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Pushing and Pulling Emerging Adults through College: College Generational Status and the Influence of Parents and Others in the First Year

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ABSTRACT

Interview, survey, and academic transcript data with a diverse sample of first generation college (FGC) and continuing generation college (CGC) premedical-intended emerging adults are analyzed to study academic outcomes and any differences in the availability and use of social capital the first year of college. Continuing generation college students know many people with college degrees including those in careers they aspire to obtain, while first generation college students do not. All students identify parents as very important forms of social capital that contribute to their success in college, but the types of support differs by educational background. Students whose parents have at least a bachelor's degree (CGC) are "pulled" through their first year with specific advice from their parents about how to succeed in college while FGC students are "pushed" by their parents with support. In addition, CGC students display evidence of enacting Lareau's (2003) concept of concerted cultivation, being much more likely than FGC students to approach and gain assistance from professors, openly critiquing those professors and classes in which they are not doing well, and showing a sense of entitlement to and confidence in their ability to stay on the premedical track, even when receiving low test scores.

Pushing and Pulling Emerging Adults through College:

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In the United States, emerging adults without a college degree fare significantly worse economically than those with a bachelor's degree (U.S. Bureau of Labor Statistics, 2014). As a result many first generation college students, or students whose parents never attended college, have enrolled in postsecondary education. However, their success in completing a 4-year degree remains stagnant while students whose parents have a college degree or higher continue to graduate at high rates (Chen, 2005; Engle & Tinto, 2008).

While difference in high school quality may explain some of the poor outcomes of first generation college students in higher education, authors also point to the need to understand how other implicit factors beyond high school grade point average and standardized test scores such as having social and cultural capital in the forms of advice from social networks with college backgrounds as well as knowledge of how college works and how to interact appropriately with professors and other professionals, prescribe emerging adults' outcomes in higher education (Cabrera & Padilla, 2004; London, 1992). Pascarella, et al. (2004) argues that even when the academic credentials and motivations of first generation college (FGC) students are equal to continuing generation students (CGC), FGC students are still at a greater risk of "being academically, socially, and economically left behind" (p. 276) and that individual attributes such as grades and determination alone do not solely predict success.

Adding to the issue, researchers are beginning to document the increased involvement of many college-educated parents as social capital in the lives of emerging adults while in college (Nelson, 2010), potentially benefitting these students in the short-term, but possibly thwarting emerging adults' transition to independence. Termed "helicopter parents," these parents are said

to have unprecedented involvement in the daily lives of emerging adults, especially while enrolled in college (Nelson, 2010; Padilla-Walker & Nelson, 2012; Schiffrin, et al. 2014) serving as a direct form of social capital in the lives of emerging adults. Further, who college students know and who their parents know is also a form a social capital that is predicated by social class, with students from higher social classes having more access to people with "high status" and the ability to help them navigate college and the future (Armstrong & Hamilton, 2013). As competition increases for admission to elite colleges and for stable jobs, the importance of social networks, or one's stock of social capital, is an important factor to consider in understanding routes to success and perhaps offers an explanation for differential outcomes. The emergence of helicopter parenting as a phenomenon also suggests that much could be learned by examining the particular ways that emerging adults use this form of social capital in college. However, research on the impact of such parenting practices in college is limited (Pizzolato & Hicklen, 2011).

The increased involvement of highly educated parents with socioeconomic resources coupled with institutional and societal demands to grow the proportion of under-represented students who pursue demanding fields such as the sciences, provides a unique opportunity to study the role of a variety of factors beyond individual effort that determine the educational and professional success of emerging adults. But, because of high correlations between college generational status, social class, race/ethnicity, academic preparation, and academic achievement; researchers are challenged to disentangle the potential additional effects of social and cultural capital. In our study we are able to examine the role of social and cultural capital in-depth given that our racially diverse sample of first generation college students has very similar human capital characteristics (high school grade point average, standardized test scores) to our sample of continuing generation college students in a private, selective university that enrolls

almost entirely traditionally-aged college students (18-22). Further, because we look specifically at the situation of students who are all on a highly competitive premedical track with a high rate of attrition during the first year of college, we are able to examine the particular ways that student utilize their social and cultural capital.

Thus, the particular focus of this study allows us to explore how inequality within college may be reproduced through access to and use of social capital (Lin, 2002) and the enactment of cultural capital as a form of social capital via a class-based approach to parenting which Annette Lareau (2003) refers to as "concerted cultivation". We do this by surveying and analyzing the academic transcripts of the full population of premedical intended undergraduate students their first year of college and interviewing a subsample based on the educational background of their parents (continuing generation college and first generation college). We ask: are there demographic and human capital differences by educational background? Does the social capital of premedical students vary by the educational background of their parents? And in what ways do students use their social capital during the first year of college? The findings of this study thus have practical application in understanding how students use their social networks and resources in college in ways that could potentially help to address persistent gaps in educational attainment by college generational status, social class, and race.

College Generational Status and Success in College and the Sciences

First generation college emerging adults frequently have to negotiate between working class values, ideals, and needs of their families with middle class assumptions and expectations of college peers and institutions (Hurst, 2007) and may have to rely more on their individual skills and attributes than continuing generation students who may have access to a large number and variety of resources. However, understanding the causes of inequality in comparing the

college experiences first generation college (FGC) students to continuing college (CGC) students is challenging because of demographic differences. Being a first generation college student is highly correlated with an increased likelihood of being from a family with limited economic resources, being born outside the U.S., and belonging to an ethnic minority group that is under-represented in higher education (U.S. Department of Education, 1998; Vargas & Conlon, 2011), as well as attending low performing primary and secondary schools. As a result, it becomes difficult to separate social and cultural capital differences from human capital characteristics and to disentangle the multiple causes of differential outcomes. To explain why social class is often reproduced within families, scholars have posited that it is not just ability or income that determines success, but that members of the upper class teach skills and are able to make lifestyle choices that allow their children to employ the appropriate behaviors and habits necessary for success in society that are then rewarded by educational institutions (Bourdieu, 1977). This cultural capital works alongside human, economic, and social capital to affect outcomes.

Examining professions or situations that are dominated by those of high status is one way to see the potential effects of social and cultural capital. The current demographics of who attends medical school and subsequently becomes medical doctors are one such case. Having at least one parent who is a medical doctor or coming from a family with a high income have been shown in numerous studies to be significant predictors of having a high interest in and/or actually becoming an MD (Antony, 1998; Barr, Gonzalez, & Wanat, 2008; Pascarella, Brier, Smart, & Herzog, 1987). In 2005, 75% of entering medical students in U.S. medical schools came from families in the top two highest income quintiles (Jolly, 2008). Some medical schools and the American Medical Association are concerned that this trend will limit the medical fields'

ability to meet the needs of rapidly changing demographically diverse populations in the U.S. and ultimately create a shortage of MDs (Association of American Medical Colleges, 2005; Grumbach & Chen, 2006; Thomson et al., 2003). We know that emerging adults who enter college as science majors are a racially, ethnically, and economically diverse group, however the group that ultimately stays in the sciences and enters medical school looks very different demographically (Hurtado et al., 2007; Jolly, 2008). Thus research into the early college experience of premedical track students is especially important given that retention data indicate that a large percentage of racially/ethnically underrepresented and low income students with interest in the sciences often leave natural science majors during the first year (Hurtado et al., 2007).

