

***Priming the Pipeline:
Understanding the Obstacles and Incentives
for Considering an Academic Career***

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Executive Summary

Background

The goal of the Pipeline Project, part of the Stanford Campus Diversity Initiative funded by a grant from the James W. Irvine Foundation, is to analyze the factors that affect academic career choices, particularly of underrepresented minority¹ and women, with the goal to increase faculty diversity. In 2004, the faculty, the graduate students, and the junior and senior undergraduates at Stanford were surveyed. The quantitative and qualitative responses from these groups are presented in this report. Because the primary goal of the project is to address the issues facing underrepresented minorities and women respondents, we highlight the findings for these populations here in the sequence of the academic pipeline.

Results

In analyzing the influences to attend graduate school, summarized in Section A, it was found that underrepresented minority graduate students were more likely to have been influenced by a former employer, and female graduate students were more likely to be influenced by non-advising faculty. Underrepresented minorities were also found to be more likely than non-minorities to be positively influenced to attend graduate school by receiving funding and by the realization that their career opportunities would improve with a graduate degree.

In the next section, on graduate school experiences (Section B), underrepresented minority faculty were found to be significantly more likely than non-minority faculty to be satisfied with their overall relationship with their advisor while they were in graduate school. Current female faculty members felt less prepared for, were more stressed during, and were more likely to consider dropping out of graduate school than their male colleagues. Current female graduate students were also more stressed than male graduate students. In addition, female graduate students were significantly less likely than male graduate students to feel academically capable.

Interest in academic careers is addressed in the following section (Section C). In this section, underrepresented minority faculty members reported to be more likely than non-minority faculty to have been influenced to pursue an academic career by an event or experience.

There were also significant race/ethnicity and gender differences in the obstacles that students anticipate on the road to becoming and being successful as an academic. Women graduate and undergraduate students reported expecting that gender issues would be obstacles to an academic career. Female graduate students were also more likely than male graduate students to see work and family issues as academic career obstacles.

Underrepresented minority undergraduate and graduate students were more likely than non-minorities to anticipate that racial/ethnic issues would be academic career obstacles. Underrepresented minority graduate students were also more likely to report that lack of intellectual confidence is a potential academic career obstacle.

There were many significant group differences regarding which aspects of an academic career were considered appealing. Underrepresented minority graduate students were significantly more likely than non-minority students to find obtaining research funding, applying academic knowledge to society in important and relevant ways, and teaching graduate students to be appealing aspects of an academic career. Female students were more likely than male students to consider teaching undergraduates, applying academic knowledge to society in important and relevant ways, and being a mentor to be appealing aspects of an academic career.

¹ Underrepresented minorities include all respondents who defined themselves as American Indian/Alaskan Native, Black/African American, Latin American/Latino, Mexican American/Chicano, Puerto Rican American and Other Hispanic American. "Non-minority" undergraduate and graduate students and faculty refer to all respondents other than those in each sample who are considered "underrepresented minorities" and includes Asians, Asian-Americans and International respondents.

Section D addresses the academic experiences of the current Stanford faculty. Underrepresented minorities and women faculty share some of the same major issues in regard to their academic experiences. In fact, all of the significant differences by race/ethnicity are also significant differences in gender. There are additional gender differences, as well.

The issues that were significantly more challenging for underrepresented minorities and women faculty members were the tenure and promotion process and racial/ethnic issues. Additional obstacles that were significantly more challenging to females than males were: the politics of academia, the need to relocate for career advancement, gender issues, family obligations, lack of support from family and friends, concern about not succeeding, and perception that one lacks the requisite skills, is not intelligent enough, and is not significantly dedicated enough to one's field.

For some aspects of an academic career, underrepresented minority and women faculty differed from their colleagues, such as being less satisfied with the process of tenure and promotion. Additionally, female faculty members are less likely than male faculty to report satisfaction with academic salary levels, difficulty in augmenting income with work outside the university, academic workload expectations, and the ability to balance work and family.

Both underrepresented minority and female faculty are significantly more likely than other faculty to consider as important to career success at Stanford, understanding the unspoken rules of academia, having the right mentor, being able to negotiate well, and being liked by your colleagues. In addition, female faculty were significantly more likely to report that having good social skills, being confident, and being part of the informal network in your department are important to career success at Stanford. Female faculty members were also significantly more likely than male faculty to report that the tenure process was difficult and that their academic career has been stressful.

In the final section, which addresses issues of work and family (Section E), it was found that female graduate students were significantly more likely than male students to report that their family commitments have a negative impact on their school and work commitments. Female undergraduate and graduate students were also more likely to envision problems in the timing of children and career demands and the integration of career plans with a family life. In addition, they were also more likely to expect a negative effect of parenthood on their career.

Conclusions and Recommendations

The purpose of the Pipeline Project is to understand the obstacles and barriers to pursuing academic careers for underrepresented minorities and women. In focusing on the areas that are most salient to underrepresented minorities and women, we also identify issues of concern for other students and faculty. In doing so, we hope to develop the most relevant strategies for attracting and retaining the best and the brightest students to academia, including those in currently underrepresented groups.

1. As underrepresented minority students were shown to go to graduate school because of a pivotal non-academic experience, universities should provide work opportunities for underrepresented minority students that allow them to interact with individuals engaged in academic work, especially individuals who clearly enjoy their work and actively encourage students to follow in their footsteps.
2. Funding is an important issue to minority students. Universities should publicize the fact that funding is usually available to fully cover costs of graduate education (unlike professional schools), as well as the fact that once a Ph.D. is completed, an academic career could be both a desirable and *attainable* career trajectory. This is important information to share with talented potential graduate students.
3. Critical mass is an important issue for minorities and women. Increasing diversity of the faculty and student populations would increase the number of available role models,

particularly ones who share the same race/ethnicity/gender characteristics of the population to be attracted.

4. Minorities and women reported more difficulty envisioning themselves as academics. Universities need to recognize the importance of inviting and encouraging these individuals to see themselves in the role of faculty and, again, increase the representation of women and minority faculty as role models.
5. Being acquainted with the academic environment is important to increasing the numbers of women and minorities in academia. Universities should provide opportunities, such as summer research programs, for undergraduate minority and female students to become involved in applied research and/or teaching in order to allow them to envision and experience the aspects of an academic career that most appeal to them.
6. Mentoring is essential; encourage faculty to be mentors.
7. Provide seminars, workshops, and a website for both students and faculty on topics of concern, including issues, opportunities, and strategies for success in higher education.
8. Provide a support group program/seminar series to encourage the normalization of the minority/women experience for both students and faculty.
9. Provide good information to graduate student and faculty women and minorities about the processes of academic success.
10. Alert students and junior faculty to the importance of relationship building; reputation management both inside and outside of the university is critical to their achieving academic success.
11. Provide good quality, available and affordable child care, as well as salaries adequate to afford child care and other services necessary to provide a healthy work/life balance.
12. Examine policies with respect to tenure clocks and whether there may be real costs of slowing the tenure clock for faculty who choose that option.
13. Consider the possibility of alternative career trajectories for female and minority faculty who are unable to follow the traditionally prescribed timeline.
14. Address the "two body" issue by providing more dual career assistance, as this is particularly an issue for women faculty, who have traditionally been the ones who relocate due to spouse/partner careers.
15. Allow students to see that there are women and minorities who have succeeded in academia, done it well, and enjoyed it, without significantly sacrificing their personal lives.

I. Introduction

As part of a current James W. Irvine Foundation Campus Diversity Initiative, the Office of the Vice Provost for Faculty Development and Diversity at Stanford University presents this report on Stanford's current academic pipeline. The idea for the Pipeline Study stemmed from ongoing discussions throughout Stanford University about how to increase faculty diversity at Stanford. An acknowledged challenge in achieving the goal of increasing faculty diversity is the comparatively low number of underrepresented minority job candidates. Although we are aware of some reasons for the limited number of underrepresented minority academic candidates, we sought a more thorough analysis of the factors that affect the career choices of our students, particularly underrepresented minorities and women. The Pipeline Project was developed to meet this need.

It is our hope that the knowledge gained from this analysis will enable Stanford University as well as other institutions to develop programs to increase the number of students who choose to pursue an academic career.

II. Timeline

In the fall of 2003, three survey instruments were developed with input from the Pipeline Project Advisory Board (please see Appendix I for a list of the advisory board members). The faculty, graduate student, and undergraduate student survey instruments are included as Appendices II, III and IV, respectively.

In January of 2004 the first web-based survey was sent to a sample of graduate students throughout the university (including the professional schools: business, education, law, and medicine). All underrepresented minority graduate students (Black/African Americans, American Indians, and Hispanic Americans) were invited to complete the survey (N=616 students) as well as a random sample of 616 non-minority graduate students for a total sample of 1,232 graduate students. The response rate was 22% with a total of 272 responses². The quantitative results in this report includes only the doctoral students (N=219). See Appendix V for the numbers of underrepresented minority, non-minority, female, and male graduate student respondents.

The second web-based survey was sent to a sample of third year (junior) and fourth and fifth year (senior) undergraduates in early March of 2004. The year of entry into Stanford rather than the number of units completed was used to determine junior and senior status. The survey was sent to all underrepresented minority (N=704) and a random sample of 704 non-minority undergraduate students³. 395 undergraduates completed the on-line survey resulting in a 28% response rate. See Appendix V for the numbers of underrepresented minority, non-minority, female, and male undergraduate respondents.

The faculty survey was sent at the beginning of June to the entire Stanford professoriate, which includes tenure-line faculty (tenured or untenured), non-tenure-line faculty (teaching, research, applied research and clinical), senior fellows, and faculty in the Medical Center Line (MCL). The entire population was included rather than developing a sample because of the population's relatively small size. 615 faculty members completed surveys out of the population of 1,731 faculty members resulting in a 36% response rate. See Appendix V for the numbers of underrepresented minority, non-minority, female, and male faculty respondents.

For all three surveys, an initial e-mail message from the project principal investigator, the Vice Provost for Faculty Development, Dr. Patricia Jones, was sent to each person in the sample or population requesting their participation in the project. As an incentive to participate, each respondent was included in a drawing for the chance at winning \$150.00 gift certificates to local retail establishments (two gift certificates were included in the undergraduate and graduate drawings and three gift certificates were included in the faculty drawing). Each group was given two weeks to complete the survey, and two reminder e-mails were sent out during the two-week period.

² The response rates for all three surveys were not as high as we would have liked. The relatively low response rates may be partly due to the large number of surveys that Stanford's faculty and students receive over the course of the year. In addition, due to limited project funding, we could not offer attractive incentives for completing the survey.

³ The sample includes students in the co-terminal ("co-term") masters program. Co-terminal students are those who receive their undergraduate and masters degrees together.

III. Methodology

In order to efficiently analyze the three datasets (faculty, graduate, and undergraduate), we focused primarily on the survey items that would most directly help us understand the career decisions made by individuals at various points along the academic pipeline.

A. Qualitative Analysis

For each open-ended item, responses were placed into categories based on the responses received. The frequencies of responses under each category were then tallied in order to measure the emphasis on each category for the item under analysis. To capture the essence of each category, summaries of the responses are described in text form throughout this report.

