like to thank my family and friends, for their support and much-needed words of encouragement.

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CHAPTER 1: INTRODUCTION

Inequality in the United States continues to permeate across classes with gaps between the rich and the poor widening (Beller & Hout; 2006 Corak 2013). Education and work sociologists attribute inequality to social reproduction, where classes repeat social, cultural, and economic situations across generations (Bourdieu 1974, 1977, 1986) There is plentiful research on education and social reproduction, specifically, whether education limits the importance of parental background on a child's future career, or perpetuates generational inequality (Dustmann, 2004; Kim, 2002). More recent studies examine the differences in students' *major choices* that lead to drastically different career outcomes (e.g., Jackson et al. 2008).

Choosing a college major is a pivotal decision that students make, as it is a predictor of their future occupation and potential mobility (Gregg et al. 2017; Kim, Tamborini, and Sakamoto 2015; Wilson, 2011). Certain majors are associated with significantly higher post-graduation earnings than others. For example, engineers tend to makes much more than an elementary school teacher (Wilson, 2011). Plentiful research exists on the monetary outcomes of majors, but less on reasons *leading up* to choosing majors.

Due to significant differences in occupational outcomes, knowing why students choose certain majors is important. Social Reproduction theory posits that parents and peers are tremendous influences on these choices across socioeconomic classes. Different socioeconomic groups tend to belong to different social classes that overlap in social norms and attitudes. For example, lower-class individuals often have blue-collar backgrounds, while the majority of upper-class individuals have white-collar backgrounds (Zafar, 2009; J. P. Thomsen et al., 2013; Anelli & Peri, 2019). Thus, for the current study, I focus on students' parental *social classes*

(specifically blue-collar and white-collar backgrounds) due to evidence of vastly different major choices between children from blue-collar vs. white-collar backgrounds.

Social Reproduction certainly acknowledges the importance of parental social background in higher education choices. However, the theory focuses less on gender as a moderator in these choices compared to the main effects of class. Intersectionality scholars highlight that class outcomes are highly contingent on gender (e.g.; Cook & Williams, 2015; Harris & Leonardo, 2018; Mintz & Krymkowski, 2010; Sibbett, 2020). There is evidence that major choices vary by gender, within and across class (Roksa & Levey, 2010; Altonji et al., 2012; Mullen, 2014).

Social Reproduction literature also focuses less on class-based attitudes that influence such major choices. Students from different classes hold varying attitudes about work, family, and education. For example, blue-collar parents are more likely to emphasize the importance of getting a good job and making money after high school, while white-collar parents are more likely to emphasize exploring college major options (Kinsler & Pavan, 2015; Trejo 2016). There is evidence that these attitudes transfer to their children and can lead to distinctly different major choices. For example, blue-collar individuals have low enrollment in liberal arts majors due to an unclear pathway of resulting jobs (Kinsler & Pavan, 2015; Trejo 2016).

Furthermore, there is evidence that different attitudes around work, family, and education are instilled in men and women (Hakim 2006; Hill et al. 2010, Wang and Degol 2017), and differ by class (Frenzel et al., 2010; Piña-Watson et al., 2016; Yeganeh & May, 2011). Yet, there is less research on how the *intersectionality* translates into different attitudes and major choices. There are some studies on intersectionality in attitudes by gender and class (e.g., Halpern & Perry-Jenkins, 2016), however, this relationship is lacking in Social Reproduction literature. Thus,

analyzing the mediated relationship of attitudes alongside the moderated relationship of parental background and gender on area of study is essential.

Finally, I examine a prominent mechanism that links parental background and major choice: cultural capital. Cultural capital is the idea that different behaviors and ways of life are transmitted and expressed within classes (Bourdieu 1974, 1977, 1986; Aschaffenburg & Maas, 1997). "Dominant" cultural codes align with a more "high brow" way of life, thus advantaging white-collar individuals more than blue-collar individuals. For example, studies show that white-collar individuals are more likely to be involved in academic honor societies and other elite activities, while blue-collar individuals are more involved in vocational activities (Alvermann, 2009).

Over time, these differences in culture can translate into different academic outcomes. Plentiful research has been done on the relationship of cultural capital and academic performance (e.g., Dumais, 2002). There is also research on gender differences in cultural capital (Dumais, 2002), which is pertinent to the study. However, there is less research on its influence on college majors.

For clarification, attitudes and cultural capital are not the only influences on the field of study choices (Bourdieu 1974, 1977, 1986). Other structural confines such as social and economic capital also influence education choices (Bourdieu 1974, 1977, 1986). For the current study, I focus on how a student's *gender*, *attitude*s, and *cultural capital* influence this process.

My potential contributions to the literature are threefold. First, I examine how gender interacts with a parent's social background regarding their child's major choices. Although there is research on the intersectionality of gender and background on major choices, this literature rarely connects with Social Reproduction theory. Second, I expand on the moderated relationship

by examining class-based attitudes toward education as a mediator in this relationship. Class attitudes are formed by parents and passed on to their children. The relationship of parental attitudes transferring onto their children is necessary to analyze as the family unit is where social reproduction begins. Finally, I add cultural capital as a partial mediator in this relationship, due to the cultural differences that blue-collar and white-collar students likely hold.

CHAPTER 2: LITERATURE REVIEW

Subsection 2a: Overview of Bourdieu's Theory of Social Reproduction

To understand social factors limiting intergenerational mobility, I draw on Social Reproduction theory. Social Reproduction explains how social backgrounds (usually class) influence individuals' accumulation (or lack of) capital throughout their life. (Bourdieu 1974, 1977, 1986; Nash 1990). Individuals' accumulation of resources is highly dependent on their familial situation. More "dominant" groups with higher capital pass this on to their children, typically at the unfortunate cost of their lower-class counterparts (Azaola, 2012).

Although there is no formal scope to this theory, one can assume it applies to industrialized societies that hold "objective structures" (Bourdieu 1974, 1977, 1986; Nash 1990). Common institutions in an industrialized country (and sometimes less industrialized contexts) include the education system, the economy, large corporations, and more (Nash, 1990).

In Bourdieu's theory, he discusses three main areas where social reproduction is perpetuated; family, school, and work (Bourdieu 1974, 1977, 1986). In familial contexts, certain norms and *attitudes* are passed on generationally from parents to their children (Bourdieu 1974, 1977, 1986). Individuals also face economic and social barriers based on their parent's socioeconomic situations (Bourdieu 1974, 1977, 1986). These background differences are then exacerbated in school and work contexts where individuals may not have the *capital* to be successful in school and mobile in their careers (Bourdieu 1974, 1977, 1986).

There are three main types of capital in Social Reproduction theory: cultural, financial, and social capital (Bourdieu 1974, 1977, 1986). For the current paper, my study focuses on, cultural capital. Cultural capital describes as "proficiency in and familiarity with dominant cultural codes and practices" (Aschaffenburg & Maas, 1997, p. 573). Dominant cultural codes

are messages and manifestations of higher-status culture (often based off the upper class) (Aschaffenburg & Maas, 1997). In simpler terms, cultural capital counts as how culturally "in tune" one is with the dominant code. This typically includes socially acceptable styles of living, e.g. linguistic styles, aesthetic preferences, values, and even status obtainment (Aschaffenburg & Maas, 1997).

Cultural capital can facilitate or hinder interactions with others in social institutions (Bourdieu 1974, 1977, 1986). Specifically, differences are highlighted when entering these institutions through behaviors, affiliations, mannerisms, and decisions they make (Ferrare, 2021; Kinsler & Pavan, 2015). Dominant codes are particularly obvious when individuals enter the educational and organizational contexts. For example, a white-collar student might be familiar with academic honor societies or certain elite sports, whereas blue-collar individuals do not have the same experience or "know-how". (Aschaffenburg & Maas, 1997; Blackwell & Pinder, 2014; Manzoni & Streib, 2019).

Subsection 2b: Social Reproduction, Class Mobility, and Education

The theory of social reproduction has covered a plethora of topics, but most commonly education and work (Ma, 2009, 2011a). Some of the most relevant topics are education and occupational mobility (or lack thereof). One of Bourdieu's earliest studies looks at the school system as a type of "distinctive habitus"; essentially an institution that ingrains certain patterns of behavior in students (Bourdieu 1974, 1977, 1986; Nash, 1990).

Some scholars apply Social Reproduction Theory to education as the influences of capital can pose as distinct catalysts (or inhibitors) of mobility. Individuals and their capital exist within a broader structure that offers different opportunities and life chances (Bourdieu 1974, 1977, 1986). Thus, in many respects, education is an institution in which inequality permeates.

Specifically, education can dictate whether children from lower-class backgrounds are upwardly mobile with regard to class, occupation, or income. Similarly, according to Jackson, "the difference in educational achievement between the children from poor families and that of children from wealthy families has grown substantially" over the past two decades (2015, p.195). Thus, in agreement with Bourdieu's theory, capital is typically passed generationally. That being said, Bourdieu's theory does hint that education has positive influences on mobility if certain choices are available and made (Bourdieu 1974, 1977, 1986).

Despite work on education and mobility in Social Reproduction theory, less is known about how actual *attitudes* toward work, education, and family influence educational decisions, specifically major choices in college. For my paper, I investigate these attitudes transmitted from their parents and the broader social environment. More specifically, I explore these attitudes from a class and gendered perspective. These attitudes then translate into specific major choices, which have strong implications for later career choices.

Also in alignment with Social Reproduction theory, I investigate measures of *cultural capital* and its additional influence on these outcomes. Cultural capital is one of the main theoretical concepts in social reproduction, yet research focuses more on its relationships to academic performance than higher education decisions. However, I first investigate the influences of cultural capital and attitudes, specifically, class and gender.

Subsection 2c: Trends of Blue-Collar Work in the United States

Blue-collar workers make up a large segment of the working class. They often form unions to mitigate the injustices they face in terms of pay, policy, and work benefits (R. S. Davis, 2011). Blue-collar work classifies itself as manual labor and is "formally trained and certified… like mechanics, plumbers, electricians, and structural workers" (Abramitzky et al., 2021). In

some blue-collar positions, workers do not have to have formal training and are usually distinguished as manual laborers in the working class (Pérez-Ahumada, 2017). This is distinct from the "pink collar" service industry (Barnes et al., 2021) which involves jobs such as caretaking and customer service, that women heavily occupy. In general, blue-collar work is associated with lower income and lower-class mobility (Saavedra & Twinam, 2020).

Working-class families, who as a majority occupy blue-collar jobs, reproduce occupations more than any other social class. Or put differently, mobility out of blue-collar backgrounds is rarer than mobility out of white-collar backgrounds (Bourdieu 1974, 1977, 1986; Torre, 2019). As white-collar families reproduce occupations, they maintain their power in the occupational hierarchy (Collins, 1971; Antikainen et al; 2011; Wilson, 2011; Dworkin et al., 2013). Thompson et al. explain that social classes have storylines "[…]through which messages about social class and the world of work are communicated in explicit and implicit ways within parent-adolescent relationships" (2018, p. 710). Essentially, the values of blue-collar workers create attitudes in their children, which later influences their occupational outcomes (2018).

Subsection 2d: Social Class (Parental) Background Influence on Area of Study

As evidenced above, there is research on familial influence on some educational and career decisions. However, examining *how* students make these area of study choices based on parental background is not as prevalent in the literature. This is unfortunate as evidence suggests that social class is a main driver in college major choices (Thomsen et al., 2013).

Social class affects children's educational choices in two possible ways: primary and secondary class effects of education. Primary effects encompass academic performance, preparedness, and financial/social access to educational resources such as tutoring (Boudon, 1974; Morgan, 2012). On the other hand, secondary effects are *indirect* effects of class. For

example, these include perceptions, attitudes, and educational *decisions* based on social class, such as whether or not to go to college and the risks associated with it (Boudon, 1974; Morgan, 2012).

Boudon's theory typically looks at secondary decisions as to whether or not students attend college in the first place, but recent empirical evidence ties this theory nicely to what areas of study students choose (e.g., Jackson et al., 2008). This is because students from blue-collar backgrounds are assessing similar risks and benefits when choosing a major to the decision of attending college in the first place. For example, Jackson et al. revisit Bourdon's primary and secondary effects of social class on education and found that secondary effects are often resulting from preset attitudes accumulated from their family over time (2008). This has many implications for the current study, as blue-collar familial relationships influence the life outcomes of their children (Sutton et al., 2016; Thompson et al., 2018).

Thus, blue-collar students (and the working class in general) often enroll in technical fields such as STEM or education (Trejo, 2016). These types of work are known to be more stable in terms of job outcomes and income (Trejo, 2016; Wilbur & Roscigno, 2016), and typically do not require additional education beyond a four-year bachelor's degree (Trejo, 2016; Wilbur & Roscigno, 2016). Finally, blue-collar students are less likely to enroll in language-dominated fields such as liberal arts and humanities (Wilbur & Roscigno, 2016).