First generation college students account for much of the racial and economic diversity on the premedical track. However, we suspect that they are also the most likely to drop off track during the first year. It is during this critical year that we are trying to understand student behaviors and experiences, and the potential role that capital plays in differential outcomes.

Theoretical Framework: Capital and College Success

The hypothesis that certain types of capital differ by status and ultimately determine success in society was introduced by Pierre Bourdieu (1984, 1986) in his study of French society. Bourdieu focused on three forms of capital: human, social, and cultural capital. In our study we examine all three, but pay special attention to the role of social capital and on cultural capital as a form of social capital through parents.

Social Capital

While there are many conceptualizations of social capital, the most common definition focuses on the access to resources through network ties (Lin, 2002). We use Lin's (2001, 2002) definition and study three main elements of social capital: resources embedded in social

structures, accessibility to those resources, and use of such resources. We examine differences in quantity, types of social capital, and relationship to that social capital, and how emerging adults in their first year of college enact and use their social capital by college generational status (first generation or continuing generation) while on the premedical track. Thus we focus on social capital as it intersects with inequality, higher education, and career trajectories, a largely understudied area.

Although published studies on the use of social capital in the college context is limited, we briefly summarize here key conceptualizations of social capital as it relates to family and education as well as the results of the few studies internationally that have been conducted with emerging adults in college. Conceptually Coleman (1988) emphasized the importance of family as a form of social capital (Field, 2008). In contrast, Portes (1998) delineated the importance of what he called weak ties, or the power of connections to people who were not family members. For Coleman social capital was important because it contributed to human capital. Although Coleman focused on the importance of social capital gained through family, Bourdieu emphasized how that capital gained from high status families was reinforced by educational institutions in ways that advantaged students from families with high incomes. In contrast, the capital often passed on by families of lower status was often downplayed or even rejected by educational institutions. Yet despite Bourdieu's emphasis of the role of educational systems in reifying high levels of capital, Bourdieu did not explicitly study the role of capital for students in higher education (Field, 2008).

In terms of the few studies that have researched social capital in the college context. Wells, et. al (2011) found that social capital, mainly in the form of parental involvement, positively and significantly affected student's expectations for obtaining a college degree. A

study of Scottish college students living away from home found that they had access to wider networks than did those who were employed full-time or unemployed (Emler & McNamara, 1996), thus college can be an important venue for building social capital. A recent quantitative study by Martin (2009) focused on the use of social capital by students at a selective university in the U.S. He found that networks from campus have little influence on student's outcomes early on, but have some influence on the likelihood of graduating with honors and on future aspirations. To address concerns associated with potential endogeneity bias in his findings, Martin mentions the need for more qualitative studies on the use of social networks in college.

As college success varies by race and social class, some scholars (Stanton-Salazar & Dornbusch, 1995) argue that social capital research that focuses on acculturation, parental encouragement, and individual motivation can mask the effects of inequality on college retention and completion. As such, studies of social capital in the educational context risk attributing blame to parents for lack of knowledge that their children need to succeed and to students themselves for lowered expectations. In a review of research on social capital in educational literature, Dika and Singh (2002) conclude that much of the research on social capital and education has the potential to focus primarily on how some individuals, families, and communities are lacking, which "obscure issues of power and domination; that is, (studies) do not address links between lack of ties to institutional agents, macro forces, and institutional-discriminatory patterns" (p. 44). Or as Rown-Kenyon et al. (2008) state after finding that parental involvement in high school and the college application process depends on the social class status of the parents, "The results of this study reflect a shift from 'fixing' parents to ensuring that policies and programs empower parents to be involved to shape their children's educational futures" (p. 584).

Although there have been many interpretations and operationalizations of social capital as it relates to education (Dika and Singh, 2002), we take an approach similar to Stanton-Salazar and Dornbusch (1995) who focus on the "inequitable transmission of tangible institutional resources and opportunities and toward the difficulties informing relationships with institutional agents" (p. 116) as they apply to premedical intended emerging adult students. In our study we have the unique ability to move beyond some of these individualistic limitations because our sample of first generation college students has very similar human capital characteristics to our CGC students. This allows us to focus more deliberately on the potential roles of other types of capital, such as social capital, on influencing persistence on the premedical track. We also explore if aspects of concerted cultivation are being enacted in college.

Cultural Capital as Social Capital Via Concerted Cultivation

In addition to the potential power of social capital, researchers have also been studying how cultural capital contributes to educational and economic success. Along with social capital, cultural capital was first introduced by Bourdieu (1984; Bourdieu & Passeron, 1990). Bourdieu conceptualized cultural capital as a familiarity with symbols of dominant culture, particularly language, that children gained by being raised in high status families which was then reinforced and rewarded by educational and other societal institutions. In the United States, cultural capital has primarily been studied in two forms (Lareau and Weininger, 2003): in its "dominant" interpretation as access to and involvement in what is considered "highbrow" culture (museum/concert attendance, knowledge of the arts, music, etc.) (Bryson, 1996; DeGraaf & DeGraaf, 2002; DiMaggio, 1982; Dumais, 2002; Katz-Gerro, 2002; Kraaykamp, 2002; Marsden & Swingle, 1994; Roscigno & Ainsworth-Darnell, 1999; Sullivan, 2001) and as studied by Lareau (2003) who found differences by social class on "time use for children's leisure activities,

language use in the home, and interventions of adults in children's institutional lives" (p. 276). Researchers studying the aforementioned dominant forms of cultural capital have found small to no influence of high arts knowledge or participation on the outcomes of children in the United States. However, other researchers have been attempting to quantify, reproduce, and better capture Lareau's more nuanced observations in a variety of studies with students from pre through high school. Our mixed-methods research approach allows us to further explore Lareau's conceptualization with under-studied emerging adults in the college context.

Similar to Kohn (1963, 1969), Lareau (2003, 2011) finds class and educational differences in how parents raise their children, categorizing the typical parenting style of middle class, college educated parents as highly interventionist "concerted cultivation" as opposed to working class, non-college educated parents whose hands-off style of parenting is termed the "accomplishment of natural growth". Parents from higher social classes were the most likely to engage in concerted cultivation, doing things that actively fostered their children's talents, opinions, and skills; while parents from lower social classes were more likely to focus on caring for the basic needs of children and letting them develop on their own. Lareau also found that children raised with concerted cultivation were more likely to participate in many organized activities, negotiated often with parents, were taught how to criticize and intervene in institutions, and were developing an emerging sense of entitlement. In contrast, children with parents who practiced the accomplishment of natural growth were more likely to spend non-school time in unstructured activities, did not challenge the direct orders of their parents, depended on institutions to tell them what to do, and were learning that institutions (like schools) can be constraining forces where experts (teachers) decide what is best for individuals, potentially limiting student's outcomes when schools expect students to take a concerted

cultivation approach. Subsequent studies examining concerted cultivation have recognized these different patterns by social class in the institutionalized contexts of pre-school and elementary school (Cheadle, 2008, 2009; Nelson and Schutz, 2007) as well as in after-school activities (also see Dunn, Kinney and Hofferth [2003]). Lareau hypothesized that these parenting differences would differentially advantage children as they transitioned to adulthood.