B. Quantitative Analysis

The responses to quantitative survey items were cleaned and analyzed by frequency. We also separated the data by sub-groups – gender (male versus female), race (underrepresented minority vs. non-minority), field (science and engineering vs. humanities, social sciences and education) - and tested for statistical significance. T-tests were completed to determine significance for continuous items. Chi-Square analysis was used for categorical and dichotomous response items.

Further analyses were completed for the items in which gender and/or race were found to be significant variables. For the items for which underrepresented minority respondents were significantly different than non-underrepresented minority respondents, we ran further t-tests to determine whether female underrepresented minority and male underrepresented minority respondents were significantly different from each other. For the items for which women responded significantly different than men, additional analysis tested whether significant differences could be found between parents and non-parent, female parents and male parents, and female parents and non-parent females. Due to the very small number of parents in the undergraduate and graduate student samples, this analysis was only undertaken for the faculty sample. We also compared the responses of tenured professor and non-tenured tenure track professors for items about academic career experiences.

IV. Results

The findings from this study are presented in the sequence of the academic pipeline: undergraduate, graduate, faculty. Section A presents data on the decision to attend graduate school, and Section B addresses the graduate school experience and decision to pursue a faculty career. Section C covers the basis for the decision by current faculty to pursue an academic career, followed by an analysis of academic career experiences in Section D. A separate section, Section E, focuses on issues about work/family balance because it is an issue that is relevant at various stages of the academic pipeline. The final section presents conclusions and recommendations for institutional changes that can help facilitate an increase in the number of underrepresented minorities and women in academic careers.

It is important to emphasize that although we are tracking the factors influencing decisions at various stages along the pipeline to faculty careers, this is not a longitudinal study. In addition, while these data are informative and helpful for policy and program development at Stanford, there may be limits to which they may be generalizable to other institutions of higher education.

A. Decision to Attend Graduate School

A critical point in the pipeline to an academic career is the decision to attend graduate school. In this section, the decision to attend graduate school is analyzed for the undergraduate and the doctoral student sample populations⁴. This section includes survey results about the level of interest in attending graduate school at various stages in the academic pipeline as well as information about the individuals, events and experiences that influenced the decision.

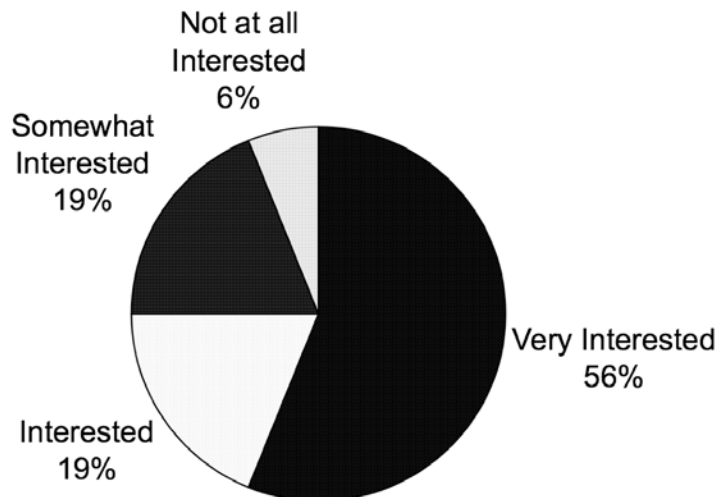
Pursuing Graduate School

More than half of the current undergraduate juniors and seniors in our sample reported that they are “very interested” in attending graduate school (Chart A-1)⁵. Approximately another 40% reported being “interested” or “somewhat interested” in attending graduate school. Only 6% of the undergraduate respondents were “not at all interested” in pursuing a graduate degree.

⁴ No faculty items are included in this section because the faculty survey emphasized experiences in graduate school, motivations for pursuing an academic career and experiences as a faculty member at Stanford University.

⁵ In this item, the students were asked about their interest in attending any graduate program, including business, law, and medical school. While attending one of these programs does not preclude students from eventually pursuing an academic career, attending these programs does not place them on a typical academic track.

Chart A-1
Level of Interest in Attending Graduate School
Undergraduate Students



No significant differences among undergraduate and graduate respondents were found when the results were analyzed by race/ethnicity (underrepresented minority vs. non-minority⁶), gender (female vs. male), and field (science and engineering vs. humanities, social sciences and education).

The undergraduate and doctoral student respondents who reported interest in graduate school were asked whether a single person or event was significant in their decision to attend graduate school. Approximately half of the doctoral student sample (53%) reported that a single person or event impacted their decision. There were no significant differences by race/ethnicity, gender, or field.

There was, however a significant gender difference within the humanities and sciences.⁷ Females who were not in science and engineering fields (that is, female graduate students in the humanities, social sciences and education) were significantly more likely than their male counterparts to report that a single person or event had the most influence on their graduate school decision ($p < .03$).

Fewer undergraduates (27%) than graduate students (53%) reported that a single person or event had a significant positive influence on their decision to attend graduate school, with no significant differences by race/ethnicity, gender or field.

⁶ Throughout this report, “non-minority” undergraduate and graduate students and faculty refer to all respondents other than those in each sample who are considered “targeted minorities”. Targeted minorities include all respondents who defined themselves as American Indian/Alaskan Native, Black/African American, Latin American/Latino, Mexican American/Chicano, Puerto Rican American and Other Hispanic American. Asians and Asian/Americans are included in the non-minority population as are international students.

⁷ Please see Appendices VI-XI for the means and p-values for all significant test results.

Influential Individuals

The doctoral students who were influenced primarily by one person were most frequently influenced by, in order of frequency: faculty members who were not their advisors, their official undergraduate advisor, their father, and their spouse (Table A-1).

Table A-1⁸
A Single Influential Person in Graduate School Decision
Doctoral Students

Most Common Responses, in Descending Order of Frequency

Doctoral Student Sample	Percent of Responses
Faculty member (not formal advisor)	16%
Official undergraduate advisor	6%
Father	6%
Spouse	4%

Most undergraduates in the sample were influenced by non-advising faculty members as well, followed in frequency by their father, their formal faculty advisor, and their employer (Table A-2).

Table A-2
A Single Influential Person in Graduate School Decision
Undergraduate Students

Most Common Responses, in Descending Order of Frequency

Undergraduate Sample	Percent of Responses
Faculty member (not formal advisor)	7%
Father	3%
Formal faculty advisor	3%
Employer	2%

While some students were primarily influenced by a single person or event, others were influenced by multiple people and events. Professors who were not primary advisors were found to be the most influential group to the doctoral students in terms of both the frequency of responses and the degree (the extent to which they exerted a positive influence).

Within the graduate student population, female doctoral students were significantly more likely than males to be positively influenced by a non-advising professor ($p < .01$). Other influential people in the graduate school decision were friends and family members. Underrepresented minority graduate students were significantly more likely than non-minorities to report that a “non-school related employer” was influential in their decision to go to graduate school ($p < .02$).⁹

When undergraduates were most positively influenced by multiple people, they were influenced mainly by their mothers, friends, and fathers. Female undergraduates were significantly more likely than their male counterparts to be positively influenced by their friends to go to graduate school ($p < .01$). The next most frequently reported category of positive influence was faculty members who were not formal advisors.

⁸ Lists of results in tables throughout this report are in rank order. Unless otherwise indicated, the most frequent responses are listed first, followed by the next most frequent response, etc. We list the responses until there is a natural break in the frequency of responses.

⁹ This response was not included in Table A-2 because it was not one of the most frequent responses to the question. It was highlighted in the text because of the statistical significance.

Common Characteristics and Behavior of Influential People

Respondents who reported that multiple people influenced their decision to attend graduate school were asked to identify the characteristics that these influential people shared.

High Level of Education

Both undergraduate and doctoral students reported that the most common characteristic of the people who influenced them was their high level of education. One female doctoral student reported, “My mother and many of my close friends had gone or were going to graduate school; their fundamental conviction, like my father, that graduate school was just the next obvious step, played a major role in my inherent willingness to consider graduate school at an early stage in my career.”

An undergraduate male explained the influence of his environment on his decision to attend graduate school as being “more of an aggregate effect of growing up in an education-focused household, and coming to Stanford, where everybody has a special knack for education and continuing the learning process.”

Support and Encouragement

The next most frequently described traits of influential people were being supportive and encouraging. Included in this is their confidence in the respondent’s intellectual ability, or the “belief in my ability to contribute,” as one female engineering doctoral student explained. An undergraduate female in the sciences reported that the people who influenced her have “encouraged me throughout my school career, constantly reminding me that I’m special and that I can do whatever I want to succeed.”

Self-Confidence

Students also commonly highlighted the unintended consequence of the confidence that these influential people had in them – that of imparting self-confidence to the student. A doctoral student in engineering said, “They thought highly of me, and helped me to think highly of myself.” Another woman reported, “I think that a willingness to listen to my ideas, however half-baked, and their faith in my work and ambitions are the most important ways they have influenced my desire to go to graduate school.”

Mentorship

Mentorship was also described as a key influential ingredient ¹⁰. These influential people wrote recommendations, advised their mentees, edited their papers and were available for consultation when needed. Most importantly, they established a professional relationship with the student. As one undergraduate engineering student explained, “they both took a real interest in helping me achieve the goal of going to graduate school, whether it is help in attaining funding, or just moral support. There was definitely one-on-one help.”

Other Characteristics

¹⁰ The importance of mentoring and advising is consistent with the literature on graduate school decision-making. In Nerad and Cerny (1993) mentoring and advising was found to be a critical component in the decision to attend graduate school, particularly for women and minority students. Mentoring has been shown to be important in programs intended to interest undergraduates in graduate study, such as the Mellon Minority Undergraduate Fellowship Program at Stanford, that helps create high expectations and emphasize intellectual exercise. Advising and mentoring relationships play a key role throughout students’ graduate experience, particularly for women. Nerad (1993, 1996) found that women desire more personalized attention and faculty feedback from their advisor relationships than their male counterparts and are therefore less satisfied with their advisor relationships than male students.

Additional professional characteristics of influential people include being hard-working, successful, committed to and enthusiastic about their work, intellectually curious, and committed to teaching. The latter quality was a particularly important influence to a senior female undergraduate in the humanities who reported that all of the people who influenced her were:

...fascinating teachers, who really engaged me in class. They make an effort to teach to the students, not at them, and thereby draw us in, making us (or at least me) really look forward to every class. While I wouldn't consider any of them to be personal friends, they all viewed me as a human being with interests and a life outside their class, and not just as a sounding board for their next research project.

Other oft-repeated personal characteristics of influential people to both the undergraduate and doctoral students included being positive, caring, compassionate, trustworthy, responsible and worthy of respect.

Underrepresented Minorities and Women

For the population as a whole, sharing the same race/ethnicity or gender with the influential person was not a frequently reported influence. However, having the same race/ethnicity was particularly important for underrepresented minorities, and gender was salient for women.

Underrepresented minorities placed a strong emphasis on the importance of role modeling by others of a similar race or ethnicity.¹¹ A female underrepresented minority undergraduate in this study explained that she is “mainly...influenced by females, possibly also by their skin color, but mostly it is that I see something in them that I realize I could become or would like to become and I think that I could have a similar job in the future.”