On the other hand, white-collar (and most wealthy) students are more likely to enroll in a broader range of majors. Wealthier students are afforded a wider range, including liberal arts, social sciences, STEM, and communications (Trejo, 2016; Wilbur & Roscigno, 2016). They are also more likely to go to graduate school, which is logical as many of these areas of study result

in further education (Altonji et al., 2012). Based on the current literature, I propose the following hypothesis:

> ***H1:*** Compared to white-collar students, blue-collar students are more likely to choose STEM, Engineering, and Education areas of study, and less likely to choose a broader range of majors including Arts and Humanities, Social Sciences, and Communication.

Subsection 2e: Gender and the Current Study: Gendered Major/Area of Study Choices

A plethora of research shows areas of study are highly gendered (Altonji et al., 2012; Morgan et al., 2013; Mullen, 2014). For example, women are less likely to go into STEM fields and more likely to enroll in social sciences and education (Altonji et al., 2012; Mullen, 2014). Men are twice as likely to choose STEM areas of study which often reaps high financial rewards (Morgan et al., 2013). These majors also result in gendered labor market outcomes. For example, the higher the concentration of women in an area of study, the lower the occupational payoff in earnings (Roksa & Levey, 2010). Therefore, I assert the following hypothesis:

> ***H2****:* Compared to women, men are more likely to choose STEM and engineering majors and less likely to choose Education, Arts and Humanities, and Social Sciences.

Subsection 2f: A Look at Attitudes: How it Links to Behavior

Before discussing class-based attitudes specifically, it is important to cover the relationship between attitudes and behaviors. The relationship between attitudes and behaviors has long been a topic of debate across social science disciplines (Ajzen & Fishbein, 2005). Research recently finds that attitudes do not always lead to expected behaviors.

However, there are instances in which attitudes more often result in matching behaviors. First, attitudes translating to actual behavior depend on the c*ontext* in which it is evoked. For example, an individual may link an attitude to a behavior on a survey but act differently in real life (Ajzen & Fishbein, 2005). There are also other contextual factors, such as one's identity or structural boundaries that limit behavior (Ajzen & Fishbein, 2005). Thus, in this study, I include

one's parental background, gender, and measures of cultural capital, as I am aware that attitudes are not the only force dictating behaviors.

Furthermore, attitudes more often translate into behavior when they are "concrete" (Mickelson, 2015). This means that attitudes are specific to potential achievement realities, compared to idealistic attitudes that indicate the "American dream" (Mickelson, 2015). In general, upper-class individuals, often from white-collar backgrounds, tend to believe they can do anything they set their minds to. Alternatively, lower-class individuals, often from blue-collar backgrounds, tend to think that educational achievements are more ability-based (Mickelson, 2015).

Finally, attitudes need to be specific to one behavior. White-collar individuals are also more likely to enjoy certain subjects, such as reading (McGeown et al., 2015). Oftentimes, this is because they get more support in these subjects compared to their blue-collar counterparts (McGeown et al., 2015). Thus, in this study, I attempt to extract attitudes that are linked to attitudes in *educational contexts,* are *specific,* and are *concrete*.

Subsection 2g: Class-Based Attitudes

As evidenced earlier, there is no doubt that there are class differences in major choices. However, Social Reproduction literature focuses less on the actual class-based *attitudes* that influence these decisions. There is also less of a focus on how class-based attitudes intersect with gender, which is a tremendous underlying factor in these decisions. The following section addresses both issues.

Subsection 2h: Class-Based Attitudes in Blue-Collar Population

It is obvious blue-collar students choose similar majors and have storylines that influence these decisions. These distinct "storylines" are not in conjunction with the dominant *attitudes* of

their white-collar counterparts (Skeggs, 2011). Specifically, the norms blue-collar individuals hold translate into attitudes emphasizing family, marriage, and "practical" work (Skeggs, 2011). When defining "practical" work, the literature tends to lean towards areas of work that are less precarious in terms of stability and have clearer pathways to a career (Skeggs, 2011). Additionally, the majors they choose are typically less language-dominated or focus more on manual labor that are more easily learned and measured. Since economic instability is a more salient issue in blue-collar families, they tend to hold the attitude that work should be stable and clear in its outcomes (Skeggs, 2011).

Structural barriers make it difficult for blue-collar children to pursue higher education, resulting in less favorable attitudes toward education (Manstead, 2018). Getting a job after high school or getting a stable job as soon as possible is often the goal (Bathmaker et al., 2013; Blandin & Herrington, n.d.; Manstead, 2018). This allows for less exploration, freedom of choice, and leisure time than white-collar counterparts (Bathmaker et al., 2013; Blandin & Herrington, n.d.; Manstead, 2018).

Over time, structural barriers may influence blue-collar individuals to think that doing well in school is unattainable (Manstead, 2018). Additionally, this may result in less confidence in their abilities (Wiederkehr et al., 2015). For example, they may not think that learning certain skills or getting better at something is unattainable. In fact, lower-class individuals tend to think that excelling in something, such as a school subject, is ability based and outside of their own control (Manstead, 2018).

By watching and listening to their parents' attitudes towards work, children typically adopt these attitudes that coincide more or less with dominant codes. These attitudes have been

investigated more so in blue-collar children who traditionally do not attend college. However, less is known about those that *do* choose to go and choose a major.

Subjection 2i: Blue Collar Attitudes Translating to Major Choices

There is evidence that these attitudes certainly translate into education decisions. As stated above, evidence finds that attitudes formed in blue-collar life and their "work ethic" might sway students to choose more "practical majors" in line with the practical jobs they typically obtain (Wilkins, 2014). On the other hand, white-collar students tend to have more positive attitudes toward linguistics and broader aspects of education, as ample wealth allows them time for exploration, leisure, and learning (Hu & Wu, 2019; Mullen, 2014).

Specific to this study, evidence suggests that children from working-class backgrounds are less encouraged to develop a passion for reading or writing as much as their white-collar counterparts (Alvermann, 2009). Put differently, class-specific socialization often leaves blue-collar children with less interest and confidence in topics. Lesser confidence in topics like reading leads to poorer performance in that subject (McGeown et al., 2015). Blue-collar students also tend to get less support, perpetuating poorer performance and negative atttiudes in these subjects (Alvernmann, 2009).

Alternatively, white-collar individuals are more likely to think they can learn something even if it is hard. This might result in their expanding their opportunities to explore a *wider range of majors* (Wiederkehr et al., 2015). This belief likely roots in the fact that white-collar parents and peers are successful, so they also believe it is possible for them (Manstead, 2018). They also have more access to educational resources (e.g., tutors) to help them learn (Manstead, 2018).

In conclusion, there is evidence that children from a blue-collar background choose areas of study that coincide with their parents' attitudes toward education and work. The collection of "norms" and "values" translate into students' attitudes (Bourdieu 1974, 1977, 1986). These attitudes can translate into such major choices and keep children in similar places or occupations as their parents (Piketty, 2000). Reflecting on the literature above on class and choices in areas of study and social reproduction, I propose the following hypothesis:

> ***H3****:* Class-based attitudes partially mediate the relationship of parental background on area of study choices.

Subsection 2j: Gendered Attitudes Towards Education

Furthermore, social class is not the only determinant of attitudes toward work, family, and education. There is evidence of vast differences in these attitudes between men and women (Cunningham et al., 2012; Gooderham et al., 2004). In general, women tend to have more familial and communality-oriented attitudes in their career choices, while men value independence, extrinsic rewards, and autonomy (Cunningham et al., 2012; Gooderham et al., 2004).

Specific to attitudes toward educational topics, women tend to have better attitudes toward reading, while men tend to favor math (Spinath et al., 2014). This is due to socialization in school, where boys are encouraged to excel in math and science, and girls more so in language and reading (Spinath et al., 2014). Although women and men are capable of excelling at both subjects, this belief still persists. This belief translates into very different major choices and career outcomes across gender (Altonji et al., 2012; Mullen, 2014).

Women also tend to hold more positive attitudes toward education and learning (Legewie & DiPrete, 2012). Due to the inequalities women face in work, women see obtaining an education as a potential equalizer. These attitudes often translate into behaviors; for example,

women's enrollment in STEM and engineering majors has increased in recent years (Ma, 2011a; Wang & Degol, 2017; Wegemer & Eccles, 2019). However, their attitudes towards reading and language-based topics are still stronger compared to math.

Based on the literature above, I assert the following hypothesis:

H4*:* Class-based attitudes partially mediate the relationship of gender on area of study choices.

Subsection 2k: Gender and Class Attitudes

Perhaps the larger area of Social Reproduction literature that is missing is how class-based attitudes intersect with gender in terms of educational choices (Kezar et al., 2020). Educational research on Intersectionality Theory suggests that gender and class are *interdependent* determinants of educational outcomes (Sibbett, 2020). For example, Sibbett emphasizes that "multiple identities" have a great effect in terms of educational choices, outcomes, and experiences (Sibbett, 2020, p. 2).

A person's class experience varies by their gender. For example, women across all classes experience occupational segregation, however, there is evidence that occupations are more highly segregated in the working class (Yavorsky, 2019). This may translate into major choices. Additionally, a person's gendered experience depends on their class. For example, working-class individuals tend have jobs that are low in mobility and pay (R. S. Davis, 2011). However, lower-class men tend to work more in technical jobs and lower-class women more so in service industries (Barnes et al., 2021).

Despite the lack of theoretical examination of class and gender attitudes in Social Reproduction, empirical evidence supports this idea. Students from lower-income families have "significant differences in *self-efficacy* between men and women concerning career options considered traditional and nontraditional for one's gender" (Kezar et al., 2020, p.302). Since a

large sector of blue-collar jobs is male-dominated and male "typed", this might have implications for major choices (Pérez-Ahumada, n.d.).

According to Mintz and Krymkowski, men still maintain an advantage in the occupational hierarchy, particularly in white-collar jobs. That being said, white-collar women have made more progress than any other group (2010). Furthermore, according to Leppel and Waldauer, if mothers are in a professional job, their children are more likely to have positive attitudes towards careers that are not gender-stereotypical (2001). On the one hand, upper-class women, often from white-collar backgrounds, are choosing more STEM, engineering, and "male-typed" majors (Leppel and Waldauer, 2001). On the other hand, there is evidence that working-class families still instill the gendered attitude of women in language-based careers (e.g., elementary education) (Halpern & Perry-Jenkins, 2016).

Overall, there is evidence of white-collar women, holding more positive attitudes towards more traditionally male-dominated subjects such as math and science than in years past (van der Vleuten et al., 2016). This is logical as lower-class backgrounds tend to be more conservative with gender ideologies. Additionally, gender ideologies are stronger for men when making educational choices (van der Vleuten et al., 2016). This provides evidence for gender being a moderator of class for the attitudes that stem from their class. Thus, I propose the following hypothesis:

> ***H5:*** Gender moderates the relationship between parental background and area of study choices. Specifically, the effect of background is stronger for women, such that major choices will differ more between blue-collar and white-collar women compared to blue-collar men and white-collar men.

Subsection 2l: Cultural Capital Across Classes

Finally, cultural capital differs across classes and has major implications for educational decisions and later career prospects. As prefaced before, cultural capital shows how in tune a

person is with the "dominant code" and is expressed early on in the school system (Bourdieu 1974, 1977, 1986; Nash 1990). In general, white-collar individuals show that they are more in tune with such code through behaviors and activities (Bourdieu 1974, 1977, 1986; Nash 1990).

White-collar individuals are more likely to have academic honors or other status symbols. They are also more likely to participate in high-status clubs such as honor societies (Bourdieu, 1986). They also have more access to books (resulting in higher reading rates), tutoring opportunities, and more (Bourdieu, 1986). They also participate in more language and arts-related activities such as plays and musical concerts.

On the other hand, blue-collar individuals are more likely to participate in activities that are "cultural capital light", such as vocational clubs (Jaeger, 2009, p. 7). They are likely to attend career programs where they obtain skills for more technical jobs before even entering college. They often acquire skills and "know-how" that, unfortunately, are in opposition to the dominant cultural code that leads to higher-paying jobs (Jaeger, 2009).

Given that white-collar and blue-collar individuals accumulate different cultural capital over time, this can translate into varying outcomes. For example, white-collar individuals are more likely to excel in school, particularly in language-based areas (Trejo, 2016; Wilbur & Roscigno, 2016). Due to familiarity with these areas, it is logical that white-collar individuals may enroll more so in language-dominated majors than blue-collar individuals (Trejo, 2016; Wilbur & Roscigno, 2016). Thus, I propose the following hypothesis:

> ***H6***: Cultural capital partially mediates the relationship of parental background on area of study choices.