While most studies applying Lareau's concepts are focused on younger children, Henderson (2012) looks at adolescents, finding that in the United Kingdom the organization of young people's daily lives varies considerably by social class, but having a concerted cultivation parenting strategy (regardless of social class) predicts adolescent's enjoyment of school and their likelihood of applying to university. Her longitudinal solely quantitative study limits our understanding of how these factors work in the day-to-day decisions of adolescents and how this may influence them as emerging adults. In Lareau's (2011) follow-up study with interviewees when they are emerging adults, she finds that the previously found patterns of different parenting styles by social class are continued, and that the differences are evidenced in the explanations that parents and emerging adults give for their decisions about going to college or not (Lareau & Weininger, 2008). To our knowledge, no studies besides Lareau's follow-up have examined the role of different parenting styles, and concerted cultivation specifically, in the college context.

In this study we use survey and interview data to examine the quantity and types of social capital that college students mention and use Lareau's work as the basis on which to analyze the interview data to explore if the possible influence of concerted cultivation and accomplishment of natural growth styles from parents as social capital can be identified in the behaviors and attitudes of first and continuing generation premedical intended college students during their first year in college. Our main research questions for this study are: What are the demographic,

human capital and college academic outcome differences between first generation and continuing generation college premedical intended emerging adults? Are there differences in the quantity, types, and use of social capital by college generational status? How might parenting styles and influences of parents be replicated in the behaviors and attitudes of emerging adults their first year of college in ways that reflect the active concerted cultivation of parents with college educations or the more "hands off" approach of parents with high school degrees or less?

Methods

Context of Study

This study is very purposeful in choosing to research the experiences of students at one university. While there are certainly downsides to collecting data at only one university, there are important reasons why conducting a study of this sort at one university is useful (Martin, 2009). In this case this university is a selective residential private university in the state of California in the United States where almost all undergraduate students enrolled are ages 18-22 and about eighty percent of the student body is made up of students whose parents have a bachelor's degree or higher. The university also attracts and admits first generation students who are most likely to succeed in college (because it is private with a high tuition, students must have some economic resources and/or an ability to navigate financial aid to attend which usually involves the active assistance of parents).

Further, research is emerging which shows that private four-year universities are growing their numbers of students who are members of previously under-represented groups, especially Latino students. Students at institutions like the setting for this study often (for a number of reasons) have higher retention and graduation rates than similar students at public institutions (Kelly, Schneider, & Carey, 2010; Santiago & Andrade, 2010). Private universities thus have an

expanding potential to contribute greatly to successfully educating and graduating first generation college students and a more diverse group of potential MD's than currently exists.

To most effectively study the role of social and cultural capital in success it is helpful to look at a sample of students with similar human capital characteristics. For our study, and as discussed later in the paper and in Table 2, there is only a slight difference in the grade point averages by college generational status and no significant difference in average SAT scores. Finally, doing this study at this particular university is also helpful because this university has the second highest retention rate of all universities of its type in the western region, helping to further equalize the students in our first generation and continuing generation samples. In another analysis of degree completion data by generation status we find that first generation college students graduate at the same rate as continuing generation students (Nichols & Ramos-Sánchez, 2007).

Thus, conducting this study at this university allows us to examine effects of inequality beyond human capital, parental support, and motivation that often make it difficult to determine the potential influences of capital on outcomes. And while the results may not be generalizable to all types of post-secondary institutions, we believe that the suggestions that come out of the research will likely be transferrable to other institutions, especially universities that are working to increase their proportions of under-represented students in the sciences.

Research Procedures and Participants

This study employed three methods: survey, interviews, and academic transcript analysis to explore the use of capital on the premedical track. In the Fall of 2008 and 2009, the full population of students enrolled in the introductory Biology and Chemistry sequence necessary for those on the premedical track were surveyed on their first day of Biology (n=558 [310 in

2008 and 248 in 2009]). We then isolated the sample to those who expressed a high interest in being premedical (n=281).[1] On the fall 2008 survey we asked for contact information to do follow-up interviews. Over 90% of those surveyed provided this information.

Our goal was to interview 20-25 first generation college premedical students and the same number of continuing generation students. However, there were only 26 students who were first generation college students with a high interest in pre-med.[2] There were 112 continuing generation college students who met this criterion. We therefore attempted to interview the full population of first generation college students and randomly selected continuing generation college students to interview. We ultimately interviewed 21 first generation college students (11 had parents whose highest degree was high school and 10 had parents with some college but no bachelor's degree) and 23 continuing generation college students (for a total of 44 interviewees). While for the interviews we defined a FGC student as someone whose parents did not have a four-year degree, the survey analysis allowed us to look at three groups: FGC (parents with a high school degree or less), some college (students whose parents had some college experience but did not have a four-year degree), and CGC (at least one parent completed a bachelor's degree or higher).

The interviews took place at the end of students' first quarter and were comprised of questions about academic and social well-being thus far in college, their relationships with the key individuals they consulted with about their college experiences including family, faculty, and other students, as well as specific questions about career plans and how they were doing in their science courses (see full guide in Appendix). Students were also asked about their interactions

[1] High interest in being premedical included all those who answered a 4 or 5 on a scale of 1-5 with 5 indicating "totally committed to premed" (survey question adapted from Barr, Gonzalez, and Wanat [2008]).
[2] Pascarella, et al. (1987) also note sample limitations on who, by social origins, aspires to be an MD.

with faculty and their use of other campus resources. Interviews were recorded and transcribed verbatim and pseudonyms were assigned to each student.

Interviewers were advanced undergraduates and one graduate student who were trained as a group to use the semi-structured interview guide. Interviewees were paid $25 to participate in the interview. The average interview lasted 45 minutes. All interviews were face-to-face with the exception of two of the interviews that were conducted over the phone. Human subjects' approval was received for all phases and aspects of the study. We also received releases from students to examine their academic transcripts.

To understand the characteristics of our survey and interview samples we compared students' self-reported gender and race/ethnicity to the full population of first year students that year at the university. Table 1 demonstrates how the sample of those surveyed and interviewed compares demographically to the full population of first year students. Our sample had more females than the university as a whole and we had a high proportion of our interviewees who identified as Latino or Hispanic.

INSERT TABLE 1 ABOUT HERE

Measures, Concepts, and Analyses

Demographics and human capital characteristics. Previous studies have focused on differences in success of premedical students based on gender and race/ethnicity presuming that being from an under-represented group effected outcomes. To test the potential role of educational background along with demographic characteristics, we conducted t-test analyses comparing students who had at least one parent with a bachelor's degree (CGC) to students whose parents had no college experience and students whose parents had some college. Variables included in these analyses were all self-reported by students on the survey and

included: being from an under-represented minority group (Latino/Hispanic, African American, or Native American), standardized high school grade point average (calculated as a percentage based on actual GPA against highest possible GPA), combined SAT score, type of high school (private Catholic, private non-Catholic, and public), and number of science courses took in high school.

In addition, we also looked at academic outcomes at the end of students' first year of college using academic transcript data collected from the university. Grades in their first science courses were converted to a numerical scale from 0 (F) to 4.0 (A). If students had continued enrollment in premedical courses, including for the fall of the sophomore year we coded them as "on track" meaning that they were still pursuing premedical studies at the end of the first year (this included students who had re-enrolled in any premedical courses they had dropped or failed their first year).