This role modeling includes an important element of trust, as one underrepresented minority junior in the social sciences explained, “My previous academic advisor encouraged me because he comes from a similar background as me, and because we have a shared culture, I somewhat value his opinion a bit more when he tells me that I can succeed.”

In other cases, however, neither the race/ethnicity nor the gender of the influential person was the critical piece. What became most important was that they were not approached “with appearance-based preconceptions” and that they were not looked at “as if I didn't belong in science.” A underrepresented minority woman in the sciences explained that “they acted as if I was part of an intellectual group who could contribute...”

Ways of Influencing

Doctoral and undergraduate students explained the ways that various people and events influenced them to attend graduate school. Influential people encouraged them, gave them confidence and support, introduced them to academia or a specific topic that interested them, and provided mentorship and support.

Encouragement

Approximately 20 percent of the graduate students in the sample reported that the person who influenced them to attend graduate school did so by strongly encouraging them. One respondent reported:

¹¹ This echoes a finding by Athey (2000) that showed how mentoring is more likely to occur between people who have something in common; whether it be a professional interest, a sport, or sharing the same race/ethnicity or gender.

The professor whose lab I worked in during undergrad had a discussion with me where she told me that my aspirations to be a genetic counselor were great, but that she thought I'd get bored and that the mental challenges associated with getting a PhD and being a researcher were more along the lines of what she envisioned for me.

Introduction to Research and Academia

Fifteen percent of the graduate student respondents said that their decision had been significantly influenced by someone introducing them to the idea of research and the possibility of academic life. Through taking a course or engaging in a research project, these respondents reported being "awakened" to research in general or to a specific academic field. For example, one current graduate student was asked by her mentor to critique her book chapter. She reported that as she read the first page, she realized, "This is exactly what I want to do."

Role Modeling

Another ten percent of the respondents described becoming interested in graduate school by observing a professor's enthusiasm for his or her subject and adopting faculty and other doctorate-holders as role models. One woman reported that a professor inspired her by, "being an example of using a graduate degree to address community issues."

Experience As Influence

Students also reported being positively influenced to attend graduate school by specific events or experiences in their lives. The events or experiences that were "positive" or "very positive" influential factors for doctoral students were undergraduate courses, work experience after undergraduate education, availability of funding for graduate school, and undergraduate research experience (Table A-3). When only factoring in the "very positive" influence category, the most common response for the graduate students was the availability of funding for graduate school. Undergraduates reported experiences and events that were similar to the graduate students in influencing them to attend graduate school (Table A-3).

Table A-3
“Positive” or “Very Positive” Influential Events or Experiences
in Graduate School Decision
Doctoral and Undergraduate Students

Most Common Responses, in Descending Order of Frequency

Doctoral Student Sample	Percent of Responses	Undergraduate Sample	Percent of Responses
Undergraduate courses	86%	Access to career opportunities	86%
Availability of graduate school funding*	83%	Non-school related work experience	63%
Undergraduate research experience	74%		
Work experience after undergraduate	59%		

* **Underrepresented minorities are significantly more likely to report as a positive or very positive influence**

The factors that resulted in the most negative influence on attending graduate school were the undergraduate grade point average and a lack of or a negative experience during undergraduate research work (Table A-4).

Table A-4
“Negative” or “Very Negative” Influential Events or Experiences
in Graduate School Decision
Doctoral and Undergraduate Students

Most Common Responses, in Descending Order of Frequency

Doctoral Student Sample	Percent of Responses	Undergraduate Sample	Percent of Responses
Undergraduate research experience	10%	Availability of graduate funding	44%
Undergraduate grade point average	9%	Undergraduate grade point average	40%
		Undergraduate coursework	19%

Underrepresented minorities were significantly more likely to report that funding ($p < .01$) (particularly in science and engineering programs) and career opportunities available after attaining a graduate degree ($p < .01$) were positive influential factors in deciding to go to graduate school.¹²

As with graduate students, the negative influences for undergraduates included their grade point average, but also included funding issues and negative experiences in undergraduate coursework (Table A-4). Underrepresented minority doctoral students were significantly more likely to report that the availability of funding had a “positive” or “very positive” influence on their decision to go to graduate school. There were no other significant differences found by race/ethnicity, gender and field for the positive and negative influences.

¹² These findings are consistent with other studies suggesting that assistance with funding issues is a successful way to attract minorities in doctoral programs (Carnegie Initiative on the Doctorate, English, 2003).

Summary

Section A: Decision to Attend Graduate School

Pursuing Graduate School

Ninety-six percent of the undergraduate respondents reported having at least some interest in attending graduate school (for both PhD and professional degrees).

Influential Individuals

Interest in graduate school was fueled by a single event or individual for approximately one-quarter of the undergraduates and one-half of the graduate students, with others being influenced by multiple people or events.

The most influential people for the undergraduates and graduates were (most common responses, in descending order of frequency):

- Faculty members (not formal advisor)
- Formal faculty advisors
- Fathers
- Spouses
- Employers

The common characteristics and behavior of the people who positively influenced the students to pursue graduate school included (most common responses, in descending order of frequency):

- High level of education
- Support and encouragement
- Self-confidence
- Mentorship
- Hardworking, successful, committed to work
- Intellectual curiosity
- Commitment to teaching
- Worthy of respect, trustworthy
- Caring/compassion

The ways that individuals influenced the undergraduates and graduates included (most common responses, in descending order of frequency):

- Encouraged
- Gave confidence
- Supported
- Introduced to academia/research
- Introduced to specific discipline/topic
- Mentored

Influential Events/Experiences

For undergraduates and graduate students, positive influential events or experiences in the graduate school decision included (most common responses, in descending order of frequency):

- Coursework
- Work experience
- Availability of graduate school funding
- Research experience
- Access to future career opportunities

Summary
Section A: Decision to Attend Graduate School (continued)

Events and experiences that negatively influenced students included (most common responses, in descending order of frequency):

- Undergraduate grade point average
- Undergraduate research experience (negative experience or a lack of research opportunity)
- Negative experience with coursework
- Lack of graduate funding

Race/Ethnicity and Gender

Some significant differences exist between groups regarding the influences to attend graduate school (complete results are presented in Appendix VI). Underrepresented minority graduate students were more likely than non-minority graduate students to be influenced by a former employer, and female graduate students were more likely than their male counterparts to be influenced by non-advising faculty. Underrepresented minorities were also found to be more likely to be positively influenced to attend graduate school by receiving funding and by the realization that their career opportunities would improve with a graduate degree. Underrepresented minority undergraduates were more likely than non-minorities to feel unprepared for graduate school.

B. Graduate School Experience

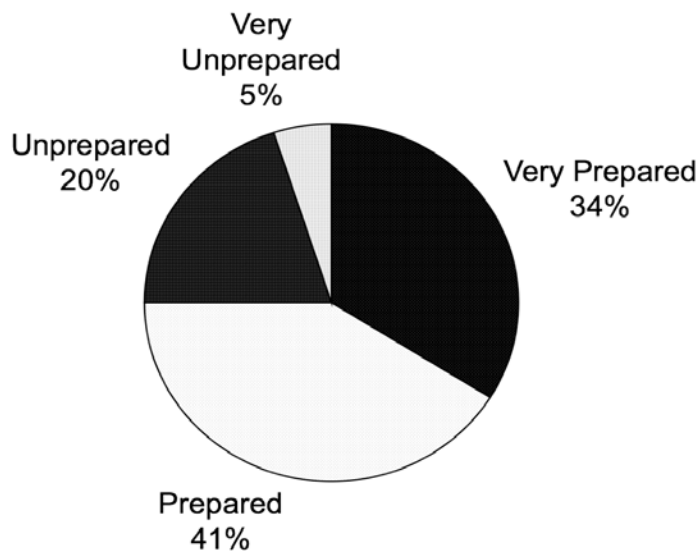
Various graduate school issues and experiences are factors in promoting the choice of a career in academia. This section addresses graduate school preparation and graduate school satisfaction, the reasons for and implications of graduate school stress, and finally the respondents' recommendations for improvements to graduate education at Stanford.

Preparation

All three groups in our study were asked how well prepared they felt, or thought they would feel upon entering graduate school. Current faculty and doctoral students reported retrospectively, and the undergraduates were asked to report their current perception of their level of preparation for graduate school.

Seventy-five percent of the faculty respondents reported that they felt "prepared" or "very prepared" when they began their graduate program (Chart B-1). An additional twenty percent (20%) reported that they were "unprepared" and only five percent (5%) reported feeling "very unprepared". Female respondents reported feeling significantly less prepared than men ($p < .02$), and faculty of both genders in science and engineering reported feeling significantly more prepared than those in humanities, social sciences and education ($p < .01$).¹³

Chart B-1
Level of Preparation for Graduate School
Faculty



Current Stanford doctoral students reported similar perceptions of their preparation for graduate school as the current faculty, with approximately 75% reporting feeling "prepared" or "very prepared". There were no significant differences in this group by race/ethnicity, gender or field¹⁴.

¹³ Please see Appendices VI-XI for the means and p-values for all significant test results.

¹⁴ These results differ from those of a Stanford study of graduate students in science, engineering and medicine that found that women perceive themselves as less well prepared for graduate school than their male counterparts (Zappert, 1984).

Because the individuals in the doctoral student sample and faculty response group chose to attend and were admitted to graduate school, it is no surprise that most felt prepared for their endeavor. The undergraduate sample, on the other hand, includes students who will and will not attend graduate school; thus, it follows that their perception of preparedness is not as consistently positive. In fact, only 50% reported feeling “very prepared” or “prepared” for graduate school. (very prepared =18%, prepared=34%). Another 40% reported feeling “somewhat prepared” and 10% felt “not prepared at all”.

It is notable that the underrepresented minority undergraduates were significantly less likely (to the .01 level) to feel prepared than the other students in the sample. Consistent with the faculty results, science and engineering students were significantly more likely to feel prepared than students in humanities and social sciences ($p < .01$). There were no significant gender differences for this item.

Cohort Comparisons

Both the doctoral student and faculty samples were asked how they compared to their fellow students throughout their graduate programs in terms of their ability in their field.

Of those responding, approximately 60% of both groups reported that they felt more able than their graduate student peers. There were no significant differences by race/ethnicity within either sample; however, women in the faculty response group (but not in the doctoral student sample) reported feeling significantly less able than their male counterparts ($p < .01$).

Graduate School Satisfaction

Doctoral students were asked about their satisfaction with their graduate school experience. They reported being generally satisfied with their overall graduate school experience (21% reported being “very satisfied”, 53% were “satisfied”, 18% were “dissatisfied” and 8% were “very dissatisfied”). There were no significant differences by race/ethnicity, gender, or field.