Subsection 2m: Gender and Cultural Capital

Cultural capital is not limited to class. In fact, there is evidence that cultural activities are more common among women (Dumais, 2002). For example, women are more likely to take

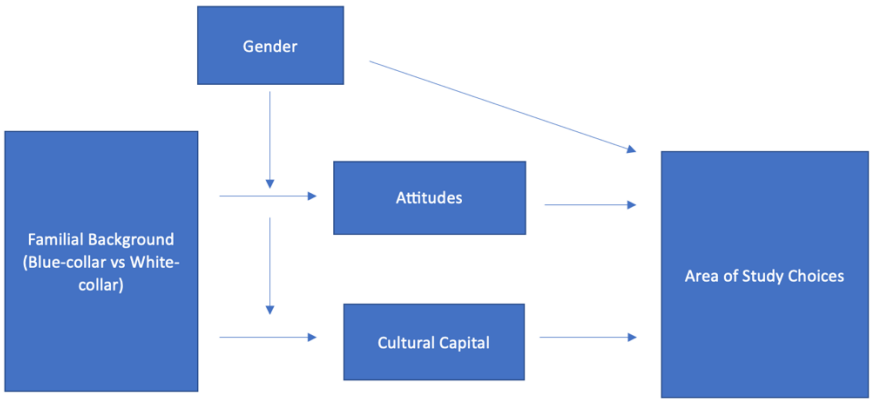
language classes and participate in arts-based activities such as music or dance (Dumais, 2002). In addition, women are more likely to participate in academic clubs and have higher academic achievements in high school and beyond (Dumais, 2002).

There is evidence that gendered cultural capital translates into educational decisions. For example, as prefaced above, women are more likely to pursue language-based, music, and arts majors (Altonji et al., 2012; Mullen, 2014). Women are also more likely to continue to participate in more cultural activities in college, such as academic clubs (Nash, 1990).

There is also recent research on the idea of "science capital" (Archer et al., 2015). Specifically, boys tend to have more "science capital", which is familiarity with many STEM-related topics such as natural and health sciences (Archer et al., 2015). This propels their success in these fields more so than their woman counterparts. Thus, I assert the following hypothesis:

H7: Cultural capital partially mediates the relationship of gender on area of study choices.

Figure 1. *Proposed Relationships of Main Variables of Interest*



CHAPTER 3: DATA AND METHODS

Subsection 3a: Data

To examine the relationship between parental background and college area of study, with gender as a moderator of parental background, and attitudes and cultural capital as mediators, I used data from the Educational Longitudinal Study of 2002 (ELS:2002) from the National Center for Education Statistics. The ELS is a nationally representative longitudinal study following two cohorts: high school sophomores in 2002 and high school seniors in 2004. Researchers followed both groups through secondary and postsecondary school years. Students, as well as their parents, math and English teachers, and school administrators, were interviewed. The waves took place as follows: the base year in 2002, the first follow-up in 2004, the second follow-up in 2006, and a final follow-up in 2012. For my study, I will be using data from the first follow-up in 2004 and the final follow-up in 2012.

The ELS:2002 includes data from both students and schools. Student-level data include student questionnaires, assessment data, and reports from students' teachers and parents. The survey data also include high school transcripts collected in 2005 and postsecondary transcripts in 2013. School-level data reflects responses from school administrator questionaries, library media center questionnaires, facilitates checklists, and a combination of student data at the school level. School-level data provides contextual data for student-level data as well.

On attrition rates, from the first wave of follow-ups in 2004 to the third wave in 2012, around 86% of the original respondents participated. The authors acknowledge procedures that survey administrators underwent to mitigate respondents' reluctance to participate. Survey administrators also went through extensive procedures to track down respondents throughout the waves, including finding new addresses if need be. The authors acknowledge that some

participants' extenuating circumstances might have hindered their continued participation. ELS:2002 researchers acknowledge non-response bias as a random issue and not systematic. In the final wave, there were 16,197 usable observations.

This data set is best suited to address my research question as the data contain all the necessary variables for the study. I investigated other potential sources, such as the National Survey of College Graduates from the United States Census Bureau and the National Longitudinal Study of Youth from the U.S. Bureau of Labor Statistics. While the National Longitudinal Study of Youth had all variables needed to address my question, the ELS data is more recent.

Subsection 3b: Sampling

The ELS: 2002 study's sample, at the school level, had a "survey day". 1,268 schools were sampled, 1,221 were eligible and 752 responded (68% participation). Overall, there were 16,197 participants.

My targeted population includes students who completed at least a four-year education at an accredited university. This population is appropriate as I am investigating college-educated students and how their familial background, gender, and subsequent attitudes toward work and family affect their choice of area of study. Students must come from blue-collar or white-collar parental occupational backgrounds. The population must also fully complete their degree, as studying the incompletion of a college degree would pose as an extraneous variable that might impact results.

Based on the above exclusion criteria, my sample consists of ELS: 2002 data from the first follow-up in 2004 and the final wave in 2012. The first follow-up contains information on

their gender, parents'/guardians' employment information, and attitudes toward work and family. The final follow-up contains information about the student's area of study.

Before running the analysis, I cleaned data for those who attended, stayed, and graduated from a four-year institution and also had either a blue-collar or white-collar parental/guardian background. What defines this background is specified more below in the "*Variables*" section.

After removing those who did not have a blue-collar or white-collar parent, or attained more or less than a bachelor's degree, my sample included 2,706 eligible respondents. Then, I used listwise deletion to eliminate respondents with missing data on the dependent variable (areas of study) and remaining independent variables (gender and attitudes). Ultimately, I dropped 48.67% of my "original" sample, leaving a final sample of 1,317 respondents.

Subsection 3c: Variables

Dependent Variable(s)

My dependent variable measures what area of study respondents graduated in. These areas come from at least a four-year accredited college. Areas of study in the ELS:2002 study were grouped in a more specific sense rather than broadly grouping majors together (see *Appendix A*).

As a precursor, different studies vary in how they categorize area of study. For example, some are categorized as specific majors, while others are examined in general areas of study. Some areas of study overlap (Robst, 2007), for example, psychology and liberal arts, and social sciences are grouped separately. On the other hand, Yingyi classifies majors much more broadly in terms such as "social science/education fields, humanity/arts" and more (Ma, 2011, p.118). Jackson et al. also group majors into more general categories such as "humanities, technical, and

economics" (Jackson et al., 2008, p.378). Thus, the latter two studies look at areas of study rather than distinct majors.

I use the broader definition of study area and categorize majors in this study as follows: "Architecture, Arts, and Humanities" (categories 5, 16, 23, 24, 38, 39, 50, and 54 in Appendix A), "Business and Economics" (Categories 22, 44, 46, and 52) "Communication" (Categories 9 and 10) "Education" (Category 13) "STEM/Engineering" (Categories 11, 14, 15, 27, 47, 48, and 49), "Health" (Categories 31 and 51), "Natural Sciences" (Categories 26 and 40), Social Sciences (Categories 42 and 45) and "Other" (categories 12, 19, and 43). I made these grouping decisions based on majors that are often grouped together in the literature (Pitt and Zhu, 2019). I removed Category 30 (*Multi/interdisciplinary*), Category 99 *(Other*) from analyses, and any missing data such as Category -9 *(missing),* and Category -3 *(Item Skip Legitimate).* I also excluded double majors from the analysis due to the complicated nature of multiple areas of study. However, only about 6.8% of my sample (before removing them) had double majors. Finally, in *Table 3*, I did not show the results of "Agriculture" (Category 1 and Category 3) due to its low enrollment of 11 participants.

Independent Variable(s)

My independent variable is the parental/legal guardian's occupational background, whether that is blue-collar ("0") or white-collar ("1"). I coded respondents as having a blue-collar background if they meet the following criteria: either both parents or legal guardians have blue-collar jobs, or one parent or legal guardian has a blue-collar job, and the other has a job other than a white-collar job, or no job at all. Likewise, I coded respondents as having a white-collar background if they meet the following criteria: either both parents or legal guardians have

white-collar jobs, or one parent has a white-collar, job, with the other parent or legal guardian having a job other than a blue-collar job, or no job at all.

The parents'/guardians' occupations use the NELS:88 classification. The options were as follows: *"No job for pay", "Clerical", "Craftsperson", "Farmer/Farm manager", Homemaker", "Laborer", "Manager/Administrator", "Military", "Operative" "Professional A", "Professional B', "Proprietor/Owner", "Protective service", "Sales". "Schoolteacher", "Service",* and *"Technical".* See *Appendices B* and *C* for additional reference.

In the ELS:2002 study, jobs considered blue-collar are under the following categories provided by the study: *"craftsperson", "farmer/farm manager", "laborer", "operative",* and *"protective service".* Jobs normally considered white-collar or in the professional realm will be under the following categories: *"manager/administrator", "professional A",* and *"professional B".* See *Appendix D* for examples of each type of job category. Previous studies used the NELS:88 classification for blue-collar and white-collar jobs and used a similar coding scheme (Rojewski, 1996; Greene, 2014). Interestingly, in my final sample, there were *zero* instances where one parent had a blue-collar job while the other had a white-collar job. Parents tended to work in similar job classifications as their partner, e.g., blue-collar women tended to be with blue-collar men, and white-collar women tended to be with white-collar men.

Gender moderates the effect of parental background. Gender is measured as either a man ("1") or a woman ("0"). Unfortunately, the survey does not have gender nonbinary or other options.

Mediating Variables

My first mediating variable is attitudes. I chose these attitudes as they were commonly used in class and gender literature and how these attitudes impact choices in one's education and

career (e.g., Cunningham et al., 2012; Gooderham et al., 2004; Lechner et al., 2018; Skeggs, 2011; Trejo, 2016; Wilkins, 2014). The ELS assessed all attitudes using a 3-point scale (1=*Not important,* 2=*Somewhat important*, 3=*Very important*). The attitudes are as follows: "*Thinks math is fun*", "*Thinks reading is fun*", "*Most people can learn to be good at math*", and "*Most people have to be born with the ability to be good at math*". The attitudes "*Thinks math is fun*", "*Thinks reading is fun*", and "*Most people can learn to be good at math*" were reverse-coded to match the direction of other scales used in the study. See *Table 1* for descriptive statistics.

Table 1. *Descriptive Statistics: Attitudes*

Attitude	Mean	SD	Minimum	Maximum
Math ability based	2.1526	0.569	1	4
Math is fun	2.2354	0.837	1	4
Reading is fun	2.6636	0.915	1	4

My second mediating variable is cultural capital. I chose these measures of cultural capital as they were commonly used in social reproduction literature. Measures of cultural capital are as follows: "*Reads books for fun*", "*Attended a career academy*", "*Participated in the school yearbook/newspaper*", "*Participated in an academic club*", "*Participated in school band or chorus*", "*Participated in a play or musical*", "*Participated in vocational clubs*", and "*Participated in a vocational or technical skills competition*". All measures of cultural capital were measured on a 0 (*No*) to 1 (*Yes*) scale, with the exception of "*Reads books for fun*", which was on a 1 to 4 scale. The original data set for cultural capital measures had additional missing categories (e.g., -9 (*Missing*)), that were removed from analyses (See *Table 2* for descriptive statistics).

Table 2. *Descriptive Statistics: Cultural Capital*

Cultural Capital	Mean	SD	Minimum	Maximum
Reads books for fun	1.560	0.822	1	4
Attended Career Academy	0.050	0.212	0	1
Participated in Yearbook/Newspaper	0.110	0.312	0	1
Participated in an Academic Club	0.160	0.366	0	1
Participated in Band or Chorus	0.250	0.433	0	1
Participated in a Play or Musical	0.150	0.357	0	1
Participated in Vocational Activities	0.060	0.204	0	1

I conducted an exploratory factor analysis on all attitudes and measures of cultural capital listed above (see *Appendix 5*), to see whether I can combine items into an index. After rotation, I decided to combine the following attitude measures that loaded onto factors at a score of .6 or above: "*Most people can learn to be good at math*" and "*Most people have to be born with the ability to be good at math"*. The variables were combined into one measure named "*Math is ability based*". I also decided to combine the following cultural capital measures that loaded onto factors at a score of .6 or above "Participated in vocational clubs", and "Participated in a vocational or technical skills competition" into one "*Participated in vocational activities*" measure.

Control Variable(s)

First, I cover person controls. I controlled for racioethnicity, as race and ethnicity were combined in the survey. For the most part, I categorized the race/Hispanic ethnicity variables as they are in the original datasheet: Indian/Alaska Native, Asian or Pacific Islander, Black or African American, Hispanic (no race(s) specified), Hispanic (race(s) specified), more than one race (non-Hispanic), white, non-applicable (NA), and non-respondent. Due to low participant frequencies in Indian/Alaska Native, I combined that category with "Multiple Races". Research indicates racial and ethnic patterns in terms of area of study choices. Both background and

gender effects are related to race and ethnicity, and race and ethnicity have majors choice patterns. Therefore, controlling for the variable is essential (Arcidiacono et al., 2012).

I also controlled for students' high school academic rank. I used a GPA rank, where students fell into 1 of 7 GPA ranges: 0 (*0-1.00*), 1 (*1.01-1.50*), 2 (1.51-2.00), 3 (*2.01-2.50*), 4 (*2.51-3.00*), 5 (*3.01-3.50*) and 6 (*3.51-4.00*). I combined categories 0, 1, and 2 due to low participant frequencies in categories 0 and 1. The new categories are as follows: 0-2 (*0-2.00*), 3 (*2.01-2.50*), 4 (*2.51-3.00*), 5 (*3.01-3.50*), and 6 (*3.51-4.00*).