Quantity and types of social capital. The survey included questions to determine the social capital that the students had prior to beginning college. Students were asked how involved their parents were in helping them apply to college (scale of 1-4 with 4 being very involved), how many people students knew with a bachelor's degree, if they knew anyone in their ultimate career goal (yes, no), and an open-ended question asking students to list up to four people they knew in the career they aspired to, indicating their relationship to them and their specific career (see Lin 2000 for a similar measure). Using this question we looked at the quantity and the type and strength of that relationship and created new variables that captured if students knew a family member who was an MD or dentist and/or if they had at least one friend or friend of the family who was an MD or dentist. The students were also asked to mark if any family members

encouraged them to take science classes (choices ranged from no one, mother, father, grandparent, other family, etc.).

We then analyzed the interview data using open coding to identify any forms of social capital students mentioned anywhere in the interview and how they had utilized these forms of social capital thus far as a student. We used deductive content analysis to code the social capital mentioned by each student. Any person or role that students mentioned was coded as social capital by their relationship to the student (mother, father, aunt, etc.). What emerged in the interview data was the primacy of parents as students' main form of social capital, other family, faculty, friends, and mentors from high school were the other types of social capital mentioned by some in the interviews. All students though mentioned parents as people they consulted often during their first year in college. Because of this we then moved from open coding to using Lareau's parenting typology to deductively code for any examples of student and parent behaviors that indicated a concerted cultivation approach as a form of social capital.[3]

Concerted cultivation as a form of social capital and use of social capital. Interviews were coded independently by two different coders, using the typology developed by Lareau (2003, p. 31). Four main areas of behavior and /or attitudes that Lareau found emerging in her study were coded if also discovered in our data. The areas were parental involvement, language use, intervention in institutions, and evidence that students were demonstrating an emergent sense of entitlement or constraint. For parental involvement, coders looked for the ways that parents were involved and their levels of involvement. For language use, coders noted any instances of students preferring reasoning versus directives as well as "contestation of adult statements" or "extended negotiations" between students and faculty/university staff (Lareau,

[3] Comments from reviewers and the editor also helped us to revisit the data and then reorganize our findings with this conceptualization.

2003, p. 31). In the area of intervention in institutions, coders noted any interventions in college including parents' advice to students about speaking with professors and student's "criticism and intervention" with institutional agents. Finally, we looked for any evidence that students were expressing an "emerging sense of entitlement" or a "sense of constraint" in their attitudes about college (Lareau, 2003, p. 31) including how grades affected their professional goals. Codes of "no social capital" were also assigned to academic or career-related instances when students mentioned not consulting with anyone for advice or support. Similar to Seider et al. (2012), after the independent coding the two coders discussed and compared their coding assignments and either recoded or if agreement could not be reached removed the code. Sometimes the codes seem to overlap, for example a part of the interview seemed to be an example both of student's language use and an emerging sense of entitlement/constraint. In those cases, if there was agreement, both codes were used.

After coding was completed, the coded transcriptions were divided into two groups based on educational background: (1) first generation college students and (2) continuing generation college. We looked for any consistent patterns, within each group, in how students used their social capital and evidence of a concerted cultivation approach in the first year of college. We then compared these patterns between the two groups.

Thus, the survey data provided the background information related to the quantity and types of general and career-specific social capital that students had and the interview data allowed us to better understand any differences by educational background in how students were using their social capital their first year in college.

Results

First we discuss the results of the survey research as it relates to any demographic and high school differences based on educational background as well as college academic outcomes at the end of the first year. This is followed by the results of the quantitative and qualitative analyses related to students' social capital as a whole, especially their relationship to those who have gone to college as well as are in careers that they aspire to obtain. Then we present our in-depth analyses of the interview data as it relates to differences by educational background in the four main areas of concerted cultivation that were discussed by students: involvement of parents, language use, interaction with the institution, and evidence of an emerging sense of entitlement or constraint.

Demographic and Human Capital Characteristics by Educational Background

Table 2 displays the results of significance tests run between CGC and SC and CGC and FGC. While first generation college students were significantly more likely that CGC to be from an under-represented minority group and less likely to have attended a private non-Catholic high school, they had similar high school GPA's and SAT scores indicating that the human capital characteristics of students before they entered college did not differ significantly by educational background.

The similarity in mean SAT scores is somewhat surprising given the higher likelihood that first generation college students are from lower socio-economic status families, a high proportion of which also belong to a racial group that is typically under-represented in college, two groups that research has shown are more likely to score low on the SAT (College Board, 2009). Thus the similarities in the samples of students by educational background at this selective university allows us to focus more easily on potential differences in other forms of capital beyond individual human capital.

INSERT TABLE 2 ABOUT HERE

Despite similarities in academic outcomes by educational background before starting college, we found significant differences in grades by educational background at the end of the first year of college. CGC students had significantly higher grades in their biology and chemistry classes as well as a higher overall grade point average compared to both students whose parents had some college (SC) and no college (FGC) (bottom of Table 2). However, SC students were as likely to be on the premedical track as CGC students (71% and 77% respectively) while only 55% FGC students were still on the premedical track at the end of the first year.[4]

Quantity, Types, and Use of Social Capital

Despite similarities in human capital characteristics, in Table 3 we see that there were significant differences in students' quantity of social capital by educational background. Comparing CGC and FGC, and then CGC to SC, continuing generation college students' parents were significantly more involved than FGC parents in helping with their college applications, knew more friends and family who graduated from college, were more likely to personally know a medical doctor (MD), knew more medical doctors (about one each), and nine percent knew at least one family and one friend who was a MD.

When FGC was compared against CGC all of the social capital variables were significantly different. Interestingly, students whose parents had some college (SC) background had even slightly higher levels of some social capital than CGC students, such as knowing at least one MD. Students whose parents had some college were only significantly different from CGC students in one area: only two percent of SC students knew at least one family and one friend who was an MD.

[4] In a follow-up survey (just before graduation) with 37 of the 42 students who were initially interviewed, 42% of CGC students had applied or were planning to apply to medical or dental school compared to 22% of FGC/SC students.

INSERT TABLE 3 HERE

Additionally, Table 4 shows the depth or strength of ties students had to those who shared their career interests. These data came from a survey question where we asked students to list up to four people they knew who shared their ultimate career goal. Only 13% of FGC listed at least one name compared to 67% of those whose parents had some college (SC), and 66% of those who were CGC.

Besides differences by quantity, there were differences by college generation status in the relationship students had to those they named as well as how closely the careers of those in their social network actually matched the career aspirations of students. For example, in looking at the first person that students listed, FGC students listed four friends, three of whom were nurses and one of whom was a veterinarian. One FGC student had a sibling in medical school. In contrast, those whose parents had some college listed uncles and aunts and other relatives who were medical doctors as well as parents who were nurses or worked in pharmacies. They also listed family friends (n=7) and their own doctors (n=3). For CGC students, 24% listed a parent as the first person that they knew, while also listing other close family members. For 90% of CGC students, all of the persons they listed were MDs or dentists, often older adult family members.

INSERT TABLE 4 HERE

The interview data allowed us to understand more fully the types of social capital that students had by educational background and how they were using this capital. In the interviews the social capital that students said they consulted with the most frequently in the first year of college was their parents. After parents, students discussed a great many different types of social capital including other family members, peers, professors, mentors, and people they had met through career-specific programs. For CGC students the social capital that they discussed was

generally social capital that was "on hand", available to be accessed when they needed it. For example, Maeve[5] visited her uncle, an oncologist and aunt, a psychiatrist and went on tours of the hospital where they worked and Dani had been working with her dad, a dentist, since she was 12. Kate said that her grandfather was a pharmacist, so that "has always been an option". Even though early on their time in the premedical track, students understood the potential power of having such a social network. Justin, a CGC student said, "(My dad), he knows all the other doctors so you can have an inside track to that hospital or like where to go…and you know the other doctors, it's comforting."