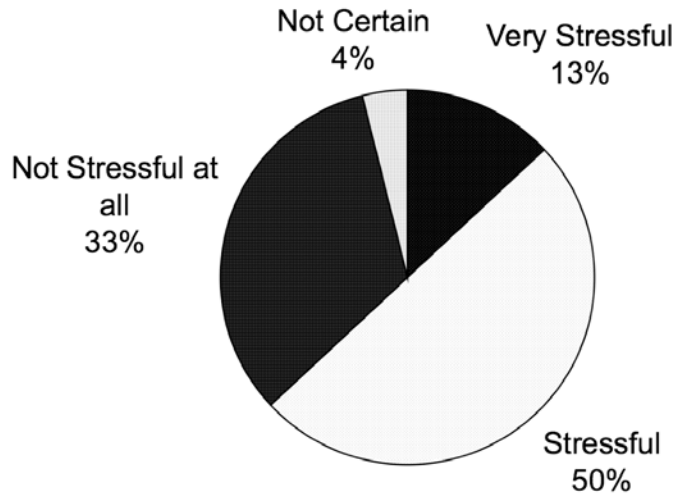
Because advisors are so critical to the graduate student experience (Goodchild, 1997), we emphasized that item in our analysis. Almost 90% of the doctoral student respondents were “very satisfied” (43%) and “satisfied” (45%) with their primary advisor. It is also important to highlight that 20% of the sample reported being dissatisfied with their primary advisor. There were no statistically significant differences by race/ethnicity, gender or field.

On average, the faculty respondents were more satisfied than the graduate students with their overall experience with their graduate school advisor. Sixty-one percent reported being “very satisfied” and 27% reported being “satisfied” with their primary advisor while they were in graduate school. Only 7% were “dissatisfied” and 2% were “very dissatisfied.” Underrepresented minority faculty were significantly more likely to report that they were satisfied with their primary advisor ($p < .01$). No significant differences were found by gender or field.

Stress

We asked our respondents to assess the extent to which their graduate school experience was stressful. Overall, the level of stress experienced by current faculty while they were in graduate school was fairly high. Fifty (50) percent reported that graduate school was “stressful”, and an additional 13% reported that it was “very stressful” (13%). On the other hand, more than one third of current faculty (33%) reported that graduate school was not stressful at all (Chart B-2).

Chart B-2
Stress Level in Graduate School
Faculty



Female faculty members reported being significantly more stressed than their male counterparts during graduate school ($p < .01$). This finding is consistent with others that show gender differences in levels of stress during the graduate years (Zappert, 1984). There were no significant differences by race/ethnicity or field.

Current doctoral students also reported feeling a high level of stress, although a direct comparison between the two groups is impossible because the item measuring graduate student stress was different than the faculty item. 17% of the graduate sample reported that they “always” feel stressed. 43% reported “frequently” feeling stressed and 35% reported feeling stressed “sometimes”. An additional five percent of the sample reported “rarely” feeling stressed.

Similar to the faculty respondents, female graduate students are significantly more likely to report feeling stressed during their graduate school experience than male graduate students ($p < .01$).

Graduate School Attrition

Because this is not a longitudinal study, we are unable to track students who drop out at various points in the academic pipeline and determine the reasons for their attrition. However, we did ask faculty if they ever considered dropping out of graduate school. The vast majority of current faculty (80%) reported that they never considered doing so. Female faculty members were significantly more likely to have considered dropping out of graduate school ($p < .01$). There were no differences by race/ethnicity or field.

Our results showed that academic issues were the most common reason cited by both male and female faculty members for considering dropping out of graduate school¹⁵ (Table B-1). Some

¹⁵ This finding is consistent with other studies on graduate school attrition. Nerad (1996) found that academic issues as well as advisor relations, financial issues and a negative campus climate were all factors that helped explain student attrition on the graduate level.

respondents went through periods where they felt that the work was too difficult for them or that the coursework wasn't challenging enough for them. Others reported that their research did not progress as they had hoped and that they were concerned that their thesis would suffer as a result.

Table B-1
Reasons for Considering Leaving Graduate School
Faculty*

Most Common Responses, in Descending Order of Frequency

Faculty Responses	Percent of Responses
Academic issues	51%
Interpersonal problems	26%
Low self-confidence	14%
Not engaged in work	6%
Health issues	5%
Family issues	5%
Low future salaries	4%
Tight job market	2%
Politics in academia	2%

*Some respondents included more than one reason for considering leaving graduate school, all of which were included in the frequency counts for this item.

Another frequently cited reason for wanting to drop out of graduate school was interpersonal problems with specific individuals such as an advisor or other faculty member. While some explained that they had to deal with "nasty faculty" in general, others mentioned specific faculty members, particularly advisors, who made their experience especially challenging. In one instance, a current faculty remembered that their advisor, "took a disliking to me and tried to have me kicked out."¹⁶

Current Stanford faculty also reported that they considered dropping out of graduate school because they lacked self-confidence at various points in their graduate school careers. In addition, they reported that they were not adequately engaged in their work. Other individual level issues that contributed to considering dropping out of graduate school included health, family and relationship issues¹⁷. One engineering professor reported, "My family life was under extreme stress. I had three children and was heavily in debt."

As the Stanford faculty respondents looked back on their graduate school years, other issues also resulted in thinking about leaving graduate school. Some reported that the coursework was simply too difficult for them or that they found themselves under undue stress. There was also concern by some current faculty members that an academic career would leave them too detached from the "real world"; this was a particularly salient issue for those who were students

¹⁶ Challenges with advisor relations, particularly for women, were found to be a common reason for attrition in other studies. One study showed that female students were found to have less formal time with their advisors than did male students (Zappert, 1984). It was also speculated that men and women may interpret faculty behavior differently. In a 1992 study of graduate students in the biological sciences, Nerad suggests that "the departmental 'benign neglect' doesn't bother the men because their greater sense of entitlement helps them continue. Some women tend to believe that lack of departmental caring and attention means that they don't deserve to keep going. Men and women both look for external validation (publications, fellowships, etc), but women also seek internal validation, such as positive comments from their advisor to carry them through (Nerad, 1992)."

¹⁷ It is important to note here that research shows that women are more likely to struggle with balancing family obligations with their studies (Nerad, 1997) and that minority graduate students are more likely to have dependents than their white counterparts (Nerad 1991).

during the period of the Vietnam War. Another concern was low future salaries and a tight job market in their field.

Some faculty mentioned that they were disillusioned by the politics of academia and the ethical lapses that they witnessed while they were in graduate school. As one female faculty in science explained, "At the beginning, I thought I just wasn't very good at it. At the end, I was fed up with academic politics and wondered if I wanted an entire career of that." Another female professor explained that "it seemed like a lot of agonizing over matters that weren't that important -- impressing people, making contacts, publishing in the right sorts of journals, and all that. Never mind having new and interesting ideas or discovering something useful."

A number of underrepresented minorities explained that their discomfort with the academic environment led them to frequently consider leaving graduate studies¹⁸. A underrepresented minority professor in the social sciences remembered, "I did not feel comfortable in graduate school. The environment was not welcoming or nurturing. I felt lost most of the time. I felt like I did not have a place there and it was possible that I would not have a place in the discipline."

Recommended Improvements to the Graduate School Experience

Graduate Student Recommendations

Current Stanford graduate students were asked how their graduate school experience could be improved upon in order to increase graduate student retention and hopefully to ensure a smoother transition into academic careers. Their responses, while varied, can be grouped into larger categories (Table B-2).

Improved funding and financial support was the improvement most frequently suggested by graduate students. The majority of these recommendations related to making the cost of living more reasonable, such as increasing graduate student stipends, decreasing housing costs (particularly for families), and providing "small one-time grants to help with the exorbitant fees upon dissertation completion." Other students suggested that the university should stop "nickel and diming" them for services such as for phone and internet fees on campus because they feel these charges should be included in tuition.

There was a strong call to improve "faculty teaching skills." Students also felt that the faculty at Stanford would benefit from training on gender, race/ethnicity and class sensitivity issues. Additionally, they suggested that they (graduate students) would also benefit from formal training in teaching and writing strategies, as well as opportunities to independently teach department courses or seminars.

In terms of the general academic environment, students recommended that Stanford foster political and methodological diversity as well as a more collegial environment.

¹⁸ The general academic environment as well as specific practices within a department can also have a negative effect on student disillusionment and attrition and can be felt more intensely by underrepresented groups such as minorities and women (Golde, 1996). For example, in a study on doctoral-level mathematics conducted by the Carnegie Foundation Initiative on the Doctorate, the minority students in the programs found that the competitive and isolated environment to be particularly discouraging (Carnegie Initiative on the Doctorate, Mathematics, 2003; Austin, 2002). A competitive environment can impact the establishment and maintenance of informal networks of students and faculty that can improve a graduate school experience. One example of a woman who faced this issue is Economics Professor Susan Athey, who was the only female tenured professor in Stanford's economics department until she recently left Stanford for Harvard. In an article in the Chronicle of Higher Education, she explained that during her graduate school years in the economics department at Stanford, she noticed that she was being excluded from the important informal interaction between professors and students. To attempt to be included in the network, she joined her department cohort in their weight-lifting workouts (Fogg, 2004).

Table B-2
Recommendations for Improving the Graduate School Experience
Graduate Students and Faculty

Most Common Responses

Graduate Student Sample	Faculty
Improved funding and financial support	Offer more experience teaching and designing courses
Improve faculty teaching skills	Grant writing training
Graduate student teaching and writing training	Training in funding (grant) management
Foster intellectual diversity	Training in selecting and managing students
Foster a collegial environment	Training in mentoring
Improve social and emotional climate	Training in being a mentee
Improve mentoring and advising	Training in academic politics
Simplify/streamline administrative tasks	
Work and family improvements	
Diversify faculty	
Diversity graduate student body	
Student centers to focus more on graduate students	

The graduate students in the sample recommended improvements to the social and emotional climate at Stanford. There was a strong call for more social activity areas for graduate students, as well as more space and increased hours at exercise areas. [Note: Since the survey was done, the university has opened a graduate student center and a large new campus recreation center, both with extended hours.] Some specifically requested that their departments make a better effort to build community. Psychological support was another highlighted need. It was suggested that support groups be formed to help students manage the pressure of graduate school, particularly during the “frustrating” stages of the Ph.D. The current ten-session maximum for counseling sessions was deemed inadequate for graduate students needs. Another important recommendation was to “Provide a person we can *really* trust with whom to discuss our *non-academic* problems”, as well a person who can serve as a graduate student mediator and advocate for graduate students’ concerns.

Improving mentoring and advising is an area about which Stanford graduate students were passionate. They felt that faculty need to be trained to mentor, and that students need help to understand what they should expect from their advisors. Faculty, they felt, need to be held accountable to their advisees and should not exploit students for their research projects and “Silicon Valley companies”. Other recommendations for improved mentoring included developing student support groups by race/ethnicity, gender, discipline and class (especially for those who are the first in their family to attend college).

Administrative issues were emphasized in the graduate student’s suggestions to improve their experience. Decreasing the amount and complexity of administrative hassles at all levels and stages of the graduate program was a common request. Students also made a general plea to streamline various administrative procedures (such as matching stipend distribution to university bill payment) in order to limit the time and energy students currently spend on these issues.

Work and family issues were also important to graduate students. They recommended extending the childcare subsidy grants, (currently available for low income employees), to students and offering a larger number of high quality and affordable alternatives for childcare.