For institution controls, I controlled for college selectivity. The selectivity measure is based on the 2010 Carnegie classifications (Carnegie Foundation for the Advancement of Teaching, 2011). The Carnegie classification groups colleges into three categories: "*highly selective"*, "*moderately selective*", and "*inclusive"*. According to the Carnegie classifications: "*highly selective*" 4-year institutions refer to those whose first-year students' test scores place them in roughly the top fifth of baccalaureate institutions; "*moderately selective*" 4-year institutions refer to those whose first-year students' test scores place them in roughly the middle two-fifths of baccalaureate institutions; and "*inclusive*" 4-year institutions either did not report test score data, or their scores indicate that they extend educational opportunity to a wide range of students with respect to academic preparation and achievement (2010).

I chose these controls based on studies with similar analyses and variables. For example, Jackson et al. (2008) controlled for the level of schooling. Additionally, in a similar study, Manozi and Streib looked at college major outcomes of first-generation studies and, controlled for race (2019). Other studies looked at education or career outcomes based on social background, but the control variables in their studies did not necessarily deem appropriate for my study.

Subsection 3d: Analysis

To predict when students choose different majors, I use multinomial logistic regression because my outcome variable, the field of study, has multiple nominal categories (Çokluk, 2010). I present both the LogOdds and Odds Ratio coefficients and then calculate the predicted likelihood for easier interpretation of the interaction effects (Norton & Dowd, 2018).

To test my hypotheses, I ran mediated moderated multinomial logistic regression model with my control variables and area of study as the outcome variable. After that, I added parental background as an explanatory variable. Then, I added the interaction between gender and parental background to assess gender as a moderator. I added attitudes as covariates to examine whether attitudes partially mediate the relationship of gender and background on major choices. In a final model, I added measures of cultural capital (without attitudes present) into the interaction model, to also test for partial mediation.

CHAPTER 4: RESULTS

Subsection 4a: Descriptive Statistics

Table 3 shows the descriptive statistics of the main variables of interest. In total, 1,317 students met the criteria for blue-collar and white-collar backgrounds. The sample had more white-collar participants (N=952) than blue-collar participants (N=365). Furthermore, the sample had slightly more women (N=725) than men (N=592) (see *Table 3*).

Table 3. *Descriptive Statistics: Main Variables of Interest*

Variable		N	Percentage
Area of Study			
	Architecture, Arts, and Humanities	193	14.6
	Business and Economics	271	20.6
	Communications	97	7.4
	Education	101	7.7
	Health	147	11.2
	Natural Sciences	110	8.3
	Social Sciences	203	15.4
	STEM/Engineering	157	11.9
Parent			
	Blue Collar	365	27.7
	White Collar	952	72.3
Gender			
	Woman	725	55
	Man	592	45

Transitioning to area of study choices, the majority of students enrolled in Business and Economics as an area of study, followed by the Social Sciences, Architecture Arts and Humanities, STEM/Engineering, Health, Natural Sciences, Education, and Communication with the lowest enrollment (see *Table 3*). It should be noted that Agriculture was originally a category in Table 2, but was not displayed in the results section due to a low enrollment of only 11 participants.

Next, *Table 4* shows the descriptive statistics of the control variables. Starting with race/ethnicity, most of the sample identified as White, followed by Asian, Black, Hispanic (specified), Mixed races, and Hispanic (not specified) (see *Table 4*). The racial composition is not representative of the actual United States population. For example, Blacks represented 7.3 percent of the sample. According to the United States Census Bureau, Blacks represent around 13.6 percent of the actual population (2021). More recent data from the Postsecondary National Policy Institute shows that Blacks earned 14 percent of bachelor's degrees, showing a greater representation in higher education (2019). However, Blacks were disproportionately underrepresented at more selective colleges (2019).

Table 4. *Descriptive Statistics: Control Variables*

Control Variable		**N**	**Percentage**
Race			
	Asian/Hawaiian	116	8.8
	Black	96	7.3
	Hispanic (not specified)	34	2.6
	Hispanic (specified)	69	5.2
	Multiple Races	46	3.5
	White	951	72.2
School Selectivity			
	High	608	46.1
	Moderate	545	41.4
	Inclusive	104	7.9
	Not specified	60	4.6
Academic Rank by High School GPA			
	0, 1, 2 (0.00 -2.00)	17	1.4
	3 (2.01-2.50)	95	7.2
	4 (2.51-3.00)	234	17.8
	5 (3.01-3.50)	473	35.9
	6 (3.51-4.00)	498	37.8

Hispanics were even *more* underrepresented in this sample. According to the Bureau of Labor Statistics, the Hispanic/Latinx community makes up around 18.9 percent of the United States population (2021). However, only 7.8 percent of the current sample was comprised of Hispanic/Latinx students. Additionally, more recent data from the Educational Trust study on Degree attainment for Latino Adults shows that Latinx students only get 11 percent of bachelor's degrees (2016).

Unfortunately, this is not uncommon, as Blacks and Hispanics are historically underrepresented in higher educational contexts, particularly highly selective colleges, and programs (Carnevale & Rose, n.d.; Flores et al., 2017; Garrison, 2013; Hinrichs, 2012; Lett et al., 2018). This is due to an institutional issue in the education system, where Blacks and Hispanics are not given the same advantages as Whites starting from a young age (Contreras, 2011). For example, Hispanics and Blacks are less likely to be placed in gifted programs in K-12 schools (Ford, 2014; Peters & Engerrand, 2016) and more likely to be in school systems with less access to tutoring and other necessary educational resources (Peters & Engerrand, 2016). Ultimately, the lower enrollment of Blacks and Hispanics is not necessarily based on their potential, but a lack of preparation and support from the wider educational system (J. Davis et al., 2019; Ford, 2014; Kendricks & Arment, n.d.; Peters & Engerrand, 2016).

Transitioning to college selectivity as a control variable, most students enrolled in highly selective colleges, closely followed by moderate, with inclusive schools in the vast minority (see *Table 4*). Finally, concerning academic rank as a control variable, most students had a GPA above a 3.0 (see *Table 4*).

Subsection 4b: Bivariate Analyses

Before transitioning to multivariate analyses, see *Table 5* for the bivariate relationships between parental background, gender, attitudes, and cultural capital. Coming from a white-collar background positively correlates with participation in academic clubs (r=.094**), and surprisingly, math being ability based (r=.060*). However, white-collar backgrounds are negatively correlated with participating in a career academy (r=-.063*) and thinking books are fun (r=-.060*).

As for gender, men are more likely to think that math is fun (r=.129**), while women are more likely to think that reading is fun (r=-.160**), less likely to participate in band or chorus (r=-.062*), and less likely to participate in a school yearbook or newspaper (r=-.072**).

Furthermore, many attitude and cultural capital measures are positively correlated, for example, "*Readings books for fun*" has a moderate positive correlation with "*Thinks reading is fun*" (r=.333**), and if a student thinks reading is fun, they are more likely to participate in an academic club (r=.144**).

Table 5. Zero Order Correlation Matrix

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
(1) Parental Background (White-collar)	1.00											
(2) Gender (Men)	.068*	1.00										
(3) Math is ability based	.060*	-.017	1.00									
(4) Math is fun	-.006	.129**	-.210**	1.00						-		
(5) Reading is fun	.041	-.160**	-.071*	.208**	1.00							
(6) Participated in a play or musical	.017	-.024	-.008	-.006	.105**	1.00						
(7) Participated in band or chorus	.007	-.062*	-.031	-.003	.127**	.270**	1.00					
(8) Participated in academic clubs	.094**	-.043	-.033	.120**	.144**	.044	.023	1.00				
(9) Participated in school yearbook or newspaper	.010	-.072**	-.051	-.026	.092**	.112**	.035	.113**	1.00	.		
(10) Participated in a career academy	-.063*	.001	-.034	.057*	-.008	.007	-.004	.050	-.032	1.00		
(11) Thinks books are fun	-.060*	-.050	-.038	.082**	.333**	.092**	.087**	.056*	.062*	.040	1.00	
(12) Participated in a vocational activity	-.034	.019	.009	.040	-.015	.035	.024	.092**	.026	.091**	.025	1.00

Subsection 4c: Multivariate Analyses

Model 1: Main Effects of Parent Background and Gender on Major Choices

In *Table 6, Model 1* tests for *Hypotheses 1* and *2,* analyzing gender and parental background as predictor variables and major choices as the outcome variable. As a reminder, STEM/Engineering is used as the reference category for this analysis. Starting with the main effects of parental background on area of study, results failed to show that parental background significantly affected major choice. Therefore, there is a lack of support for *Hypothesis 1*.

However, there are highly significant gender differences in major choices. Men are more likely to choose STEM/Engineering than *any* other area of study. In terms of order of likelihood, men are the least likely to choose Health over STEM/Engineering, followed by Communication, Education, Social Sciences, Architecture Arts and Humanities, Natural Sciences, and Business and Economics. For example, looking at the Odds Ratios in *Table 6*, men's odds of enrolling in education are about 9.174 (1/.109) times lower than women's.

Table 6. *Model 1: Main Effects of Parent Background and Gender on Major Choices*

Area of Study	Outcome	LogOdds	OddsRatio	p-value	Sign
Architecture, Arts, and Humanities	Intercept	1.030			
	Men	-1.810	0.160	<.001	***
	Whitecollar	0.430	1.530	0.117	
Business and Economics	Intercept	0.754			
	Men	-1.183	0.306	<.001	***
	Whitecollar	0.059	1.061	0.804	
Communication	Intercept	-1.498			
	Men	-2.404	0.090	<.001	***
	Whitecollar	0.407	1.502	0.205	
Education	Intercept	0.105			
	Men	-2.217	0.109	<.001	***
	Whitecollar	-0.064	0.938	0.827	
Health	Intercept	1.726			
	Men	-2.455	0.086	<.001	***
	Whitecollar	-0.401	0.670	0.126	
Natural Sciences	Intercept	-0.114			
	Men	-1.537	0.215	<.001	***

	Whitecollar	-0.410	0.959	0.887	
Social Sciences	Intercept	0.180			
	Men	-1.833	0.160	<.001	***
	Whitecollar	0.092	1.097	0.721	
Chi^2		306.994	<.001***		
Sample Size		1317			

Note: STEM/Engineering is the reference category. Significance levels are labeled as follows: P<.05*, p<.01**, p<.001***. All models include control variables.

Overall, Health and Communication are the most common major choices of women over STEM/engineering compared to men. However, Education, Architecture Arts and Humanities, and Social Sciences are not far behind. The most prominent finding is that men are still more likely to choose STEM/Engineering over *any* other area of study, showing a massive gender influence in major choices. These findings support *Hypothesis 2.*

Model 2: Parent Background and Gender Interaction Effects on Major Choices

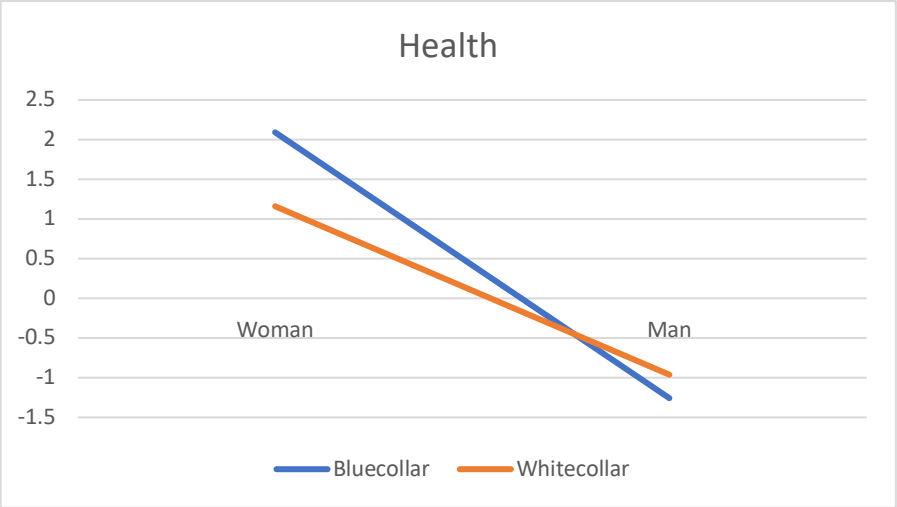
In *Table 7*, *Model 2* tests for *Hypothesis 5,* by adding gender as a moderator of parental background. Blue-collar women are the reference category across models. For most majors, there is no significant interaction between gender and background, meaning the effect of parental background is the same for men and women. However, interaction effects appear in Health (see *Model 2*). Specifically, white-collar women are 2.538 times (1/0.394 = 2.538) less likely to enroll in Health compared to blue-collar women. However, there are no significant class differences among men when choosing Health as a major. Therefore, there is some support for *Hypothesis 5* (see *Figure 2* and *Table 7*). This is illustrated in *Figure 2* and *Table 7* for ease of interpretation.