Students with parents with some college background also had access to "on hand" social capital: "I have one uncle who's a doctor and another aunt who manages a hospital…over the summer I'm actually planning to work at my aunt's hospital 'cause she can give me a job there."

In contrast, FGC students generally talked about getting such experiences without the benefit of social capital. Said one student: "I'm planning this summer on trying to get an internship at one of the hospitals in town." (Interviewer: "How?") "When I go down for Thanksgiving, I want to just go around to the hospitals and see if they have any programs or anything that would help me shadow."

Even when the social capital that FGC students had available to them was more distant, they still discussed social capital that was available and how they currently or might use it in the future: "Well, my aunt is an orthodontist assistant and she knows all about that. So, I go to the dentist in a place, in the same like around area that she works at, so she knows my dentist and she's talked to my dentist about me sometimes being there and just finding out about it. And so I have that opportunity, I just haven't taken that yet." Another student asked her boyfriend to ask his dermatologist questions about medical school for her during his appointment.

[5] All names are aliases.

Concerted Cultivation as Social Capital the First Year of College

The prevalence of students discussing parents as a major form of social capital during the first year of college resulted in our more in-depth analysis of the interviews to determine if the differences in parenting styles by social class found by Lareau (2003) might also be showing up in the behaviors of students as emerging adults the first year of college. We found evidence of differences by the educational background of student's parents in four of the five areas discussed by Lareau[6].

The four areas also noted by Lareau (2003) that emerged most prominently in the interview data as differences by educational background were: (1) student reports of the ways in which their parents were involved in their everyday lives; (2) students use of language; (3) how students interacted with and intervened or not in the institutional practices they encountered their first year of college; and (4) the ways in which students saw their experiences as either supporting an emerging sense of entitlement or as constraining their ability to stay on the premedical track.

Parental involvement. Almost all of the students interviewed discussed how their parents provided both emotional support as well as instrumental support to help them succeed in college. However, how parents helped differed markedly by the educational background of parents. While all students spoke frequently with their parents, first generation college students noted that the biggest thing that their parents provided was support while continuing generation college students cited multiple instances of receiving specific help from their parents during their first year in college.

[6] The one area where there was no difference, what Lareau (2003) calls the "organization of daily life" (p. 31), has to do with how students spend their time outside of school. We did not find any differences between FGC and CGC in their participation in structured activities or not, however our questions did not allow for a comparison of how students spent their non-academic time.

First generation students talked about their parents "holding them up," telling them to try harder, to study more, and that they could do it. Three students used the word "pushing" to describe what their parents did for them. Sonia said, "I mean my parents have always told me that college is first, school is first. And so, they've always been the one pushing me and I mean they've been really supportive in like me coming and living at school 'cause and they're like, 'Okay. You can't come home until you finish your homework, okay?" Miguel said in response to a follow-up question about what he meant about his dad being pushy, "Why was he so pushy? The reason was that he didn't have much education in Mexico, so I mean, I'm really glad he pushed me, obviously I wouldn't have gone here. But he was really pushy in a way that even though he couldn't be directly involved in school, he will always ask (about school)."

One FGC student said that her mother was her main mentor because she understood her better than anyone. Most first-generation college students talked about the broad level of encouragement they received from their parents such as Freddy whose parents never finished high school, "Their biggest thing, they like to talk a lot about how they didn't make it that far and that it would really be good if I was able to talk with them. More of inspirational stuff 'cause a lot of stuff they really don't know, I wasn't too much specific like, 'I don't understand this problem. Can you help me with it?' It's you know, inspirational talk, I guess." And Laura, "My parents…they never saw any of my applications but they just made sure I had them in, but it was all I need. They're very involved in the bigger picture I would say."

While Lareau (2002, 2003) noted that using the accomplishment of natural growth, working class parents provided for the basic needs and care of their middle school-aged children, in college this care came in the form of overall support. Parents reminded their children that they can do well, that they have done well before, and to do their best. They encouraged them to study

hard and to believe in themselves, and students acknowledged that that was what they needed from their parents. Said Letty, "Just study hard. They didn't go to college or anything so they don't know how it is. They're just like: 'do what you can, study hard.…You'll do fine, we believe in you." And Marta, "I mean, she (mom) might not be able to, she doesn't really help me with the school work 'cause she's not at, I guess at that level, but she just supports me and that's really all that I need."

In contrast, continuing generation students reported that their parents were much more involved in specific aspects of their school from what courses to take: "I was also gonna take Calculus this first quarter, overload with Calculus, Chem, and Bio and they (parents) definitely shot that idea down. It sounded like a good idea at orientation." For Susie it was how to take exams: "So I was talking to my dad and just asked him like—'cause he's a college professor—and so I asked him, if on his exams if he goes over stuff like, does he expect (students) to like write down exactly what he said in their review sessions or does he want more than that, and he said he usually wants more than that. I was kind of sorry because I kind of said exactly what she (the professor) said." About her dad helping her, Tam said, "he's actually like, you know, buying me books and (saying) 'Hey, you should learn how to do this before you go to dental school'." Almost all of the CGC students we interviewed said that their parents told them to go talk to their professors at some point during their first quarter of college. These parents were actively pulling their children through college and into their futures.

Continuing generation college students were also much more likely than first generation college students to engage in long conversations with their parents as they were making decisions. For example Juan, whose father had a graduate degree and mother a bachelor's said, "I talked to my dad (about dropping Bio). I mean we actually had a pretty long conversation about

what I was thinking and why I wanted to drop this and have history." Finally, in the interviews CGC students described how parents helped in ways that pulled them forward to improve. Josh, said that his parents challenged and pulled him along by asking "What do you think you need to work on?" While first generation college student, Letty, noted that she knew that her parents couldn't help, but that other students parents "walked them through" how to study and take tests.

Language use. Lareau (2003) noted many instances of parents who practiced concerted cultivation using a combination of directives and reasoning in communicating with their children. Children were expected to understand the perspectives of their parents, while also maintaining and supporting their own ideas and arguments. In contrast, working class parents were more likely to use only directives and there was "rare questioning or challenging of adults" by children (Lareau, 2003: p. 31). In our study we noticed that students had different expectations of their professors as well as proclivities towards certain kinds of learning that reproduced similar patterns found by Lareau. For example, FGC students preferred the more direct and structured nature of their Chemistry class and CGC students enjoyed the abstractness of their Biology course. Said Mike, a continuing generation student, "I'm understanding more the Chemistry concepts but I'm getting a better grade in Bio right now." (I: "Why do you think that is?") "I think the format of the test is more something I can write out answers and I'm good at kind of guessing a little. I can take ideas from here and try to incorporate them in the other things. Where Chemistry is, you come up with a straight answer and so you need an exact number and there's no in between." Continuing generation students reflected an ability to do better with abstract ideas, relying on a variety of their abilities and talents as well as confidence to determine what the professor was asking and formulating answers for open-ended Biology questions.