Although race/ethnicity and gender issues were included throughout the various recommendations already highlighted, there are aspects of these issues that stand on their own

as separate recommendations. The most resounding recommendations were to “recruit a more diverse faculty and student body (race/ethnicity, gender, class) and to create infrastructures to support them.” One student recommended that Stanford could take a pro-active approach to this by “actively penalizing faculty and departments that are unwilling to recruit women and minorities as students and faculty.” It was also recommended that the various underrepresented minority group student centers focus less on undergraduates and more on their graduate students in terms of developing academic and social programs.

On the other hand, a few students expressed frustration about what they considered to be an overemphasis on race/ethnicity and gender. For example, one male engineering student who is not a underrepresented minority stated, “Stop blabbing about hiring minorities and women. It insults people, not helps them. If they deserve to be here, great. If they don't, do not accept them.”

Faculty Recommendations

Current faculty members were asked to recommend ways to improve the graduate experience and to better prepare graduates for academic careers (Table B-2). The two areas that were mentioned most frequently were more opportunities to gain teaching and grant writing skills.

In thinking about their own experience as new professors, current faculty would have liked to have more experience teaching and designing courses. Although some had experience as a teaching assistant in graduate school, they found that the skills that they gained were not adequate to prepare them to teach their own courses. Specific recommendations they made for training included teaching them how to give a lecture, and offering lessons on how to prepare a syllabus for a class.

Another area where more formal training was needed was in grant writing and funding management. One professor reported, “it would have been extremely helpful to have some start-up funding, along with mentoring about how to pursue grant funding in my own name.” Others recommended the university offer formal and regularly scheduled workshops in grant writing for new professors.

Once grants are received, faculty reported that they would benefit from training in how to manage the grant. A tenured engineering professor reported about his challenges once he received his first grant:

I wish there was a simply “dummy guide to funding jargon,” in which terms such as “unrestricted funds” and “restricted funds” were explained, for example. I had to pick this up piecemeal. Thankfully, I was given the world’s best admin, without whose help I would have thrown in the towel.

Professors also wished that they had more preparation in selecting and managing students when they began their career in academia. They found that there was an “art” to selecting students who would excel in academics and in project work, and that it was a “big transition from managing yourself to managing others.”

Professors reported wishing they had been better prepared to work with students as employees, teaching assistants and mentees. One professor recalled “I feel sorry for the people I experimented on for the first five years as a lab manager.” A female professor reported, “It took me years to find out how to use a T.A. and I still rely too much on my teaching assistant’s own initiative.”

Faculty reported that receiving better mentoring would have better prepared them to be a professor. They would have liked more mentoring about the realities of academia during graduate school, and well as guidance from colleagues within and outside of their departments once they arrived at Stanford. Many faculty respondents highlighted that a mentoring program can only be successful if the mentor to whom one is assigned is truly dedicated to mentoring.

Current faculty felt they lacked academic training (for example, better graduate training or the opportunity to post-doc before accepting a faculty position). They also reported wishing they had a better understanding of the general political nature of academic work and of the specific politics at Stanford and in their departments.

Summary

Section B: Graduate School Experience

Preparation

Most faculty members and doctoral students felt prepared when they began their graduate school programs. Fewer, approximately half, of the undergraduates felt prepared for graduate school.

Cohort Comparisons

Most of the current faculty and current doctoral students in the samples felt more able than their graduate student peers.

Graduate School Satisfaction

The current faculty and to a lesser extent, current doctoral students, felt satisfied with their graduate school primary advisor.

Stress

More than 50% of the faculty found graduate school to be “stressful”, although approximately one-third of current faculty reported that graduate school experience was not stressful at all.

Graduate School Attrition

The majority of the current faculty sample (80%) never considered dropping out of graduate school. For those who did contemplate leaving graduate school, some of the reasons included (most common responses, in descending order of frequency):

- Academic issues
- Interpersonal problems
- Low self-confidence
- Not engaged in work
- Health issues
- Family issues
- Low future salaries
- Tight job market
- Politics in academia

Recommended Improvements to the Graduate School Experience

Some of the recommendations to improve the graduate school experience made by the graduate students and faculty include:

- Improved funding and financial support
- Faculty training (general teaching skills, funding management, student management, mentoring/advising, academic politics)
- Diversify faculty and graduate student body
- Foster intellectual diversity
- Foster a collegial environment
- Improve the social and cultural climate

Summary
Section B: Graduate School Experience (continued)

Race/Ethnicity and Gender

Some of the findings in this section were shown to be statistically significant when the results were broken down by race/ethnicity and gender (complete results are reported in Appendix VII). Underrepresented minority faculty were significantly more likely than non-minority faculty to be satisfied with their overall relationship with their advisor while they were in graduate school. Current female faculty members felt less prepared for, were more stressed during, and were more likely to consider dropping out of graduate school than their male colleagues. Current female graduate students were also more stressed than male graduate students. In addition, female graduate students were significantly less likely than male graduate students to feel academically capable.

C. Interest in Academic Careers

Once a student decides to pursue a doctorate, s/he has likely given at least some consideration to pursuing a career in academia. Students in some fields that are more closely aligned with an industry such as engineering, biology etc., are offered viable career alternatives to academia. In other cases, particularly in the humanities and social sciences, there are fields where students may feel that they have limited career alternatives outside of academia. In fact, in a study of over 4,000 doctoral students from 27 U.S. universities in 11 arts and science disciplines, it was found that students who were least interested in academic careers were in disciplines with better career opportunities for Ph.D.'s in industry (Golde, 2001).

Being mindful of this disciplinary variation, the goal of this section is to explore the influences that had an impact on the motivation to pursue an academic career. Specifically, in this section we address the time period when interest in academic careers developed, who and what the academic career influences were, the aspects of an academic career that are perceived as appealing, the perceived obstacles that stand in the way of an academic career, and recommendations to minimize academic career obstacles.

When Interest in Academic Careers Developed

In this portion of the study, we sought to understand at what point in the academic pipeline students become interested in academic careers. Our results show that when the current Stanford faculty were undergraduates, thirty percent of the faculty respondents reported that they were "very interested" in pursuing a career in academia. This percentage doubled (to 62%) when this group was in graduate school.¹⁹ The percent of the sample that reported they were "interested" remained at the same level from undergraduate (19%) to graduate school (20%).

The responses from the current doctoral student sample reported slightly lower levels of interest than the current faculty response group while they were in graduate school. Specifically, 50% were "very interested", 18% were "interested" and 23% were "possibly interested." Thirteen percent of the current undergraduate sample reported being "very interested" and another 13% reported being "interested".

For both the graduate sample ($p < .01$) and faculty respondents ($p < .01$), individuals in the sciences and engineering fields were significantly less likely to be interested in an academic career during their undergraduate years than those in humanities and education, attributable perhaps to the greater job opportunities in research for PhD's in industry.²⁰ There were no significant differences by race/ethnicity or gender.

Thirty-five percent of graduate students reported no change in their desire to be an academic since starting their graduate education. Within the 65% who did change their desire to be an academic, 37% reported a decreased desire and 28% reported an increased desire.²¹ No differences were found along gender and racial lines.

We also asked the current Stanford faculty at what point in time they made their decision to pursue academia as a career. Thirty-two percent of the faculty sample reported that they decided to become an academic before graduate school. Another 41% reported that they decided to become an academic during graduate school. Many science and engineering faculty members decided during a post-doc position, while humanities, social sciences and education faculty

¹⁹ Sixty eight percent of Stanford University doctoral students were "very interested" or "interested" in academia which is consistent with the finding from a 2001 study that showed 63% of doctoral students from 27 universities who expressed interest in academia (Golde and Dore, 2001).

²⁰ Please see Appendices VI-XI for the means and p-values for all significant test results.

²¹ Stanford doctoral students were much less likely to decrease their interest in an academic career during their graduate student years than the students in the 27 Universities (in which Stanford was a part) included in the study by Golde and Dore (2001). Fifty percent of the students in the Golde and Dore study compared to 37% of the Stanford students reported a decreased interest in academic career while in graduate school.

tended to decide to pursue a career in academia while working after their undergraduate or graduate programs.

Academic Career Influences: People

Approximately seventy percent (70%) of the faculty sample reported that there was a person who influenced their decision to become an academic. No significant differences were found when the sample was broken down by race/ethnicity, gender, and field.

Current faculty members were most frequently influenced to be an academic by an undergraduate faculty member (Table C-1). After undergraduate faculty, the other influential people were (in order of frequency): “other” (non-advisor) graduate faculty; a graduate or thesis advisor; their father; and their post-doc professor or mentor. A few professors in the sample reported being strongly influenced by people who they never met, but were introduced to through books, television, (such as Mr. Wizard and Jane Goodall), or lectures/books by famous (and not so famous) speakers and writers.

**Table C-1
Influential People in Academic Career Decision
Faculty**

Most Common Responses, in Descending Order of Frequency

Faculty (Item N=424)	Percent Responses
Undergraduate faculty	28%
Graduate school faculty member (not formal advisor)	25%
Graduate school advisor	17%
Father	16%
Post-doc professor/mentor	8%

When asked about the ways that they were influenced to be an academic, faculty in the sample explained that it was mainly through role modeling, active encouraging, and mentoring.

Modeling

Many current Stanford University faculty members explained that they were influenced to pursue an academic career by observing various individuals, such as parents, spouses, relatives, and professors, during all stages of their education and training.

Role models were influential to the current faculty because of various characteristics. Some of these characteristics were related directly to academic careers, such as infectious enthusiasm (passion) about research and discovery, caring and dedication to teaching, commitment to work, and commitment to university citizenship. A number of respondents also explained that they were shown “the important role of academics in making the world a better place.”

Other modeled characteristics were general in nature such as being charismatic, “quirky but wonderful”, passionate, intelligent, knowledgeable, confident, possessing good values, and exhibiting exceptional leadership. A tenured female professor remembered:

I was most inspired by a group of professors I met at Hampshire College who I found out stayed up all night preparing for a class they had taught for many years. Every year they changed the readings and as a co-taught course, the professors always made the pursuit of new intellectual questions appealing.

Observing these role models exposed future Stanford University professors to academic life and allowed them to observe the extent to which academia can be a rewarding career. Many respondents wanted to emulate their role models.

Others shared characteristics with them and therefore felt that a similar career choice was a natural move for them. As a female professor reported:

As an undergraduate, I had only one female professor. During my Master's program, I had a female professor who also had a family. This was the first time I considered the possibility of becoming a professor.

Race/ethnicity was also important in successful role modeling. A female underrepresented minority professor explained how she was "...inspired by several faculty of color...All of these individuals encouraged me, for the first time, to imagine that ...I, personally, as a woman of color, had an important perspective to contribute..."

In addition, social class was reported to be a relevant in role modeling relationships. One faculty woman recounted, "When I met with an undergraduate professor who was from a working class background and who encouraged me to become a professor, I thought that almost everyone who was a professor was from a professional background, but he was living proof that this wasn't necessarily the case."

The Role of Fathers

Among our faculty respondents, there was a great deal of discussion about and descriptions of a father's influence on the decision to become an academic. Although many of the descriptions include behaviors described more generally above, the special and frequent importance of a father's influence merits special attention.