Table 7. *Model 2: Parent Background and Gender Interaction Effects on Major Choices*

Area of Study	Outcome Variables	LogOdds	OddsRatio	p-value	Sign
Architecture, Arts, and Humanities	Intercept	1.060			
	Men	-1.810	0.160	<.001	***
	Whitecollar	0.390	1.480	0.392	
	Whitecollar*Men	0.010	1.010	0.983	
Business and Economics	Intercept	0.999			
	Men	-1.723	0.178	<.001	***
	Whitecollar	-0.292	0.747	0.496	
	Whitecollar*Men	0.737	2.090	0.153	
Communication	Intercept	-1.425			
	Men	-2.518	0.081	<.001	***
	Whitecollar	0.307	1.359	0.524	
	Whitecollar*Men	0.154	1.167	0.825	
Education	Intercept	0.194			
	Men	-2.361	0.094	<.001	***
	Whitecollar	-0.185	0.831	0.687	
	Whitecollar*Men	0.191	1.210	0.763	
Health	Intercept	2.092			
	Men	-3.350	0.035	<.001	***
	Whitecollar	-0.932	0.394	0.027	**
	Whitecollar*Men	1.228	3.413	0.04	*
Natural Sciences	Intercept	-0.150			
	Men	-1.384	0.251	0.009	**
	Whitecollar	0.017	1.017	0.972	
	Whitecollar*Men	-0.213	0.808	0.727	
Social Sciences	Intercept	0.408			
	Men	-2.348	0.096	<.001	***
	Whitecollar	-0.232	0.793	0.591	
	Whitecollar*Men	0.699	2.012	0.208	
Chi^2	321.367	<.001***			
Sample Size		1317			

Note: STEM/Engineering is the reference category. Significance levels are labeled as follows: P<.05*, p<.01**, p<.001***. All models include control variables.

Figure 2. *Parental Background and Gender Interaction Effects of Health As An Area of Study Using Odds Ratio Coefficients*



Note: Results predicted based on regression results in Table 7.

Model 3: Attitudes as a Mediator of Parent Background and Gender Interaction Effects on Major Choices

Table 8 shows *Model 3*, which builds off *Model 2* and adds attitudes to the model of gender and parent background on area of study choices. This model tests for *Hypotheses 3* and *4*.

Table 8. *Model 3: Attitudes as a Mediator of Parent Background and Gender Interaction Effects on Major Choices*

Area of Study	Outcome Variables	LogOdds	OddsRatio	p-value	Sign
Architecture, Arts, and Humanities	Intercept	0.860			
	Men	-1.380	0.250	0.007	**
	Whitecollar	0.330	1.390	0.458	
	Whitecollar*Men	-0.070	0.930	0.905	
	Math ability based	0.090	1.100	0.646	
	Math is fun	-0.830	0.440	<.001	***
	Reading is fun	0.650	1.910	<.001	***
Business and Economics	Intercept	1.710			
	Men	-1.625	0.197	<.001	***
	Whitecollar	-0.329	0.719	0.431	
	Whitecollar*Men	0.756	2.129	0.138	
	Math ability based	0.192	1.211	0.299	

	Math is fun	-0.454	0.635	<.001	***
	Reading is fun	-0.017	0.984	0.892	
Communication	Intercept	-0.206			
	Men	-2.195	0.111	<.001	***
	Whitecollar	0.255	1.291	0.593	
	Whitecollar*Men	0.129	1.137	0.854	
	Math ability based	0.115	1.122	0.629	
	Math is fun	-0.973	0.378	<.001	***
	Reading is fun	0.267	1.306	0.081	
Education	Intercept	1.950			
	Men	-2.134	0.118	<.001	***
	Whitecollar	-0.207	0.813	0.648	
	Whitecollar*Men	0.181	1.198	0.775	
	Math ability based	-0.127	0.881	0.599	
	Math is fun	-0.809	0.445	<.001	***
	Reading is fun	0.128	1.136	0.408	
Health	Intercept	3.275			
	Men	-3.117	0.042	<.001	***
	Whitecollar	-0.960	0.383	0.020	*
	Whitecollar*Men	1.224	3.399	0.041	*
	Math ability based	0.030	1.030	0.893	
	Math is fun	-0.633	0.531	<.001	***
	Reading is fun	0.0750	1.078	0.598	
Natural Sciences	Intercept	-0.418			
	Men	-1.226	0.293	0.019	*
	Whitecollar	-0.030	0.970	0.949	
	Whitecollar*Men	-0.219	0.803	0.718	
	Math ability based	0.272	1.313	0.237	
	Math is fun	-0.379	0.685	0.019	*
	Reading is fun	0.198	1.218	0.196	
Social Sciences	Intercept	1.162			
	Men	-1.971	0.139	<.001	***
	Whitecollar	-0.278	0.757	0.513	
	Whitecollar*Men	0.645	1.906	0.245	
	Math ability based	0.015	1.015	0.941	
	Math is fun	-0.910	0.402	<.001	***
	Reading is fun	0.445	1.561	<.001	***
Chi^2	387.756	<.001***			
Sample Size		1317			

Note: STEM/Engineering is the reference category. Significance levels are labeled as follows: P<.05*, p<.01**, p<.001***. All models include control variables.

The coefficients measuring the relationship between parental background on area of study do not change significantly between *Model 2* and *Model 3 (*see *Tables 7* and *8)*. This means that the attitudes *do not* have a significant indirect effect on the proposed relationship. Therefore, *Hypothesis 3* is not supported.

Additionally, the coefficients measuring the relationship between gender on area of study do not change substantially across models. Thus, attitudes do not have a significant indirect effect on this relationship either. Therefore, *Hypothesis 4* is not supported.

Model 4: Cultural Capital as a Mediator of Parent Background and Gender Interaction Effects on Major Choices

Finally, *Table 9* shows *Model 4*, I build off *Model 2* and add cultural capital as a proposed partial mediator on area of study choices. This model tests *Hypotheses 6* and *7*.

Table 9. *Model 4: Cultural Capital as a Mediator of Parent Background and Gender Interaction Effects on Major Choices*

Area of Study	Outcome Variables	LogOdds	OddsRatio	p-value	Sign
Architecture, Arts, and Humanities					
	Intercept	0.57			
	Men	-1.88	0.15	<.001	***
	Whitecollar	0.37	1.45	0.423	
	Whitecollar*Men	0.15	1.17	0.791	
	Reads books for fun	0.20	1.220	0.159	
	Attended Career Academy	-1.01	0.370	0.087	
	Participated in Yearbook/Newspaper	0.46	1.590	0.264	
	Participated in an Academic Club	-0.69	0.500	0.036	*
	Participated in Band or Chorus	0.50	1.650	0.062	
	Participated in a Play or Musical	1.14	3.110	<.001	***
	Participated in Vocational Activities	0.82	2.260	0.264	
Business and Economics	Intercept	0.982			
	Men	-1.766	0.171	<.001	***
	Whitecollar	-0.276	0.759	0.524	
	Whitecollar*Men	0.780	2.182	0.135	
	Reads books for fun	0.022	1.023	0.871	

	Attended Career Academy	-0.374	0.688	0.410	
	Participated in Yearbook/Newspaper	0.479	1.615	0.235	
	Participated in an Academic Club	-0.465	0.628	0.121	
	Participated in Band or Chorus	-0.172	0.842	0.523	
	Participated in a Play or Musical	0.209	1.232	0.562	
	Participated in Vocational Activities	1.479	4.389	0.021	*
Communication	Intercept	-1.38			
	Men	-2.504	0.082	<.001	***
	Whitecollar	0.261	1.298	0.591	
	Whitecollar*Men	0.21	1.234	0.765	
	Reads books for fun	-0.123	0.884	0.485	
	Attended Career Academy	0.122	1.130	0.831	
	Participated in Yearbook/Newspaper	1.314	3.721	0.002	**
	Participated in an Academic Club	-0.021	0.979	0.953	
	Participated in Band or Chorus	-0.075	0.928	0.820	
	Participated in a Play or Musical	0.763	2.144	0.061	
	Participated in Vocational Activities	-0.349	0.706	0.721	
Education	Intercept	-0.254			
	Men	-2.402	0.091	<.001	***
	Whitecollar	-0.161	0.851	0.729	
	Whitecollar*Men	0.279	1.322	0.663	
	Reads books for fun	0.222	1.249	0.165	
	Attended Career Academy	-0.707	0.493	0.270	
	Participated in Yearbook/Newspaper	0.381	1.464	0.423	
	Participated in an Academic Club	-0.896	0.408	0.036	*
	Participated in Band or Chorus	0.368	1.445	0.235	
	Participated in a Play or Musical	0.726	2.066	0.068	
	Participated in Vocational Activities	0.956	2.602	0.239	
Health	Intercept	2.272			
	Men	-3.401	0.033	<.001	***
	Whitecollar	-0.982	0.375	0.021	
	Whitecollar*Men	1.296	3.655	0.033	*
	Reads books for fun	-0.087	0.917	0.583	
	Attended Career Academy	-0.777	0.460	0.160	
	Participated in Yearbook/Newspaper	0.311	1.365	0.491	
	Participated in an Academic Club	0.057	1.059	0.863	
	Participated in Band or Chorus	-0.120	0.887	0.692	
	Participated in a Play or Musical	0.494	1.638	0.210	
	Participated in Vocational Activities	0.869	2.384	0.247	
Natural Sciences	Intercept	-0.26			
	Men	-1.405	0.245	0.008	**
	Whitecollar	-0.086	0.917	0.858	
	Whitecollar*Men	-0.122	0.885	0.842	
	Reads books for fun	0.045	1.046	0.783	
	Attended Career Academy	-1.547	0.213	0.070	

	Participated in Yearbook/Newspaper	0.370	1.448	0.411	
	Participated in an Academic Club	0.697	2.007	0.022	*
	Participated in Band or Chorus	0.135	1.144	0.658	
	Participated in a Play or Musical	0.315	1.370	0.439	
	Participated in Vocational Activities	0.673	1.960	0.404	
Social Sciences	Intercept	0.241			
	Men	-2.378	0.093	<.001	***
	Whitecollar	-0.242	0.785	0.580	
	Whitecollar*Men	0.769	2.157	0.173	
	Reads books for fun	0.081	1.085	0.573	
	Attended Career Academy	-0.300	0.741	0.542	
	Participated in Yearbook/Newspaper	0.707	2.027	0.081	
	Participated in an Academic Club	-0.459	0.632	0.145	
	Participated in Band or Chorus	-0.108	0.897	0.697	
	Participated in a Play or Musical	0.780	2.181	0.027	*
	Participated in Vocational Activities	0.399	1.490	0.597	
Chi^2		376.987	<.001***		
Sample Size			1317		

Note: STEM/Engineering is the reference category. Significance levels are labeled as follows: P<.05*, p<.01**, p<.001***. All models include control variables.

The coefficients measuring the relationship between parental background on area of study do not change significantly between *Model 2* and *Model 4* (see *Tables 7* and *9*). Thus, cultural capital does not have a significant indirect effect on the proposed relationship. Therefore, *Hypothesis 6* is not supported.

Additionally, the coefficients measuring the moderated relationship of parental background and gender on area of study do not change significantly across models, Thus, cultural capital does not have a significant indirect effect on this relationship. Therefore, *Hypothesis 7* is not supported.

CHAPTER 5: DISCUSSION

This study aimed to see the effects of blue-collar backgrounds, gender, attitudes, and cultural capital on area of study choices. Starting with parental background, Social Reproduction theory posits that children coming from certain social and economic backgrounds will remain in their social class (Bourdieu 1974, 1977, 1986). Some of these patterns are repeated based on similar career and educational choices. I examined this question using the ELS:2002 – a representative study of high school graduates.

For the most part, parental background does not seem to influence area of study choices. Blue-collar students were expected to choose more "practical" majors and white-collar students tend to choose more financially ambiguous areas of study such as Communications and Architecture, Arts and Humanities. The only significant main effect from background to area of study was Health. Implications of this finding are discussed further below (Bourdieu 1974, 1977, 1986; Corak, 2013; Chetty et al., 2016).

The current study also examines gender, specifically as a moderator in the proposed relationship. In the Social Reproduction literature, gender is not always included as a mechanism that intersects with class to make certain life choices, such as area of study (Kezar et al., 2020). This is unfortunate, as class background differences often depend on gender (Altonji et al., 2012; Morgan et al., 2013; Mullen, 2014).

As anticipated, gender has a significant effect on *all* major choices. Men still tend to choose STEM/Engineering as an area of study over *any* other major. They are less likely to choose Health, Communications, and Education as an area of study, more traditionally occupied by women.

Furthermore, interaction effects appear as well, but only on Health as an area of study. Interestingly, blue-collar women are significantly more likely than white-collar women to enroll in Health. However, there are no background differences among men.

Furthermore, Social Reproduction posits that individuals acquire attitudes from their family associated with their class (Bourdieu 1974, 1977, 1986; Lamont & Lareau, 1988). For example, lower-class individuals tend to have the attitude that careers and corresponding majors should have clear trajectories. They also are less likely to enjoy subjects such as reading and writing and are more likely to believe that excelling in a hard subject is ability-based (Wilkins, 2014, Trejo, 2016). Thus, I decided to test whether attitudes that were concrete, specific, and in an educational context mediated the relationship between one's background and gender on their area of study choices.

Surprisingly, attitudes did not mediate the moderated relationship between parental background and gender on area of study choices. Even more surprising, in some instances parental background and gender effects become *slightly stronger, once I control for attitudes.* The results suggest that these attitudes are not a driving factor for why individuals from certain backgrounds choose different majors. This will be further addressed later in the discussion.