On the other hand, first generation college students seemed a bit lost without specific guidance from their Biology professors, appreciating more the structure of Chemistry lectures and exams. “I like the Chemistry lectures better just because there’s more, I’d say, structure to them…the substance that we’re learning in Bio is actually harder to learn just because with Chemistry, there’s set rules, you know, it’s almost like doing math where there’s structure to it, so it’s easier to learn. With Bio it’s just a mass amount of information that you kind of learn and string together on your own.”

In a more extreme example a first generation student commented on his desire to receive a directive from his advisor rather than suggestions about what classes to take next quarter: “he (advisor) kind of gave me just really not specific stuff. He’s like, ‘Well, you’re a Chem. major and you probably should take this.’ And I didn’t come to see him to see what probably I should do. I came to see him for what I should do.”

The language continuing generation students used to describe their instructors also indicated that they tended to see themselves as having agency to judge and criticize their professors (which likely contributed to their feeling entitled to intervene in their educations as discussed in the next section), even to the point of critiquing the teaching. “I can buy the book, you know, and I’m paying for the teacher too. So, be the teacher, not the book. I don’t really appreciate that…especially with the Chem teacher, he sucks, like he reiterates the same, his same point to try to explain it to you. I don’t get it that way, explain it in a different way.” (Interviewer: “Have you tried to talk to him outside of class.?”) “No, I don’t care enough to. He’s an idiot, in my opinion.” and Tam who said, “She’s (English professor) not clear when she says something and then—I think a lot of times when I try to raise something she’ll tell me how to fix it but showing me her way of fixing it as opposed *to letting me develop my own kind of way*…I

just don't agree with her teaching style" (emphasis added). Continuing generation students would talk about "giving" professors a second chance to be good teachers and would see themselves, not their professors, as the ultimate sources of knowledge: "I enjoy going to class and I usually believe what she (Biology teacher) says."

In contrast, FGC students never attributed their difficulties to their instructors. The one FGC student who came close, in attempting to talk about how his learning style is incompatible with his professors approach, had a difficult time being critical and ultimately blamed other students for not doing well: "He (chemistry professor) sounds mean and he's just like, he doesn't really explain things well with his words—*I don't even know how to say it*. But so I think I mean just think like that I think maybe that's their problem or maybe, you know, they're not studying" (emphasis added). He, like many first generation college students we spoke with, seemed uncomfortable criticizing professors while CGC students provided many examples and descriptions about the problems they had with various instructors.

Interactions with and interventions in institutional practices. The different language styles between CGC and FGC also contributed to the differing ways that students responded to their professors and their college experience as a whole. Lareau (2003) found that parents who practiced concerted cultivation often intervened on behalf of their children and also taught their children (both directly and indirectly) how to be advocates for themselves within institutions, especially schools. While in our study we did not yet hear of any instances of parents directly intervening with professors or the university, parents of first generation college students encouraged their children to take different approaches to engaging with the institution than did the parents of continuing generation students. Parents with a college degree were more apt to not only pull and guide their emerging adult children through college with specific advice and access

to resources, but they also gave them the confidence to navigate beyond institutional forces that were limiting them. In contrast, FGC students were supported by their parents, but left on their own to figure out what to do when receiving low test scores or encountering unresponsive advisors.

Continuing generation parents were more likely to tell their children to go speak with their professors while only one of the FGC parents did so. Said a CGC student who had one parent who was an MD and another who was a professor: "Well, my mom's actually a professor at a university, so she is, you know, just like: 'You got to stick it out and talk to your teachers, you know." All of the CGC students struggling in a course were instructed by their parents to go talk to the professor. In the same situation, FGC parents suggested tutoring, "I was crying to my mom, telling her that I can't do Bio., I can't do Chem, I'm so scared. And she's like 'Don't they have tutors?'…And she's like 'Go and ask.' And I asked—and she's always 'ask and you shall receive'—they gave me a paper, I filled it out and I got my Bio 21 tutor." The tutoring, done by peers, replicates the emphasis on contact with other emerging adults of the same age while not getting the benefit of both the professor being able to directly help the student as well as the more intangible benefit of the professor seeing how interested and dedicated the student is in doing well.

Further, CGC students were also much more likely than FGC students to advocate for themselves and be persistent in pursuing help and/or correcting professors that they thought were wrong. In one example Justin talks about his persistence in convincing a professor that a problem was not possible to solve, (I: Do you ever talk to your Chemistry teacher ever?) "I remember I e-mailed him once because he was wrong…It's an extra credit problem and it's impossible to solve and I'm sure with that. He didn't believe me at first but then now he does."

(I: tell me what your email said) "It was like: that extra credit problem does not make sense. I've tried it, it's not physically possible to solve because, somehow, I kind of explained…And then he wrote back to me: No it is possible. So I tried again, and then in class I just went to him and he said, no. So I showed him and he's like: Oh, it's a typo."

In contrast, FGC students talked about their professors as people that they were scared to talk to because they were so knowledgeable: "I actually felt intimidated but she seemed like a really approachable person, but for me, I guess I felt intimidated because she's very out there and I guess a cool type professor." And, "My Biology teacher, she's approachable but she kind of intimidates me a little bit because she's a genius."

While a few FGC students still talked with their professors even though they were nervous, they were not persistent when they were unable to contact them the first few times: "I went to see him (advisor) once or twice but he wasn't in his office so….(I: In regards to?) "It was just scheduling because Bio and Chem were taken up but they ended up opening up." Said Karen, another first generation student, "I emailed him once and he didn't email me back so I just…went to my (residence hall) advisor.". Other FGC students avoided speaking with their professors at all: `"I'm kind of scared of teachers.…I feel it's easier for me to ask another student who understands the material than to go talk to the teacher." These behaviors mirror a pattern noted by Lareau (2003) of working class children interacting more with peers than adults.

Emergent sense of entitlement. One of the most interesting ways that the social capital of parents was enacted as a form of concerted cultivation was for some CGC students who were struggling academically their first year. For two students in particular it was the knowledge and example of their parents, in both cases their dads who were MDs, that pulled them to continue on the premedical track despite poor performance on tests.

Jennifer, a Biology major, with two parents who were medical doctors, had an overall GPA of 2.43 at the end of the first year of college:

> I am not doing well on my tests but I kind of looked at it from a different perspective...I kind of talked to him (dad) about it and he talked about how he failed his first Chemistry midterm because he struggled through Chemistry and I kind of have like, it gives me hope that I can do better. I mean, he did it. If he did it, I can do it... I mean, I tell him what's going on, he knows that I didn't do well on my Chem. and he knows I am having a hard time with it but he's basically just kind of, you know, "Don't base what you want to do off what grades you're getting, you know, just keep being persistent, you'll get there." Obviously I'm not the book-smart person but my dad wasn't either, and now he's one of the most respected doctors in (his specialty). And if he can do it, I can do it.

Later in the interview Jennifer talked about how the social capital of her mother allowed her father to get into medical school, including a prestigious medical school when her mother was offered a position there.

Similarly, Kayla said, "It's like this whole Intro to Bio and Intro to Chemistry, it's like that's great but it's not gonna help me, you know. And like I know I'll be a good doctor, like I know, you know, just from watching my dad, and my dad's personality, we're like the same person, so it's just like I would just like to go straight to medical school and teach me how to cut people open, you know."