This study shows that at least 12%²² of the faculty respondents had a professor in their immediate family. Given the small percent of women who were in the academic workforce when this group of faculty were young, in most of these cases this person would likely have been their father. As one tenured male faculty member reported:

My father was a university professor, in a vastly different specialty and at a vastly different university, but I grew up in an academic environment, knowing him but also his colleagues and students. A lot of my colleagues come from academic families. I think it's a very important factor, maybe the most important.

When many report that their fathers were influential in their decision to be an academic, it is no surprise that it was often described through role modeling. Academic fathers were described as "happy in his work", and having a "high level of satisfaction gained through rigorous scholarship and research."

Most fathers were described by their children as inspirational and encouraging, in some cases "strongly encouraging". One female faculty member reported that her father "expected" her to become an academic. Another explained that many family members were academics and that it was highly valued in her family.

Academic fathers also shared the negative aspects of being a professor with their children. One father described the "disincentives" to becoming an academic, "too much work, no money and too much (sic) headaches and politics". Another father frequently complained about grant writing, infighting and general pettiness. Nevertheless, his advice to his son was uniformly enthusiastic, explaining that his griping was simply "selective reporting."

²² We culled this information from free-responses about influences to their academic career. If asked directly, it is likely that an even higher percentage of our respondents would have reported that a family member was a professor.

Non-academic fathers were also highly influential to some in the faculty sample. One female faculty member reported that her father listened to her “describe my interests as an adolescent and told me that to do that, I needed to get a Ph. D. and do research, which was something that I previously had no idea of.”

An academic physician in our sample was influenced by her physician father because she saw that he became bored with his private practice by the time he was 50 years old. She decided to become an academic in hopes that she would constantly be faced with new challenges and avoid the routine of a life of private practice.

Another non-academic father was the single biggest influence for a male faculty member in our sample. His father had told the faculty member that he had no chance of becoming a good scientist, so he chose the academic path to disprove his father’s hypothesis. His father later reported that this was his plan all along.²³

Encouragement

Faculty members in our sample explained that the people who influenced their decision to become a faculty member were very encouraging. They were encouraged to pursue academia at all stages of the process, even as early as high school in one case.

The encouragement sometimes occurred in an explicit way, by having one intense conversation or having numerous conversations over time. One male professor explained that there were a couple of professors that were “distainful” of my not pursuing academia. Others described being “asked” or “told” to be a professors. In one case, after working in industry after graduate school, a current faculty member reports that a “professor called me every year to ask if I had changed my mind and eventually I had.”

More than one faculty member remembered the details of the crystallizing conversation that took place. One respondent recalled his Ph.D. advisor having said, “I believe that you have the potential and the temperament to be a professor. Think about it.” Similarly, a female professor reported that “a professor I barely knew from another discipline sat me down one day and told me, ‘you need to go to graduate school--I don't care where--just go.’ I had never been mentored before this. I started UC Berkeley graduate school two months later.”

In another case, a male underrepresented minority reported that “in my first week at university, my professor of math urged me to do what I liked (math), not what would get me a good job (engineering).”

Other faculty members felt encouraged through less explicit processes. One reported that he was encouraged when one undergraduate professor “took my ideas seriously” and another when her advisor “took a strong interest in my development as a scientist.”

A number of faculty respondents described the person who influenced them as helping them overcome their lack of confidence. Descriptions of this include “convincing me that I could do it” and “helping me overcome my lack of self-confidence about an academic career.” It is important to note that all of the faculty members who reported this were women.

²³ Given the importance of fathers in academic career decision-making, it is worth highlighting that eighty-six percent of the doctoral student sample reported that their parents would be “supportive”(26%) or “very supportive”(53%) of their desire to come a professor. Only 8% reported that their parents would be “unsupportive”(2%) or “very unsupportive” (6%). No significant differences by were found by race/ethnicity, gender or field. The undergraduate sample yielded almost identical results.

Mentoring

In addition to encouraging words, there were many reports of influential people taking a more active mentoring role. Faculty respondents reported being grateful to be offered research opportunities, described as being “invited to work in her lab” or “letting me work with him”. The “real” mentoring often emerged as a result of a professional relationship that developed through this work and the professional outcomes of the research. For example, a respondent reported that “They basically showed me how to conduct a research project and write a manuscript, and I was a co-author on two publications. That really encouraged me because I realized that thinking critically, collaborating, and contributing to general understanding was important.”

In many cases there was no formal working relationship that helped foster the mentoring that took place. One female professor reported that as a graduate student, one of her professors “suggested I try working with his data to do a study and write a paper- encouraged me to present it.” Another explained that a member of her dissertation committee “...made a particular effort to professionalize me and encourage me to publish and to apply for academic positions relatively early in my graduate career.”

In a number of cases, mentorship occurred during the undergraduate years or earlier and included nominations to awards (in one case a Woodrow Wilson fellowship), encouragement to apply for summer programs (such as an NSF- sponsored summer course), and recommendations to attend and in some cases present papers at national meetings.

In other cases, the mentoring took place in the framework of a course. As one female professor reported:

I became serious (about a career in academia) when two professors took particular interest in me. One of these is notable in that she nailed me on a paper and then requested a conference to explain her harsh grade. She told me that my paper was better than anyone else's in the class but that she expected so much more out of me that she gave me a harsh grade. This made me really pay attention to the deficits I had and really set me on the path to graduate study and academia.

Academic Career Influences: Events and Experiences

Slightly more than forty percent (42%) of the faculty sample reported that an event or experience crystallized their decision to pursue an academic career (compared to 70% who reported that a person influenced them). Of this group, underrepresented minorities were significantly more likely to report being influenced by an event or experience ($p < .04$). There were no significant differences by gender or field.

Approximately the same percentage of graduate (45%) and undergraduates (41%) as the faculty reported that an event or experience influenced their desire to pursue an academic career. There were no significant group differences found within either sample.

Faculty

When asked to describe the event or occurrence that helped to crystallize the desire to be an academic, the responses by the faculty sample differed from the undergraduate and graduate samples, reflective largely of their location within the academic pipeline (Table C-2).

Work experience inside and outside the university was a strong influence on faculty. One professor fondly remembered working at a science lab during his undergraduate years and joining in the “give and take” sessions with those on the project. Much of the work described as influential was research and many faculty reported excitement and fulfillment as they were taught how to “do” research.

Others reported working outside of academia and finding it dissatisfying for various reasons including a lack of intellectual challenge, and in one case finding that “I did not like taking orders from people whom I thought were less intelligent than me.”

It is instructive to highlight that not all of the work that influenced future Stanford faculty was academic in nature. One professor describes his summer job as a maintenance person at a research lab in which:

All of the managers wore ties and came to work at 8 a.m. There were these guys in unkempt clothing that kept irregular hours and got lots of respect from the others in the organization. I later found out that these were ‘the scientists.’ I wanted to be one.

Interestingly, many faculty members reported that the event or experience that crystallized their decision to become an academic did not occur until they received an academic job offer. Until then, they were still undecided about their future career. In some cases, they were “invited” to apply as a student or while working in industry. In other cases, they applied on their own but once they progressed through the application process and received a job offer, it became clear to them that academia was their career choice. A female professor explained that her reason for becoming a professor was: “Getting a job at a great school.” Later she realized that, “In retrospect, it was not a great reason.”

Coursework itself was a crystallizing effect for some, but it is important to highlight how this experience intersected with both race/ethnicity and gender in some cases. For example, a female, tenured, and underrepresented minority professor reported that:

The courses that I took with the faculty of color...which introduced me to...scholarship and critical ...theory... caused me to consider, for the first time, the possibility of becoming an academic myself.

“I can trace this back to high school,” explained a tenured female professor, “I was always a voracious reader, but I had a teacher who opened my eyes to the joys and pleasures of literary analysis.” Another female professor reported “I had no female professors or mentors (zip) during undergraduate and graduate studies!”

Other events or experiences considered influential by current faculty included teaching experiences, receiving financial support, realizing that academic job offers come with intellectual autonomy, and receiving positive feedback for their work -- either verbal, or in the form of publications or receiving grant funding.

Students

The academic career influences described by the undergraduate and graduate samples were similar to each other both in terms of content and frequency (Table C-2). Both undergraduates and graduates explained the importance of coursework and project work in their decision to pursue academia. A female undergraduate in the humanities explained that her project work with her advisor and three doctoral students was “academically stimulating and professionally motivating.” Her advisor strongly recommended that she consider doctoral work and that “this comment alone - from my advisor that I respected so much - crystallized my desire to be an academic.” Another undergraduate explained that while taking a seminar from a visiting professor, he said “Aha! This is how you do it”, changed schools, and began serious study for an academic career.

Table C-2
Influential Events/Experiences in
Academic Career Decision
Faculty and Graduate and Undergraduate Students

Most Common Responses, in Descending Order of Frequency

Faculty Item N=237	Percent of Responses	Graduate and Undergraduate Item N (graduate and undergraduate)= 260	Percent of Responses
Work experience	16%	Coursework	10%
Receiving an academic job offer	10%	Project work	9%
Receiving positive feedback for their work	6%	Teaching	8%
Teaching experiences	5%	Observing/interacting with role models (intersecting with race/ethnicity)	5%
Understanding independence of academic jobs	5%	Participation in special programs	3%
Receiving financial support	3%		
Coursework (intersecting with race/ethnicity and gender)	1%		

Being offered teaching experiences also helped fuel interest in academia for the graduate and undergraduate respondents. A female doctoral student explained that she was:

...far more interested in a career outside of academia. However, TA-ing a course absolutely changed my feelings about this decision. Exposure to students, working with them to help frame concepts and ideas was very exciting and is an opportunity that is far less present outside of academia.

Students were influenced by observing and interacting with their role models as well. These role models were mostly professors from their undergraduate or graduate years, but one female student reported that her role modeling experience began when she was two years old:

...sitting on the floor of my mother's office while she held office hours. Over the years of sitting in on her classes, helping her grade exams, and witnessing the pure joy this profession brought to her, I saw that it might be a good path for me as well. I love teaching, and I have grown to love research over my graduate career.

Race/ethnicity was also emphasized as important in the role modeling relationship. A male, underrepresented minority doctoral student reported that simply “seeing other successful faculty of color during my undergraduate experience at the University of Michigan opened my eyes to the fact that I could do it to. It was an attainable goal.”

Another underrepresented minority doctoral student described the moment the “light went on” for her. “I was about 30 years old,” she reported, “having a beer with two friends who happened to both be Native American professors at the local university in the town where I was working. One of them said, ‘Why don't you think about getting a PhD?’ and that was it. That invitation completely changed my life.”

A few respondents reported being positively influenced by participation in special programs. One underrepresented minority doctoral student described the importance of the Mellon Minority Undergraduate Fellowship program in making her believe that she wanted to be an academic because “it compensated me at a very financially vulnerable time in my educational career.” Another underrepresented minority doctoral student described that participating in a University California at Berkeley summer research program for undergraduate students of color was influential to him. He explained, “As it turns out, at least four of us from that program ended up pursuing graduate degrees at Stanford.”

Appealing Aspects of Academic Careers

Graduate and undergraduate respondents were asked what they perceived as the most appealing aspects of a career in academia. The faculty responses to similar questions are presented in the following section on academic career experiences.