Social reproduction theory also asserts that *cultural capital* is evident when students enter the educational system and workforce (Bourdieu 1974, 1977, 1986). Upper-class individuals, many of whom have white-collar backgrounds, tend to participate in more "cultural" activities such as art and music. On the other hand, lower class, often blue-collar individuals, are more likely to participate in vocational or technical activities (Alvermann, 2009). These subjects are in alignment with certain majors. Thus, I decided to test cultural capital as an additional mediator.

Interestingly, cultural capital did not mediate the relationship between parental background and area of study choices. In the bivariate relationships, measures of cultural capital did correlate with some backgrounds as expected (e.g., being from a white-collar background is significantly correlated with being in an academic club). However, controlling for various measures of cultural capital failed to account for gender and parental background effects.

Finally, there is evidence that cultural capital is highly gendered (Dumais, 2002). For example, women are more likely to participate in cultural activities (Dumais, 2002). However, there was no significant indirect effect on gender and area of study.

Overall, findings suggest that gender has an undeniably strong influence on area of study choices, and background has a marginal influence. However, as mentioned earlier, attitudes did not significantly affect these major choices at all. These findings have two main implications: either 1) a parent's social background, class-based attitudes, and cultural capital may not affect major choices, or 2) social background and gender may not match onto attitudes or cultural capital as much as they used to. These implications are further expanded upon below.

Subsection 5a: Implications

First, despite substantial gender influences, the parent's social background may not affect major choices. In this study, I measure class based on a parent's social background, whether that is blue-collar or white-collar. This is correlated with, but distinct, from socioeconomic status (Lucas & Beresford, 2010). Specifically, a parent can be in a blue-collar job but make a high income. Therefore, choices may not be as straightforward coming from a social class, rather than a socioeconomic class.

The current sample also only included people who went to college and successfully obtained their degrees. This sample might be a select group of individuals from blue-collar

backgrounds that got substantial emotional or financial support from parents to complete this degree. Thus, students may have been afforded opportunities to support educational aspirations different from blue-collar students not attending college.

Additionally, the child's attitudes or cultural capital may not affect major choices. Other forms of capital can limit the child's choice substantially. Specifically, there are *social capital* differences among classes. Parents have a large say in what major their child chooses and are often one of the few points of access when making these decisions (Ma, 2009). There is evidence that lower-class parents ask their children to confirm their college major before college entry more often than upper-class students (Thompson et al., 2018). These majors are often "practically" oriented out of fear that their child's major will not lead to stable job outcomes (Thompson et al., 2018). Due to limited social network access in the education system for lower-class students, they may rely more on their parent's decision-making compared to white-collar students. White-collar students tend to have wider networks with more knowledge of higher education and its outcomes (Trejo, 2016; Wilbur & Roscigno, 2016).

This issue also applies to gender. Parents with gender-stereotypical attitudes in terms of job outcomes have a large say in their child's major choices (Thompson et al., 2018). There is some evidence that by expanding their social network, women have the opportunity to learn more about STEM and other male-dominated majors (Avolio et al., 2020). After reviewing the literature, Avolio et al. show that with more exposure via social networks, their attitudes tend to be more positive toward traditionally male-oriented jobs, resulting in higher enrollment in said jobs (2020).

Additionally, there are *financial capital* influences behind these choices (Bathmaker et al., 2013; Skeggs, 2011; Thomsen et al., 2013; Trejo, 2016). Students may hold positive attitudes

toward math and reading. As for cultural capital, blue-collar students may have some high-brow preferences or participate in academic status clubs. However, the financial implications of a major may be more influential. For example, lower-class students may want to be an expert in a Humanities field, but due to ambiguous financial outcomes, may not be able to choose that major (Kinsler & Pavan, 2015; Trejo 2016). This highlights the impact of the larger structural issues, in which individuals are often confined to certain choices due to systematic issues. Overall, students' attitudes may not predict area of study choices very well.

The second implication is that gender and parental background do not match onto attitudes and cultural capital as much as they used to. Starting with gender, literature shows that women have more positive attitudes toward math and STEM/Engineering majors than in years past (Avolio et al., 2020; Carli et al., 2016; Stout et al., 2016). The results of this shift are a higher average enrollment of women in STEM and male-dominated majors (Avolio et al., 2020; Carli et al., 2016; Stout et al., 2016). This overlaps with cultural "science capital", where women are accumulating it more than in years past (Archer et al., 2015).

However, women still have more negative attitudes toward STEM/Engineering career prospects compared to men (Avolio et al., 2020; Carli et al., 2016; Stout et al., 2016). Additionally, there is evidence that women still prefer more people-oriented jobs that influence their major and career choices (Sax et al., 2016). Additionally, men still have more "science capital" while women have more "arts" capital (Archer et al., 2015). Thus, *gendered* cultural capital and its influences on major choices may need further investigation.

As for class, there is evidence of attitude changes. For example, research shows that lower-class parents more often encourage their children to get at least a bachelor's degree than they used to (Trejo, 2016). There is evidence of this attitude change translating to their first-

generation and lower-income children (McKay & Devlin, 2016). In fact, recent studies show that lower-income students have more positive attitudes and determination in school than ever before (McKay & Devlin, 2016).

That being said, there is still substantially less research on differences in class-based attitudes. Compared to a wider avenue of research done on the emotional, psychological, and identity-based experiences of first-generation and lower-income students, class-based attitudes are lagging behind (e.g., Jury et al., 2017).

In terms of cultural capital, there are recent opportunities for lower-class students to acquire greater capital. For example, there are opportunities for them to acquaint themselves with more "cultural" activities through school assistance programs (Dumais & Ward, 2010). Additionally, some schools aid lower-income students to help them with language use and other useful knowledge when applying for schools or picking majors (Dumais & Ward, 2010). Thus, lower-income students with college aspirations may have the opportunity to enhance their cultural capital in the academic realm.

Subsection 5b: Future Directions

The gap between the rich and the poor is still wide (Beller & Hout, 2006). Thus, there is room for more research on Social Reproduction and educational choices. One major contribution of this paper is that gender cannot be ignored in Social Reproduction theory. There are some feminist versions of Social Reproduction theories, however, Social Reproduction scholars often fail to accurately understand the "intricate interplay with other principles of inequality, such as race and gender" (J. Collins, 2009, p. 35).

Furthermore, one can have a further intersectional lens and gauge how coming from a blue-collar background intersects with not only gender but race, first-generation status, etc.

There is evidence of other demographic identities such as race influencing educational and career decisions (Ma, 2009, 2011b; Mullen, 2014). For example, race is highly related to class and may shed additional light on these choices (J. Collins, 2009). There is lesser research on class attitudes towards work and education by race, which could further extend an understanding of area of study choices.

Additionally, in my study, I grouped jobs into "blue-collar" and "white-collar" categories. In the process, I eliminated other jobs that might be classified as service, pink collar, or "other" (Barnes et al., 2021). There is evidence that these types of jobs might have some influence on income (Barnes et al., 2021). Pink-collar jobs are also associated with lower income (Barnes et al., 2021) and are understudied in terms of how parents in this job sector influence their children's education and careers.

Finally, this study does not examine educational levels above or below a bachelor's degree. It is not uncommon for Liberal Arts and Humanities majors to continue their education with a master's or doctoral degree. In fact, certain majors are more likely to result in a continued graduate education than others, for example, psychology and biology (Monaghan & Jang, 2017). Not surprisingly, the literature explains that white-collar students are more likely to pursue graduate degrees, which could account for some of their major choices.

Subsection 5c: Limitations

Despite substantial contributions to educational outcome research, there are some limitations to the study. Although my study uses highly representative data, I cannot assert causality. There is certainly a high correlation between parental background/gender and area of study choices. However, I cannot definitively say these variables cause area of study choices or a

result of them. To assert causality, an experiment, longitudinal study, or advanced analyses such as propensity scoring would need to take place (Haukoos & Lewis, 2015).

Subsection 5d: Conclusion

Gaps between the rich and the poor continue to permeate the United States population (Beller & Hout, 2006). Educational attainment in the United States continues to gain attention as there is potential for education to be an equalizing or hindering force (Corak, 2013; Manzoni & Streib, 2019). Due to social reproductive forces over time, it is essential to examine parental influences in the process. The current study suggests that coming from a blue-collar or white-collar background does influence major choices.

Social Reproduction theory focuses on class, but a plethora of research fails to incorporate its interaction with gender (Kezar et al., 2020). This is troublesome, as Intersectionality Theory asserts that class and gender are *interdependent* (Sibbett, 2020) in education and career outcomes.

The current study suggests that gender continues to have a strong influence on major choices, however, parental background has a lesser influence. Additionally, when considering the field of study choices, class effects rarely depend on students' gender. However, health does. There are significant background differences among women, but not men. This highlights the complex nature in which gender and background interact to predict major choices.

Furthermore, Social Reproduction literature often mentions students' attitudes as an influence on their life decisions (Bourdieu 1974, 1977, 1986). However, research focuses less attention on how these *attitudes* act as a mediator in the process of area of study choices. Interestingly, attitudes did not mediate these choices, implying that either these attitudes do not predict major choices or attitudes have changed over time. Finally, Social Reproduction literature

focuses on cultural capital as an influence on educational and occupational outcomes (Bourdieu 1974, 1977, 1986). Studies on cultural capital typically examine its influence on achievement and academic performance but lesser on how higher educational choices are made. However, cultural capital did not mediate these relationships.

Overall, due to these conflicting results, there is still a lot to be studied in terms of what predicts major choices across classes. Major choices influence the careers that students from varying backgrounds land, impacting whether they repeat their family's situation over generations. Thus, Social Reproduction is necessary to study in an educational and career context to better understand the forces that keep families in similar circumstances over time.

References

Ajzen, I., & Fishbein, M. (2005). *THE INFLUENCE OF ATTITUDES ON BEHAVIOR*.

Altonji, J. G., Blom, E., & Meghir, C. (2012). Heterogeneity in Human Capital Investments: High School Curriculum, College Major, and Careers. *Annual Review of Economics*, *4*(1), 185–223. https://doi.org/10.1146/annurev-economics-080511-110908

Anjum, M. A., & Parvez, A. (n.d.). *Counterproductive Behavior at Work: A Comparison of Blue Collar and White Collar Workers*. 19.

Archer, L., Dawson, E., DeWitt, J., Seakins, A., & Wong, B. (2015). "Science capital": A conceptual, methodological, and empirical argument for extending bourdieusian notions of capital beyond the arts. *Journal of Research in Science Teaching*, *52*(7), 922–948. https://doi.org/10.1002/tea.21227

Arcidiacono, P., Aucejo, E. M., & Spenner, K. (2012). What happens after enrollment? An analysis of the time path of racial differences in GPA and major choice. *IZA Journal of Labor Economics*, *1*(1), 5. https://doi.org/10.1186/2193-8997-1-5

Aschaffenburg, K., & Maas, I. (1997). Cultural and Educational Careers: The Dynamics of Social Reproduction. *American Sociological Review*, *62*(4), 573. https://doi.org/10.2307/2657427

Avolio, B., Chávez, J., & Vílchez-Román, C. (2020). Factors that contribute to the underrepresentation of women in science careers worldwide: A literature review. *Social Psychology of Education*, *23*(3), 773–794. https://doi.org/10.1007/s11218-020-09558-y

Azaola, M. C. (2012). Revisiting Bourdieu: Alternative educational systems in the light of the theory of social and cultural reproduction. *International Studies in Sociology of Education*, *22*(2), 81–95. https://doi.org/10.1080/09620214.2012.700187

Barnes, T. D., Beall, V. D., & Holman, M. R. (2021). Pink-Collar Representation and Budgetary Outcomes in US States. *Legislative Studies Quarterly*, *46*(1), 119–154. https://doi.org/10.1111/lsq.12286

Bathmaker, A.-M., Ingram, N., & Waller, R. (2013). Higher education, social class and the mobilisation of capitals: Recognising and playing the game. *British Journal of Sociology of Education*, *34*(5–6), 723–743. https://doi.org/10.1080/01425692.2013.816041

Beller, E., & Hout, M. (2006). Intergenerational Social Mobility: The United States in Comparative Perspective. *The Future of Children*, *16*(2), 19–36. https://doi.org/10.1353/foc.2006.0012

Blackwell, E., & Pinder, P. (2014). *What are the Motivational Factors of First-Generation Minority College Students who Overcome their Family Histories to Pursue Higher Education?* 12.

Blandin, A., & Herrington, C. (n.d.). *Family Structure, Human Capital Investment, and Aggregate College Attainment*. 51.

Carli, L. L., Alawa, L., Lee, Y., Zhao, B., & Kim, E. (2016). Stereotypes About Gender and Science: Women ≠ Scientists. *Psychology of Women Quarterly*, *40*(2), 244–260. https://doi.org/10.1177/0361684315622645

Carnevale, A. P., & Rose, S. J. (n.d.). *SOCIOECONOMIC STATUS, RACE/ETHNICITY, AND SELECTIVE COLLEGE ADMISSIONS*. 56.