Yet while Jennifer's father tells her not to "base what you want to do off what grades you're getting…", first generation college students often did just that, without consulting others first. For example, Erika dropped her Chemistry class after doing badly on the first quiz:

> (In my summer bridge chemistry class I was saying) "oh, my gosh! I love it!" Like I was so in love with Chemistry and when I went to class, when I went to my (first college quarter of) Chemistry class it was like, whoa! Completely different from the way, you know, (my summer bridge professor), the way he taught it… (But) I felt pretty confident going in (to my first Chemistry quiz) and the questions, they seem like okay, pretty good and then it had to do with the Periodic Table. I completely forgot the Periodic Tables were in the class, so I missed those questions and I was expecting to at least get a B, maybe an A you know, 'cause I felt pretty confident. And I got a D on it, and I was like,

> 'Oh, my gosh! What happened?' like it was over down the stakes. And I still felt okay, I'm like okay, well, maybe next one. It's just a quiz or whatever. And we started doing Stoichiometry, and that totally like, I knew it well in high school but I guess the difference in teachers….So that week the midterm was coming, that first midterm, that was when I dropped the class.

Erika never talked to her Chemistry teacher before dropping the class and decided, on her own, to pursue teaching rather than medical school and ultimately withdrew from the university.

Discussion

In this paper we examined differences in human, social, and cultural capital of emerging adults by parent's educational background in the first year of college. In particular we focused on how social and cultural capital were enacted in different ways by premedical intended students depending on if they were continuing generation or first generation college.

Our main research questions were: What are the demographic, human capital, and college first-year academic outcomes of first and continuing generation college premedical intended emerging adults? Are there differences in the quantity, types, and use of social capital by college generational status? And how might parenting styles and influences of parents be replicated in the behaviors and attitudes of emerging adults their first year of college in ways that reflect the active concerted cultivation of parents with college educations or the more "hands off" approach of parents with high school degrees or less?

We found that first generation college emerging adults at this selective college were more racially and ethnically diverse than the cohort of continuing generation students, important for programs that want to increase the cultural diversity within the medical professions. Despite the demographic differences, first generation college students had similar high school human capital characteristics (GPA and SAT scores) to continuing college students. However, there were significant differences in grades at the end of the first year of college, with FGC students as

a group having much lower grades than CGC students in their science courses. We also found large differences in the quantity, types, and uses of social capital between these two groups.

Students whose parents had college degrees (CGC) had large stocks of social capital, had strong connections to that capital (usually in the form of family members), and they used that capital in a variety of specific ways to improve their success, including getting advice from parents and interacting often with faculty. In contrast, FGC students had low levels of career-specific social capital and the strength of ties they had to people in the medical field were weak (doctors of friends or through the jobs of some of their relatives). First generation college students used their parental capital mainly as a form of a support and rarely interacted directly with their professors.

We found that all students relied on their parents during the first year. This is in contrast to Ream and Palardy (2008) who found that lower class parents were much less likely to help their middle school children with academics, in our study parents served as the main form of social capital for all students. What became evident though were vast differences in the approach of parents by educational background where what emerged was the pattern of CGC students receiving the kinds of specific advice that *pulled* them along the premedical track while FGC students' parents were vital sources of support in ways that *pushed* them to persist.

The in-depth analysis of the interviews in our study allowed us not only to capture the breadth of ways that students utilized their parents during the first year of college, but also how more subtle influences of parenting shaped the different ways that students interacted with their parents as well as revealed a patterned reaction to college academic experiences. Beyond college educated parents actively pulling their emerging adult children through the first year of college, parents enacted and encouraged concerted cultivation in ways that expanded continuing

generation students' social networks to faculty and others who could help them, provided specific advice, and reminded students to use their cultural capital to interact appropriately and confidently with professors. The college experiences of their parents also encouraged struggling CGC students to continue on the premedical track despite poor grades.

Our findings mirror what Lareau (2003, 2011) found regarding class and educational differences in how parents raised their children, with middle class, college educated parents practicing a highly interventionist concerted cultivation style with their elementary school children as opposed to working class, non-college educated parents more hands-off style of parenting. Lareau found—as did we—that these different approaches resulted in students having differential experiences in their interactions with educational institutions and institutional representatives, with students from higher classes developing a sense of entitlement and students from low social classes feeling a sense of limitation or constraint.

For example, continuing generation students valued courses and faculty who affirmed their ideas and knowledge and students freely criticized faculty who they believed under-appreciated what they had to offer as well as who they thought were bad teachers. They also appraised more favorably courses and faculty who let them develop and express their ideas as one student said, in their "own kind of way" and did not necessarily let low grades or unfavorable interactions with professors discourage them from their medical career aspirations. In contrast, first generation college students were more likely to be intimidated by professors which resulted in them seeking help from fellow students rather than faculty, they did not persist when encountering unresponsive advisors, and were easily discouraged when receiving low grades.

Our findings are similar to other studies that have found differential returns from social capital by race and social class, with those from higher social classes and from racial groups over-represented in contexts such as employment resulting in the reproduction of previous advantage (Cornwell and Cornwell, 2008; Dunham and Wilson, 2007; McNeal, 1999). However, it is important to note that what is revealed in our study is a high correlation between being under-represented racially in college and being first generation, suggesting that perhaps it is not race/ethnicity per se that is driving outcomes, but rather differential approaches to parenting that when encountered by institutions such as universities actively dismiss the knowledge, attitudes, and behaviors of students from low social classes. Thus, our results have implications for colleges and universities working to improve the success of first generation college students who are also more likely to come from racial/ethnic groups that are underrepresented on college campuses as well as from families of lower social class. Putting a focus on college educational background when addressing inequalities in college experience could also positively affect the pipeline into health science and STEM fields that are consciously trying to diversify their professions. And because we don't know if the highly interventionist role of parents is helpful or hurtful to continuing generation students, more research is needed to know if this form of social capital is actually contributing to delayed transitions to adulthood, especially when such behaviors are reinforced by educational institutions.

Limitations

There are limitations to the study presented here. The study takes place at one institution, in the United States. And although a focus on premedical intended students only provides benefits in that it allows us to look at students on a very demanding academic track with much

attrition the first year, we do not know if similar patterns may be experienced by students in other disciplines.

Further, the categorization of our findings into social and cultural capital is somewhat artificial. Much of the interview data that we classified as evidence of concerted cultivation, could also be considered an extension of social capital. Bourdieu (1990) notes that social and cultural capital are not distinct categories and are highly correlated with one another. Finally, as noted by Irwin and Elley (2011), there is often variation in the practices of parents within social class. Social and cultural capital can be acquired not only via higher education, thus understanding the practices that occur and create success are more important to document than solely the advantages that may occur as the result of educational background or social class.

Implications for Research and Practice

The results presented in this paper suggest that social and cultural capital play a role in the experiences and likely persistence of students on the premedical track. FGC students are at a distinct disadvantage because of their low levels of social capital and their fear of and inexperience with faculty. Meanwhile their parents play a tremendous role in supporting them and encouraging them to persist for themselves, their families, and their communities. Combining this support and community orientation with the resources available in higher education institutions could result in changing the demographics of who becomes an MD and also the commitment of these new MD's to serving communities that are typically under-served. Collaborations between student services and alumni offices that organize career mentor programs combined with intervention at the faculty level could increase student's social and cultural capital and ultimately their success on the premedical track.