At least 90% of the doctoral students reported that they found the following aspects of academic life “appealing” or “very appealing”: Having a flexible work schedule, the opportunity to create knowledge, being a mentor, applying academic knowledge to society, teaching undergraduates and graduates, and doing research (Table C-3).

Similar to the doctoral student sample, the undergraduate respondents found the following aspects of the academic career to be appealing: having a flexible work schedule, applying academic knowledge to society, and the opportunity to create knowledge (Table C-3).

Table C-3
“Very Appealing” and “Appealing” Aspects of Academic Careers
Doctoral and Undergraduate Students

In Descending Order of Frequency

Doctoral Students	Percent of Responses	Undergraduate Students	Percent of Responses
Having a flexible work schedule	98%	Having a flexible work schedule	96%
The opportunity to create knowledge	97%	Applying academic knowledge to society**	93%
Being a mentor**	96%	The opportunity to create knowledge	92%
Applying academic knowledge to society	95%		
Teaching graduate students*	95%		
Teaching undergraduates**	91%		
Doing research	91%		

* Underrepresented minorities are significantly more likely to find this aspect to be appealing

** Females are significantly more likely to find this aspect to be appealing

Compared to the doctoral students, the undergraduates did not find teaching, mentoring, and doing research as appealing. It is also interesting to note that undergraduates considered a number of elements of the academic life to be more appealing than did the graduate students, including academic salary levels, the way that professors are treated in the university, the ability to raise a family and the ability to lead a balanced life (Table C-3)²⁴. These differences may partly be explained by the undergraduates' lack of exposure to the realities in academia compared to alternative careers.

Conversely, the “unappealing” or “very unappealing” aspects of academic life according to the doctoral students include: the process of tenure and promotion, academic workload expectations, obtaining research funding, and the salary levels in academia. Undergraduates found that the process of tenure and promotion and obtaining research funding to be “unappealing” or “very unappealing” (Table C-4).

Table C-4
“Very Unappealing” and “Unappealing” Aspects of Academic Careers
Doctoral and Undergraduate Students

Most Common Responses, in Descending Order of Frequency

Doctoral Students	Percent of Responses	Undergraduate Students	Percent of Responses
Process of tenure and promotion	84%	Process of tenure and promotion	82%
Academic workload expectations	76%	Obtaining research funding**, ***	70%
Obtaining research funding*	75%		
Salary levels in academia	73%		

* Underrepresented minorities were more likely to find this aspect of academia unappealing

** Males more likely to find this aspect of academia unappealing

*** Humanities and Social Sciences students less likely to find this aspect of academics unappealing

Group Differences²⁵

For both the undergraduate and graduate student respondents, some significant group differences by race/ethnicity and gender were found.

As shown in Tables C-3 and C-4, underrepresented minority doctoral students are significantly more likely than non-minority doctoral students to find teaching graduate students appealing ($p < .04$).²⁶ Underrepresented minority doctoral students were significantly more likely than non-

²⁴ Some responses are not included in Tables C-3 and C-4 because they are not one of the most frequent responses to the question. In some cases, non-frequent responses are highlighted in the text in order to compare responses by sample or sub-group.

²⁵ The significant findings of the sub-groups offer a sense of specific aspects of academia that are considered appealing or unappealing to various groups; however, caution should be taken in generalizing the findings due to the small “N” of each sub-group. It is also important to note that this set of items may reflect how the different populations view their opportunity structure as academics. For example, non-minority males may see the opportunity to start a company and therefore find it appealing, whereas female doctoral students may not see that as an option and therefore do not report it as an appealing aspect of a career in academics.

²⁶ In a similar finding, Nerad (1996) suggests that minorities' choices of professional schools over disciplines more oriented toward an academic career are due to the desire to give back to their communities and to have a greater certainty in career outcome than can be offered the academic route (Nerad, 1996). One study showed that black students who pursued an advanced degree were seven times more likely than white students to study law or medicine (Bowen, 1998).

minority doctoral students to find obtaining research funding ($p < .01$), and applying academic knowledge to society unappealing aspects of being an academic.

Female students were found to be significantly more likely to consider teaching undergraduates ($p < .01$), applying knowledge to society ($p < .05$), and being a mentor ($p < .01$) to be significantly more appealing than did male doctoral students.

Male ($p < .01$) doctoral students found the ability to start one's own company to be significantly more appealing than did underrepresented minority and female doctoral students.

Students' Perceived Obstacles to Academic Careers

Despite the individual, group, and experiential influences on pursuing an academic career and the many reported appealing aspects of academia, the undergraduate and graduate respondents also reported that they perceived obstacles along their academic path.²⁷

For doctoral students, the biggest obstacles to becoming an academic included a concern about limited academic positions in their field, a lack of dedication to their field, the real and opportunity costs of training, the fear of failure, and concern that they lack the requisite skills (Table C-5).

Non-minority doctoral students ($p < .05$) and engineering and science doctoral students ($p < .05$) were found to be significantly more likely than their counterparts to feel that an obstacle to become an academic is that they are not intelligent enough.

Humanities, social sciences, and education doctoral students are significantly more likely to feel that their lack of intelligence is an obstacle to becoming an academic ($p < .02$).

The undergraduate respondents share the same concerns as the doctoral students such as the costs of training, lack of dedication to their field, and the lack of requisite skills. In addition, they are concerned with the length of training and feel that they may not be intelligent enough.

In the undergraduate sample, some significant group differences were found. Humanities and social science students were significantly more likely to feel that they do not have the requisite skills ($p < .03$), and non-minorities are significantly more likely to feel a lack of dedication to their field ($p < .03$).

We also asked about the perceived obstacles to being *successful* as an academic (Table C-5). Both undergraduates and doctoral students reported that a lack of dedication to their respective fields and intellectual insecurity were the main impediments to academic success. Although only 5% of the graduate students reported that issues of work and family were considered an obstacle to becoming an academic, females were significantly more likely to report this to be the case than males ($p < .01$).²⁸

It is important to report that underrepresented minority undergraduate and graduate students were more likely than non-minority students to anticipate that issues related to race and ethnicity were an anticipated obstacle to becoming and being successful as an academic. In the undergraduate sample, we also analyze this item by gender and race and found that underrepresented minority women were significantly more likely than underrepresented minority men ($p < .01$) to consider race/ethnicity as a potential obstacle to becoming a professor. In a related finding, female students were significantly more likely than males to report that gender issues were expected to be an impediment to a career in academia. Please see Appendix VIII for significance levels.

²⁷ Faculty experiences with obstacles to their academic careers are reported in the following section on academic career experiences.

²⁸ Other studies show this to be a gendered issue as well and one study finds that it is a particularly relevant issue for women faculty of color (Turner, 2002).

Table C-5
Perceived Obstacles to *Becoming* and *Being Successful* as an Academic
Doctoral and Undergraduate Students

Most Common Responses, in Descending Order of Frequency

Doctoral Students	Percent of Responses	Undergraduate Students	Percent of Responses
Limited academic positions available	51%	Real and opportunity costs of training	41%
Lack of dedication to the field	28%	Lack of dedication to the field	41%
Real and opportunity costs of training	21%	Lack the requisite skills*	27%
Fear of failure	20%	Length of training	39%
Lack the requisite skills	18%	Intellectual insecurity	32%
Intellectual insecurity***	14%		

* Students in the humanities and social sciences were significantly more likely to perceive this obstacle

** Underrepresented minority students significantly more likely to perceive this obstacle

*** Non-minority students were significantly more likely to perceive this obstacle

In explaining the obstacles to academic success in more detail, both samples (undergraduates and graduate students) offered insights into the areas of race/ethnicity and gender issues, difficulties in finding and succeeding in their jobs, and geographic issues.

Racial and gender issues were a primary concern for graduate and undergraduate students. In some cases, the issues were addressed separately, as in the case of a female senior in the humanities and sciences who explained, “Academia regularly gives women the shaft. Any woman who succeeds in a large research university is two or three times more qualified and harder working than her male colleagues.”

There was an intersection of race/ethnicity and gender in responses from other students. As a junior underrepresented minority woman explained:

If I were able to take courses by more women and minority professors at the undergraduate level, I might feel less inhibited by my gender and race/ethnicity. There are two women professors...that really allowed me to see that women are...excellent and thorough researchers and teachers. They boosted my confidence and determination to pursue a graduate degree and possibly consider teaching.

The desire to have a family was highlighted by some of the undergraduates and graduate students as a significant obstacle to becoming and succeeding as an academic. Although the respondents did not explicitly identify this as a gender issue, it is important to note that the vast majority of those respondents were women.

Some students expressed concern that the interdisciplinary nature of their work would preclude them from finding a job because “the availability of top tier positions is very idiosyncratic.” Others highlighted the concern that even if they land a position, they acknowledge that “professorial support is very arbitrary and subjective.” They are vocal about the possibility that unsupportive colleagues may have a detrimental affect on their career. As one student explained “I don't want to put my life in the hands of a few people who could ultimately betray me over petty personal politics.”

Both undergraduates and graduates felt that additional obstacles to being successful as an academic included being geographically limited (by choice or commitment), having potentially unappealing colleagues, and various issues pertaining to the path to academic success.

Student Recommendations

The undergraduate and graduate students reported their recommendations for changes that can help overcome the obstacles to academic attainment and academic success (Table C-6).

**Table C-6
Recommendations to Overcome Obstacles to Academic Careers
Graduate and Undergraduate Students**

Most Common Response
Improve role modeling
Increase number of minority faculty members
Decrease racism and sexism in campus environment
Improve programs to encourage better work and life balance for faculty
Make university environment more collegial
Develop programs to teach about academic careers
Offer more teaching experience for students
Improve funding for graduate school

The most frequently recommended change was to ensure that more role models were available and interested in helping mold a future generation of academics.

The respondents made it clear that they would be more likely to become an academic if they had more interaction with faculty and if they felt that current faculty were more like them. One way that underrepresented minority students recommended that this could happen is to increase the number of minority faculty members. One student felt that this was the only way she would be mentored, short of, “somehow miraculously becoming white and privileged so I would be more effectively and enthusiastically mentored by senior faculty.”

Students explained that more minority faculty would result in more role models for minority students and would create a larger group for committee work and minority advising, freeing up some time for minority faculty to engage in scholarship. There was also a recommendation to find ways to “change racist and gendered assumptions about what minority faculty can contribute to both their intellectual fields and to a university community.”

Students reported the desire to see the faculty living a lifestyle that they aspire to live. Students articulated a need to see academics living a balanced lifestyle and enjoying their career. They also reported wanting to see faculty enjoy teaching and mentoring students in addition to engaging in scholarship.

Students reported wanting to see an end to what they perceive as gender discrimination in undergraduate and graduate school experiences as well as in academic careers.

Many students felt that their desire to have a family on the one hand and the time and resources needed to complete training and dedicate to their field on the other, are incompatible. Their recommendations for change are to increase flexibility in jobs and to make institutions more family-friendly.

Another recommendation was the development of programs at the university level to encourage lifestyle balance. This might also include highlighting women faculty who have successfully balanced work and family. Another more sweeping recommendation was to, “Somehow change

the academic mindset so that individuals who want more balanced lives are not so severely penalized, particularly in the early stages of careers when both biological and tenure clocks are ticking.”