Çokluk, Ö. (2010). *Logistic Regression: Concept and Application*.

Collins, J. (2009). Social Reproduction in Classrooms and Schools. *Annual Review of Anthropology*, *38*(1), 33–48. https://doi.org/10.1146/annurev.anthro.37.081407.085242

Collins, R. (1971). Functional and Conflict Theories of Educational Stratification. *American Sociological Review*, *36*(6), 1002. https://doi.org/10.2307/2093761

Contreras, F. (2011). Strengthening the Bridge to Higher Education for Academically Promising Underrepresented Students. *Journal of Advanced Academics*, *22*(3), 500–526. https://doi.org/10.1177/1932202X1102200306

Cook, D. A., & Williams, T. J. (2015). Expanding Intersectionality: Fictive Kinship Networks as Supports for the Educational Aspirations of Black Women. *The Western Journal o f Black Studies*, *39*(2).

Corak, M. (2013). Income Inequality, Equality of Opportunity, and Intergenerational Mobility. *Journal of Economic Perspectives*, *27*(3), 79–102. https://doi.org/10.1257/jep.27.3.79

Cunningham, P. H., Tang, T. L.-P., Frauman, E., Ivy, M. I., & Perry, T. L. (2012). Leisure Ethic, Money Ethic, and Occupational Commitment among Recreation and Park Professionals: Does Gender Make a Difference? *Public Personnel Management*, *41*(3), 421–448. https://doi.org/10.1177/009102601204100303

Davis, J., Anderson, C., & Parker, W. (2019). Identifying and Supporting Black Male Students in Advanced Mathematics Courses Throughout the K-12 Pipeline. *Gifted Child Today*, *42*(3), 140–149. https://doi.org/10.1177/1076217519842234

Davis, R. S. (2011). Blue-Collar Public Servants: How Union Membership Influences Public Service Motivation. *The American Review of Public Administration*, *41*(6), 705–723. https://doi.org/10.1177/0275074010392367

Dumais, S. A. (2002). Cultural Capital, Gender, and School Success: The Role of Habitus. *Sociology of Education*, *75*(1), 44. https://doi.org/10.2307/3090253

Dumais, S. A., & Ward, A. (2010). Cultural capital and first-generation college success. *Poetics*, *38*(3), 245–265. https://doi.org/10.1016/j.poetic.2009.11.011

Dworkin, A. G., Ballantine, J., Antikainen, A., Barbosa, M. L., Konstantinovskiy, D., Saha, L. J., Essack, S., Chang, J., Vryonides, M., & Teodoro, A. (2013). The sociology of education. *Sociopedia*. https://doi.org/10.1177/2056846013122

Ferrare, J. J. (2021). *"Since I Am From Where I Am From": How Rural and Urban First-Generation College Students Differentially Use Social Capital to Choose a College Major*. https://doi.org/10.26209/JRRE3706

Flores, S. M., Park, T. J., & Baker, D. J. (2017). The Racial College Completion Gap: Evidence From Texas. *The Journal of Higher Education*, *88*(6), 894–921. https://doi.org/10.1080/00221546.2017.1291259

Ford, D. Y. (2014). Segregation and the Underrepresentation of Blacks and Hispanics in Gifted Education: Social Inequality and Deficit Paradigms. *Roeper Review*, *36*(3), 143–154. https://doi.org/10.1080/02783193.2014.919563

Frenzel, A. C., Goetz, T., Pekrun, R., & Watt, H. M. G. (2010). Development of Mathematics Interest in Adolescence: Influences of Gender, Family, and School Context: DEVELOPMENT OF MATHEMATICS INTEREST IN ADOLESCENCE. *Journal of Research on Adolescence*, *20*(2), 507–537. https://doi.org/10.1111/j.1532-7795.2010.00645.x

Garrison, H. (2013). Underrepresentation by Race–Ethnicity across Stages of U.S. Science and Engineering Education. *CBE—Life Sciences Education*, *12*(3), 357–363. https://doi.org/10.1187/cbe.12-12-0207

Gooderham, P., Nordhaug, O., Ringdal, K., & Birkelund, G. E. (2004). Job values among future business leaders: The impact of gender and social background. *Scandinavian Journal of Management*, *20*(3), 277–295. https://doi.org/10.1016/j.scaman.2004.01.002

Greene, A. D. (n.d.). *TRACKING WORK: RACE-ETHNIC VARIATION IN VOCATIONAL COURSE PLACEMENT AND CONSEQUENCES FOR ACADEMIC AND CAREER OUTCOMES*. 10.

Gregg, P., Jonsson, J. O., Macmillan, L., & Mood, C. (2017). The Role of Education for Intergenerational Income Mobility: A comparison of the United States, Great Britain, and Sweden. *Social Forces*, *96*(1), 121–152. https://doi.org/10.1093/sf/sox051

Halpern, H. P., & Perry-Jenkins, M. (2016). Parents' Gender Ideology and Gendered Behavior as Predictors of Children's Gender-Role Attitudes: A Longitudinal Exploration. *Sex Roles*, *74*(11–12), 527–542. https://doi.org/10.1007/s11199-015-0539-0

Harris, A., & Leonardo, Z. (2018). Intersectionality, Race-Gender Subordination, and Education. *Review of Research in Education*, *42*(1), 1–27. https://doi.org/10.3102/0091732X18759071

Haukoos, J. S., & Lewis, R. J. (2015). The Propensity Score. *JAMA*, *314*(15), 1637. https://doi.org/10.1001/jama.2015.13480

Hinrichs, P. (2012). The Effects of Affirmative Action Bans on College Enrollment, Educational Attainment, and the Demographic Composition of Universities. *Review of Economics and Statistics*, *94*(3), 712–722. https://doi.org/10.1162/REST_a_00170

Hu, A., & Wu, X. (2019). Science or liberal arts? Cultural capital and college major choice in China. *The British Journal of Sociology*, *70*(1), 190–213. https://doi.org/10.1111/1468-4446.12342

Jackson, M., Luijkx, R., Pollak, R., Vallet, L.-A., & van de Werfhorst, H. G. (2008). Educational Fields of Study and the Intergenerational Mobility Process in Comparative Perspective. *International Journal of Comparative Sociology*, *49*(4–5), 369–388. https://doi.org/10.1177/0020715208093082

Jaeger, M. M. (2009). Equal Access but Unequal Outcomes: Cultural Capital and Educational Choice in a Meritocratic Society. *Social Forces*, *87*(4), 1943–1971. https://doi.org/10.1353/sof.0.0192

Jury, M., Smeding, A., Stephens, N. M., Nelson, J. E., Aelenei, C., & Darnon, C. (2017). The Experience of Low-SES Students in Higher Education: Psychological Barriers to Success and Interventions to Reduce Social-Class Inequality: Low-SES Students in Higher Education. *Journal of Social Issues*, *73*(1), 23–41. https://doi.org/10.1111/josi.12202

Kendricks, K., & Arment, A. (n.d.). *Adopting a K–12 Family Model With Undergraduate Research to Enhance STEM Persistence and Achievement in Underrepresented Minority Students*. 7.

Kezar, A., Hypolite, L., & Kitchen, J. A. (2020). Career Self-Efficacy: A Mixed-Methods Study of an Underexplored Research Area for First-Generation, Low-Income, and Underrepresented College Students in a Comprehensive College Transition Program. *American Behavioral Scientist*, *64*(3), 298–324. https://doi.org/10.1177/0002764219869409

Kim, C., Tamborini, C. R., & Sakamoto, A. (2015). Field of Study in College and Lifetime Earnings in the United States. *Sociology of Education*, *88*(4), 320–339. https://doi.org/10.1177/0038040715602132

Kinsler, J., & Pavan, R. (2015). The Specificity of General Human Capital: Evidence from College Major Choice. *Journal of Labor Economics*, *33*(4), 933–972. https://doi.org/10.1086/681206

Lamont, M., & Lareau, A. (1988). Cultural Capital: Allusions, Gaps and Glissandos in Recent Theoretical Developments. *Sociological Theory*, *6*(2), 153. https://doi.org/10.2307/202113

Lechner, C. M., Sortheix, F. M., Obschonka, M., & Salmela-Aro, K. (2018). What drives future business leaders? How work values and gender shape young adults' entrepreneurial and leadership aspirations. *Journal of Vocational Behavior*, *107*, 57–70. https://doi.org/10.1016/j.jvb.2018.03.004

Legewie, J., & DiPrete, T. A. (2012). School Context and the Gender Gap in Educational Achievement. *American Sociological Review*, *77*(3), 463–485. https://doi.org/10.1177/0003122412440802

Lett, E., Orji, W. U., & Sebro, R. (2018). Declining racial and ethnic representation in clinical academic medicine: A longitudinal study of 16 US medical specialties. *PLOS ONE*, *13*(11), e0207274. https://doi.org/10.1371/journal.pone.0207274

Lucas, S. R., & Beresford, L. (2010). Naming and Classifying: Theory, Evidence, and Equity in Education. *Review of Research in Education*, *34*(1), 25–84. https://doi.org/10.3102/0091732X09353578

Ma, Y. (2009). Family Socioeconomic Status, Parental Involvement, and College Major Choices—Gender, Race/Ethnic, and Nativity Patterns. *Sociological Perspectives*, *52*(2), 211–234. https://doi.org/10.1525/sop.2009.52.2.211

Ma, Y. (2011a). College major choice, occupational structure and demographic patterning by gender, race and nativity. *The Social Science Journal*, *48*(1), 112–129. https://doi.org/10.1016/j.soscij.2010.05.004

Ma, Y. (2011b). College major choice, occupational structure and demographic patterning by gender, race and nativity. *The Social Science Journal*, *48*(1), 112–129. https://doi.org/10.1016/j.soscij.2010.05.004

Manstead, A. S. R. (2018). The psychology of social class: How socioeconomic status impacts thought, feelings, and behaviour. *British Journal of Sociology of Education*, *57*, 267–291.

Manzoni, A., & Streib, J. (2019). The Equalizing Power of a College Degree for First-Generation College Students: Disparities Across Institutions, Majors, and Achievement Levels. *Research in Higher Education*, *60*(5), 577–605. https://doi.org/10.1007/s11162-018-9523-1

McGeown, S. P., Johnston, R. S., Walker, J., Howatson, K., Stockburn, A., & Dufton, P. (2015). The relationship between young children's enjoyment of learning to read, reading attitudes, confidence and attainment. *Educational Research*, *57*(4), 389–402. https://doi.org/10.1080/00131881.2015.1091234

McKay, J., & Devlin, M. (2016). 'Low income doesn't mean stupid and destined for failure': Challenging the deficit discourse around students from low SES backgrounds in higher education. *International Journal of Inclusive Education*, *20*(4), 347–363. https://doi.org/10.1080/13603116.2015.1079273

Mickelson, R. A. (2015). The Cumulative Disadvantages of First- and Second-Generation Segregation for Middle School Achievement. *American Educational Research Journal*, *52*(4), 657–692. https://doi.org/10.3102/0002831215587933

Mintz, B., & Krymkowski, D. H. (2010). The Intersection of Race/Ethnicity and Gender in Occupational Segregation: Changes over Time in the Contemporary United States. *International Journal of Sociology*, *40*(4), 31–58. https://doi.org/10.2753/IJS0020-7659400402

Monaghan, D., & Jang, S. H. (2017). Major Payoffs: Postcollege Income, Graduate School, and the Choice of "Risky" Undergraduate Majors. *Sociological Perspectives*, *60*(4), 722–746. https://doi.org/10.1177/0731121416688445

Morgan, S. L. (2012). Models of College Entry in the United States and the Challenges of Estimating Primary and Secondary Effects. *Sociological Methods & Research*, *41*(1), 17–56. https://doi.org/10.1177/0049124112440797

Morgan, S. L., Gelbgiser, D., & Weeden, K. A. (2013). Feeding the pipeline: Gender, occupational plans, and college major selection. *Social Science Research*, *42*(4), 989–1005. https://doi.org/10.1016/j.ssresearch.2013.03.008

Mullen, A. L. (2014). Gender, Social Background, and the Choice of College Major in a Liberal Arts Context. *Gender & Society*, *28*(2), 289–312. https://doi.org/10.1177/0891243213512721

Nash, R. (1990). Bourdieu on Education and Social and Cultural Reproduction. *British Journal of Sociology of Education*, *11*(4), 431–447. https://doi.org/10.1080/0142569900110405

Pérez-Ahumada, P. (n.d.). The End of a Traditional Class Distinction in Neoliberal Society: 'White-collar' and 'Blue-collar' Work and its Impact on Chilean Workers' Class Consciousness. *Critical Sociology*, 18.