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Table 1. Survey and Interview Demographics Compared to Full Population of Students (%)

	All First Year Students (n=1,085)*	Pre-Med Intended Students Surveyed (n=281)	Interviewees (n=44)
Male	47.2	35.3	43.2
European American	38	40.2	34.1
Latino/Hispanic	15.4	17.4	31.7
Asian American/PI	15.2	25.3	29.3
African American	4.7	2.5	0
Multi-Racial	9.2	10.7	6.8
Public School	43	41.3	31.8
Continuing Generation College	Not Known	67.6	56.9

*Data for first year students entering Fall 2009.

Table 2. Means (Standard Deviations) of Human Capital Variables and Academic Outcomes the First Year of College, Significance Tests Compare Continuing Generation Students with Parent No College and Parent Some College

	Parent No College (FGC) n=46			Parent Some College (SC) n=43			Parent BA or Higher (CGC) n=194	
CHARACTERISTICS	M	SD	t-value	M	SD	t-value	M	SD
Under-Represented Minority	.61	.49	10.89***	.16	.37	1.47	.07 (.26)	.26
Female	.72	.45	1.35	.65	.49	.27	.63 (.48)	.48
HIGH SCHOOL								
Standardized High School GPA	.90	.07	-.64	.85	.09	-3.01**	.90	.08
SAT Score	1469	349	-.94	1639	308	1.66	1534	332
Private Catholic High School	.33	.48	-1.10	.58	.50	1.57	.42	.49
Private Non-Catholic High School	.05	.23	-2.75**	.00	.00	-2.50**	.21 (.41)	.41
Number of Science Classes Took in H.S.	3.04	.85	-1.38	3.17	.92	-.12	3.18 (.65)	.65
FIRST-YEAR COLLEGE								
Grade College Biology Course	1.97	1.16	-6.42***	2.07	1.10	-4.30***	2.98	.84
Grade College Chemistry Course	2.24	.96	-4.31***	2.24	1.25	-3.09**	2.91	.86
Overall College GPA	2.82	.54	-4.06***	2.73	.47	-3.75***	3.14	.48
Still On Medical Track End of First Year of College	.52	.51	-2.97**	.64	.49	-1.00	.74	.44

FGC is defined as neither parent had higher than a high school degree. Some College=some college but no BA; CGC=at least one parent has a BA degree or higher. Significance tests compare First Generation (Col 1) to Continuing Generation (Col 3) and Parent Some College (Col 2) to Continuing Generation (Col 3). Ten students had missing values on parental education (n=8) or said they did not know their parent's highest education (n=2) t-test *** p<.001; **p<.01; *p<.05

Table 3. Mean and Standard Deviation Differences in Social Capital of Premedical Intended Students, Significance Tests Compare Continuing Generation Students with Parent No College and Parent Some College

	First Generation (FGC) n=45			Parent Some College (SC) n=42			Parent BA or Higher (CGC) n=190	
	M	SD	t-value	M	SD	t-value	M	SD
Involvement of Parents in College App	3.07	1.39	-3.49**	3.47	1.47	-1.37	3.74	1.10
Num. of People Know BA Degree	6.05	16.20	-4.80***	25.29	34.87	-1.44	34.37	37.42
No One Encouraged Career in Science	.67	.48	2.67**	.36	.49	-1.07	.45	.50
Know At Least One MD	.07	.26	-5.04***	.48	.51	.12	.47	.50
Number of MD or Dentists Know	.10	.37	-4.94***	.83	1.01	-.75	.98	1.16
Know at Least 1 Family Member MD	.02	.15	-3.33**	.29	.46	-.32	.25	.43
Know at Least 1 Friend MD	.05	.21	-2.42*	.17	.38	-.48	.20	.40
Know at Least 1 Family & 1 Friend MD	.00	.00	-2.04*	.02	.15	-1.43	.09	.29

FGC is defined as neither parent had higher than a high school degree. Some College=some college but no BA; CGC=at least one parent has a BA degree or higher.

Significance tests compare First Generation (Col 1) to Continuing Generation (Col 3) and Parent Some College (Col 2) to Continuing Generation (Col 3).

t-test *** p<.001; **p<.01; *p<.05

Table 4. Relationship of Persons Know in Desired Career by College Generational Status

	First Generation (career)	Parent Some College	Parent BA or Higher
First Person Listed	Friends (nurses, vet) Sibling (recent pre-med graduate)	Parent (nurse, pharmacy) Uncle/Aunt (MD) Grandparent (MD) Other relative Friend Own doctor	Parent (MD) Uncle/Aunt (MD) Grandparent (MD) Other relative Friend (of parent MD's) Own doctor

Appendix: Interview Guide

Thank you so much for agreeing to be interviewed. We ask that you read and sign the consent form and the form that says that you have received payment for the interview.

1. How are classes going for you this quarter?
   a. In what specific classes are you doing well/badly?
   b. How are you doing on exams (grades, finishing tests, etc.)?
   c. How is your understanding of the lectures (especially in science classes).

2. How did you do on your very first exams in Biology and Chemistry? Subsequent exams?
   If did not do well in either: Were you surprised at how you did?
   What was your reaction?
   What did you do in response (get help/what did you think, etc.)?

3. What have you been telling your parents about school?
   a. How often do you talk to them about school?
   b. What kinds of things do you talk about?
   c. Have they offered you any advice about school—if so, what?

4. Have you adjusted your career plans since starting college?
   What were your intentions coming into college?
   What are they now?
   What inspired your interest in Pre-Med? (either now or before)
   If have changed aspirations: what specifically caused you to change?

5. Have you sought any extra help with schoolwork or anything else since the beginning of the quarter? Ask about: Tutoring, Drahmann Center, Bio 20, from friend, parent, other relative, high school teacher, study groups, RLC's, CF/RD's, etc.

6. Have you had any one-on-one conversations with any of your college science teachers (chemistry or biology)?
   If yes, About how many times have you gone to each?
   How did you feel about talking to them (nervous, confident?)?
   How did the conversation go? Have you been happy with the outcomes?
   Would you go back to talk to them again?

7. Have you had any one-on-one conversations with your advisor (or the pre-health advisor, etc.) or any other faculty or staff about schoolwork/future career/etc.?
   If yes, About how many times have you gone to each?
   How did you feel about talking to them (nervous, confident?)?
   How did the conversation go? Have you been happy with the outcomes?
   Would you go back to talk to them again?

8. How do you think you are doing in your science classes compared to your peers?

9. To what do you attribute your success/challenges in your science classes?
   High school training, tutoring, help received, motivation, etc.

10. How do you think your experience compares to other students in the class?

11. How do you (have you) study for your Biology and Chemistry exams?
   What process do you use? What do you do?

If the student has dropped Biology and/or Chemistry:

1D. How have you handled the drop in credits (did you have to add classes, did it influence financial aid, etc.)?

2D. Can you please tell the story of your decision to drop: what lead up to it, how you decided, what you did, how you felt about it.

3D. What kind of advice did you seek and from where before you dropped the class?

4D. Are you planning on taking the courses again at some point?

5D. Have you talked to you parents or other close family/friends about this?

If yes, how are they feeling about your decision to drop?

6D. How are you feeling about college and your future right now?

Thank you so much for the opportunity to talk to you, this will be really helpful for future students' experiences. Please feel free to contact me or the professor of this study if you have any questions. And would you be okay with us possibly talking to you later in the academic year? (Mark yes or no on interview sheet.)