Peters, S. J., & Engerrand, K. G. (2016). Equity and Excellence: Proactive Efforts in the Identification of Underrepresented Students for Gifted and Talented Services. *Gifted Child Quarterly*, *60*(3), 159–171. https://doi.org/10.1177/0016986216643165

Piketty, T. (2000). Chapter 8 Theories of persistent inequality and intergenerational mobility. In *Handbook of Income Distribution* (Vol. 1, pp. 429–476). Elsevier. https://doi.org/10.1016/S1574-0056(00)80011-1

Piña-Watson, B., Lorenzo-Blanco, E. I., Dornhecker, M., Martinez, A. J., & Nagoshi, J. L. (2016). Moving away from a cultural deficit to a holistic perspective: Traditional gender role values, academic attitudes, and educational goals for Mexican descent adolescents. *Journal of Counseling Psychology*, *63*(3), 307–318. https://doi.org/10.1037/cou0000133

Robst, J. (2007). Education and job match: The relatedness of college major and work. *Economics of Education Review*, *26*(4), 397–407. https://doi.org/10.1016/j.econedurev.2006.08.003

Rojewski, J. W. (1996). Educational and Occupational Aspirations of High School Seniors with Learning Disabilities. *Exceptional Children*, *62*(5), 463–476. https://doi.org/10.1177/001440299606200506

Roksa, J., & Levey, T. (2010). What Can You Do with That Degree? College Major and Occupational Status of College Graduates over Time. *Social Forces*, *89*(2), 389–415. https://doi.org/10.1353/sof.2010.0085

Saavedra, M., & Twinam, T. (2020). A machine learning approach to improving occupational income scores. *Explorations in Economic History*, *75*, 101304. https://doi.org/10.1016/j.eeh.2019.101304

Sax, L. J., Lehman, K. J., Barthelemy, R. S., & Lim, G. (2016). Women in physics: A comparison to science, technology, engineering, and math education over four decades. *Physical Review Physics Education Research*, *12*(2), 020108. https://doi.org/10.1103/PhysRevPhysEducRes.12.020108

Sibbett, L. (2020). Intersectionality in U.S. Educational Research. In L. Sibbett, *Oxford Research Encyclopedia of Education*. Oxford University Press. https://doi.org/10.1093/acrefore/9780190264093.013.403

Skeggs, B. (2011). Imagining Personhood Differently: Person Value and Autonomist Working-Class Value Practices. *The Sociological Review*, *59*(3), 496–513. https://doi.org/10.1111/j.1467-954X.2011.02018.x

Spinath, B., Eckert, C., & Steinmayr, R. (2014). Gender differences in school success: What are the roles of students' intelligence, personality and motivation? *Educational Research*, *56*(2), 230–243. https://doi.org/10.1080/00131881.2014.898917

Stout, J. G., Grunberg, V. A., & Ito, T. A. (2016). Gender Roles and Stereotypes about Science Careers Help Explain Women and Men's Science Pursuits. *Sex Roles*, *75*(9–10), 490–499. https://doi.org/10.1007/s11199-016-0647-5

Thompson, M. N., Her, P., Nitzarim, R. S., Sampe, M., & Diestelmann, J. (2018). The Transmission of Social Class and World of Work Information in Parent–Adolescent Dyads. *Journal of Career Assessment*, *26*(4), 697–716. https://doi.org/10.1177/1069072717727453

Thomsen, J. P., Munk, M. D., Eiberg-Madsen, M., & Hansen, G. I. (2013). The Educational Strategies of Danish University Students from Professional and Working-Class

Backgrounds. *Comparative Education Review*, *57*(3), 457–480. https://doi.org/10.1086/670806

Trejo, S. (2016). An Econometric Analysis of the Major Choice of First-Generation College Students. *The Developing Economist*, *3*(1). http://www.inquiriesjournal.com/a?id=1407

van der Vleuten, M., Jaspers, E., Maas, I., & van der Lippe, T. (2016). Boys' and girls' educational choices in secondary education. The role of gender ideology. *Educational Studies*, *42*(2), 181–200. https://doi.org/10.1080/03055698.2016.1160821

Wang, M.-T., & Degol, J. L. (2017). Gender Gap in Science, Technology, Engineering, and Mathematics (STEM): Current Knowledge, Implications for Practice, Policy, and Future Directions. *Educational Psychology Review*, *29*(1), 119–140. https://doi.org/10.1007/s10648-015-9355-x

Wegemer, C. M., & Eccles, J. S. (2019). Gendered STEM career choices: Altruistic values, beliefs, and identity. *Journal of Vocational Behavior*, *110*, 28–42. https://doi.org/10.1016/j.jvb.2018.10.020

Wiederkehr, V., Darnon, C., Chazal, S., Guimond, S., & Martinot, D. (2015). From social class to self-efficacy: Internalization of low social status pupils' school performance. *Social Psychology of Education*, *18*(4), 769–784. https://doi.org/10.1007/s11218-015-9308-8

Wilbur, T. G., & Roscigno, V. J. (2016). First-generation Disadvantage and College Enrollment/Completion. *Socius: Sociological Research for a Dynamic World*, *2*, 237802311666435. https://doi.org/10.1177/2378023116664351

Wilkins, A. C. (2014). Race, Age, and Identity Transformations in the Transition from High School to College for Black and First-generation White Men. *Sociology of Education*, *87*(3), 171–187. https://doi.org/10.1177/0038040714537901

Wilson, R. T. (n.d.). *The Relationship Between School and Society: Part II - Conflict Theory*. 3.

Yavorsky, J. E. (2019). Uneven Patterns of Inequality: An Audit Analysis of Hiring-Related Practices by Gendered and Classed Contexts. *Social Forces*, *98*(2), 461–492. https://doi.org/10.1093/sf/soy123

Yeganeh, H., & May, D. (2011). Cultural values and gender gap: A cross-national analysis. *Gender in Management: An International Journal*, *26*(2), 106–121. https://doi.org/10.1108/17542411111116536

APPENDIX A: Student-Institution Pairings on the ELS:2002 Third Follow-up Student-Institution File

Category	Label	Frequency Unweighted	Percent Unweighted
01	Agriculture, Agriculture Operations, and Related Sciences	61	0.29
03	Natural Resources and Conservation	38	0.18
04	Architecture and Related Services	48	0.23
05	Area, Ethnic, Cultural, and Gender Studies	27	0.13
09	Communication, Journalism, and Related Programs	285	1.36
10	Communications Technologies/Technicians and Support Services	48	0.23
11	Computer and Information Sciences and Support Services	181	0.86
12	Personal and Culinary Services	239	1.14
13	Education	616	2.94
14	Engineering	291	1.39
15	Engineering Technologies/Technicians	81	0.39
16	Foreign Languages, Literatures, and Linguistics	49	0.23
19	Family and Consumer Sciences/Human Sciences	63	0.30
22	Legal Professions and Studies	158	0.75
23	English Language and Literature/Letters	135	0.64
24	Liberal Arts and Sciences, General Studies and Humanities	266	1.27
26	Biological and Biomedical Sciences	297	1.42
27	Mathematics and Statistics	62	0.30
30	Multi/Interdisciplinary Studies	68	0.32
31	Parks, Recreation, Leisure, and Fitness Studies	108	0.52
38	Philosophy and Religious Studies	38	0.18
39	Theology and Religious Vocations	41	0.20
40	Physical Sciences	89	0.42
42	Psychology	329	1.57
43	Security and Protective Services	195	0.93
44	Public Administration and Social Service Professions	127	0.61
45	Social Sciences	421	2.01
46	Construction Trades	59	0.28
47	Mechanic and Repair Technologies/Technicians	142	0.68
48	Precision Production	32	0.15
49	Transportation and Materials Moving	38	0.18
50	Visual and Performing Arts	340	1.62
51	Health Professions and Related Clinical Sciences	1,523	7.27
52	Business, Management, Marketing, and Related Support Services	1,345	6.42
54	History	98	0.47
99	Other	39	0.19
-9	Missing	276	1.32
-3	Item legitimate skip/NA	12,698	60.61
TOTAL		20,951	100.00

APPENDIX B: Mother/Female Gaurdian's Occupation-Composite Score

Category	Label	Frequency Unweighted	Percent Unweighted
0	No job for pay	621	3.83
1	Clerical	2,468	15.24
2	Craftsperson	337	2.08
3	Farmer, farm manager	85	0.52
4	Homemaker	751	4.64
5	Laborer	684	4.22
6	Manager, administrator	1,661	10.26
7	Military	28	0.17
8	Operative	637	3.93
9	Professional A	2,178	13.45
10	Professional B	607	3.75
11	Proprietor, owner	364	2.25
12	Protective service	114	0.70
13	Sales	653	4.03
14	School teacher	1,004	6.20
15	Service	2,360	14.57
16	Technical	771	4.76
-9	Missing	47	0.29
-8	Survey component legitimate skip/NA	179	1.11
-4	Nonrespondent	648	4.00
TOTAL		16,197	100.00

APPENDIX C: Father/Male Gaurdian's Occupation-Composite Score

Category	Label	Frequency Unweighted	Percent Unweighted
0	No job for pay	177	1.09
1	Clerical	365	2.25
2	Craftsperson	1,944	12.00
3	Farmer, farm manager	292	1.80
4	Homemaker	387	2.39
5	Laborer	1,611	9.95
6	Manager, administrator	2,251	13.90
7	Military	202	1.25
8	Operative	1,763	10.88
9	Professional A	1,630	10.06
10	Professional B	899	5.55
11	Proprietor, owner	922	5.69
12	Protective service	519	3.20
13	Sales	797	4.92
14	School teacher	217	1.34
15	Service	614	3.79
16	Technical	713	4.40
-9	Missing	66	0.41
-8	Survey component legitimate skip/NA	179	1.11
-4	Nonrespondent	648	4.00
-1	Don't know	1	0.01
TOTAL		16,197	100.00

APPENDIX D: Parent Base Year Questionnaire

c. Which of the categories below comes closest to describing this job?

(MARK ONE RESPONSE)

- ○ CLERICAL such as bank teller, bookkeeper, secretary, typist, mail carrier, ticket agent
- ○ CRAFTSPERSON such as baker, automobile mechanic, machinist, painter, plumber, telephone installer, carpenter
- ○ FARMER, FARM MANAGER
- ○ HOMEMAKER (without other job)
- ○ LABORER such as construction worker, car washer, sanitary worker, farm laborer
- ○ MANAGER, ADMINISTRATOR such as sales manager, office manager, school administrator, buyer, restaurant manager, government official
- ○ MILITARY such as career officer, enlisted man or woman in the Armed Forces
- ○ OPERATIVE such as meat cutter, assembler, machine operator, welder, taxicab, bus or truck driver
- ○ PROFESSIONAL such as accountant, artist, registered nurse, engineer, librarian, writer, social worker, actor, actress, athlete, politician, but not including school teacher
- ○ PROFESSIONAL such as clergy, dentist, physician, lawyer, scientist, college teacher
- ○ PROPRIETOR OR OWNER such as owner of a small business, contractor, restaurant owner
- ○ PROTECTIVE SERVICE such as detective, police officer or guard, sheriff, fire fighter
- ○ SALES such as salesperson, advertising or insurance agent, real estate broker
- ○ SCHOOL TEACHER such as elementary or secondary
- ○ SERVICE such as barber, beautician, practical nurse, private household worker, janitor, waiter or waitress
- ○ TECHNICAL such as draftsperson, medical or dental technician, computer programmer
- ○ OTHER
- ○ DON'TKNOW

APPENDIX E: Exploratory Factor Analysis of Attitudes Results

Rotated Factor Matrix[a]

	Factor							
	1	2	3	4	5	6	7	8
Steadywork	-.003	.021	.025	-.016	-.033	.526	.108	.010
Steadywork2	.000	.028	-.027	-.024	-.019	.502	-.053	-.033
Reverseabilitymath	.020	-.588	-.063	-.045	-.050	-.056	.102	.074
Reverselearngoodmath	.000	.672	.018	-.003	-.005	.034	.190	.084
Reversemathfun	.034	.276	.049	-.116	.187	-.057	.308	.331
ReverseEduLater	.000	.068	.114	-.034	.099	.256	.067	.284
Reversereadingfun	-.022	.064	.129	.119	.662	-.036	.018	.203
MusicArtLang	.017	.029	.078	.353	.085	-.020	-.075	.022
PlayMusical	-.014	-.019	.080	.463	.092	.001	.146	-.061
BandChorus	.033	.005	.042	.585	.054	-.030	.034	.111
Academicclubs	.077	.033	.441	.024	.110	-.001	.087	.082
Vocationalclubs	.681	.008	.043	-.014	-.028	-.007	-.010	.043
AcademicHonor	-.003	-.009	.412	.064	-.028	-.033	.183	.149
HonorSociety	.022	.051	.576	.103	-.031	.069	-.046	.011
YearbookNews	.010	.023	.207	.105	.107	-.013	.053	-.137
BooksFun	.001	.010	.003	.148	.445	-.006	.039	.029
Sciencefair	.019	.026	.210	.031	.073	.004	.401	-.036
Fiftybooks	.003	-.047	.017	.089	.044	-.033	-.032	.205
CareerAcademy	.104	.015	.011	.034	-.014	.063	.156	.024
VocCompetititon	.700	-.034	.058	.046	.025	-.018	.145	-.048
Learnifwant	.005	.206	.217	-.038	.182	.059	.132	.296

Extraction Method: Principal Axis Factoring.
Rotation Method: Varimax with Kaiser Normalization.[a]

a. Rotation converged in 10 iterations.