Both undergraduates and graduate students would like to see a change in the academic environment of Stanford. To some, the academic environment is not collegial, and they seek a department in which they are “comfortable interacting with colleagues such that I can ask them for advice and feel that I can contribute something in return.” One graduate student wished for a place where professors would interact with graduate students more, “For example, say ‘Hi’ to them in the hallways, even!” which would make the academic culture seem friendlier and less remote and cold. Another graduate student called for a “restructuring of the philosophy of teaching and learning” and rhetorically asked “I’m smart, but if I’m disrespected and not accepted seriously, how can I feel I belong?” One respondent felt that faculty members need to be convinced that some students, especially women, “need encouragement in addition to criticism to become skilled and confident.”

Developing training programs for students who are potentially interested in academic careers was also recommended by student respondents. They requested programs to help demystify the academic profession and make it more tangible and approachable. One student recommended a series of workshops where faculty can explain the details of the job and provide some tips on how to land a position and move toward tenure (publish, network, attend conferences, etc). Others recommended that there be courses on research skills and how to get published.

More teaching experience as a graduate and even as an undergraduate was also something that the students in the samples thought would help them overcome their potential obstacles to academic careers. Many thought that they would enjoy teaching, but did not have the opportunity to experience it.

Students felt that better pay for academics would help incentivize them to pursue careers in academia, particularly as the opportunity costs of graduate school remain high given the length of many programs.

Summary

Section C: Interest in Academic Careers

When Interest in Academic Careers Developed

When the current Stanford faculty were undergraduates, 30% of them were “very interested” in pursuing an academic career. When they were in graduate school, this number increased to approximately 60%. Seventy (70%) of the current graduate student sample reported being “very interested” or “interested” in pursuing an academic career.

Academic Career Influences: People

Seventy percent of the faculty sample reported that they were influenced to go to graduate school by a specific individual such as (most common responses, in descending order of frequency):

- Undergraduate faculty
- Graduate school faculty member (not advisor)
- Father
- Post-doc professor/mentor

The faculty explained that the people who influenced them did so through role modeling, actively encouraging them and engaging in mentoring behavior.

Student Recommendations

Undergraduate and graduate students recommended various changes to minimize the perceived obstacles to academic careers, including:

- Improve role modeling
- Increase number of minority faculty members
- Decrease racism and sexism in campus environment
- Improve programs to encourage better work and life balance for faculty
- Make university environment more collegial
- Develop programs to teach about academic careers
- Offer more teaching experience for students
- Improve funding for graduate school

Race/Ethnicity and Gender Differences

Underrepresented minorities and women were significantly different than their counterparts in many ways regarding academic careers (complete results are found in Appendix VIII).

Underrepresented minority faculty members were more likely than non-minority faculty to have been influenced to pursue an academic career by an event or experience rather than a person.

There were also significant race/ethnicity and gender differences in the obstacles that students anticipate on the road to becoming and being successful as an academic. Women graduate and undergraduates reported expecting that gender issues would be obstacles to an academic career. Female graduate students were also more likely than male graduate students to see work and family issues as academic career obstacles.

Underrepresented minority undergraduate and graduate students were more likely than non-minorities to report that racial/ethnic issues would be academic career obstacles. When we analyzed this by gender, we found that underrepresented minority females were significantly more likely than underrepresented minority males to report this. Underrepresented minority graduate students were also more likely to report that lack of intellectual confidence is a potential academic career obstacle.

Summary

Section C: Interest in Academic Careers (continued)

There were many significant group differences regarding the extent to which aspects of an academic career were considered appealing. Underrepresented minority graduate students were significantly more likely than non-minority students to find the following academic career aspects appealing:

- Obtaining research funding
- Applying academic knowledge to society in important and relevant ways
- Teaching graduate students

Female students were more likely than male students to consider the following academic career aspects appealing:

- Teaching undergraduates
- Applying academic knowledge to society in important and relevant ways
- Being a mentor

Academic Career Influences: Events and Experiences

Slightly more than 40% of each of the three samples in the study (faculty, graduate and undergraduate) reported that an event or experience crystallized their desire pursue an academic career. Examples include (most common responses, in descending order of frequency):

- Work experience
- Coursework
- Project work
- Teaching experience
- Financial support
- Participation in special programs

Appealing Aspects of Academic Careers

According to the undergraduate and graduate students, the most appealing aspects of an academic job include (most common responses, in descending order of frequency):

- Having a flexible work schedule
- The opportunity to create knowledge
- Being a mentor
- Applying academic knowledge to society
- Teaching undergraduates and graduate students
- Doing research

The least appealing aspects of an academic career include (most common responses, in descending order of frequency):

- The process of tenure and promotion
- Academic workload expectations
- Obtaining research funding
- Academic salary levels

Summary
Section C: Interest in Academic Careers (continued)

Students Perceived Obstacles to Academic Careers

Graduate and undergraduate students perceived the following obstacles to becoming and being successful as an academic (most common responses, in descending order of frequency):

- Limited academic positions
- Lack of dedication to the field
- Real and opportunity costs of training
- Fear of failure
- Lack of requisite skills
- Intellectual insecurity
- Length of training

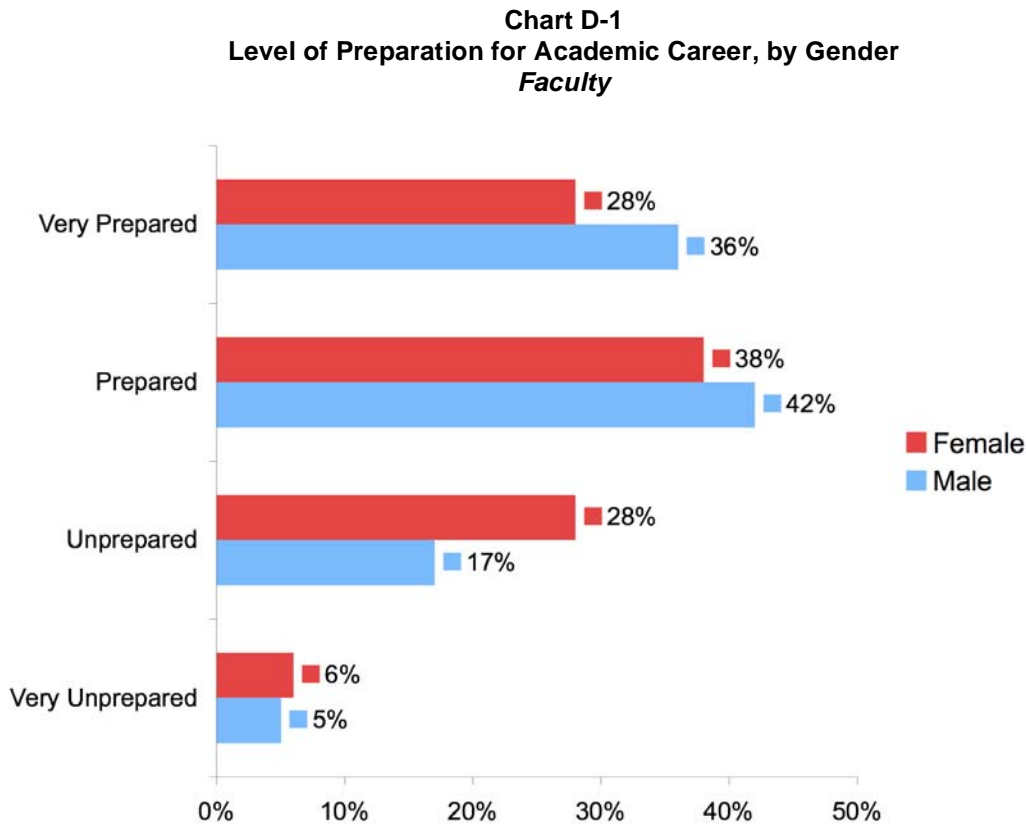
D. Academic Career Experiences

Other critical measures of academic pipeline success are attracting and retaining existing faculty, particularly underrepresented minorities and women. In this section, we address the issues related to academic career experiences. Specifically, we address career preparation, career challenges, and the enjoyable, satisfying, and stressful aspects of academic careers. We also ask the faculty to take a retrospective look at their career to date and to highlight the people, experiences, and personal attributes that helped them to succeed in academia. In addition, we present faculty perspectives on what it takes to be successful at Stanford as well as what they might have done differently in their careers.

Career Preparation

Findings from the faculty survey suggest that, on average, faculty arrived at Stanford very prepared for their positions. More than half (55%) of the faculty in our sample reported that they felt “prepared” when they began their academic career, and another 20% felt “very prepared.” One quarter of the faculty in our sample did not feel prepared (“very unprepared” and “unprepared”) to begin their faculty career.

As illustrated in Chart D-1 below, female faculty were significantly less likely ($p < .01$) to feel prepared than their male counterparts. Significant differences were not found by race, field and tenure status.²⁹



²⁹ Please see Appendices VI-XI for the means and p-values for all significant test results.

Career Challenges

Despite the high proportion who felt prepared for their faculty positions, Stanford professors reported facing challenges as they progressed through their academic career (Table D-1). The faculty reported that the most significant challenges they faced in their academic career were the low salary, the tenure process, the politics in academia,³⁰ family obligations, and low salary.

The majority of the faculty reported that the length of training, a lack of support from their family and friends, a lack of dedication to their field, and the length of training were not career challenges for them.

**Table D-1
Career Challenges
Faculty**

Most Common Responses, in Descending Order of Frequency

Academic Career Challenges	Percent of Responses	Not Challenges to Academic Career	Percent of Responses
Tenure process	68%	Lack of support (family/friends)	78%
Politics in academia	67%	Lack of dedication to field	76%
Family obligations	66%	Length of training	57%
Low salary	56%		

There was significant variation in responses by race/ethnicity and gender (Table D-2; For means and p values, please see Appendix IX). Women were significantly more likely than men to report that the tenure process, academic politics, the need to relocate, family obligations, racial/ethnic and gender issues (such as discrimination), lack of family support, and concern about being unsuccessful or lacking skills, intelligence, and dedication were career challenges for them.

Faculty who are parents of children under the age of 18 were significantly more likely than non-parents to report most of these factors to be career obstacles. Female parents were significantly more likely than male parents to report this, however, parenthood was not a significant factor within the female faculty subgroup.

Underrepresented minority faculty respondents were significantly more likely than non-minorities to consider the tenure process and issues related to their race/ethnicity as significant challenges.

When sample results were compared by field, (science and engineering vs. humanities, social sciences, and education), some differences were significant as well. Faculty in the humanities, social sciences, and education compared to science and engineering faculty were more likely to report that the tenure process, academic politics, issues relating to gender and race/ethnicity, and a lack of positions for qualified candidates were challenges in their academic careers.³¹

³⁰ A 2004 Stanford study showed that strong factors affecting whether faculty felt satisfied with their positions included whether their department is collegial and supportive and whether their contributions were recognized (Stanford University Provost's Advisory Committee on the Status of Women Faculty, 2004).

³¹ Other studies have shown that there are characteristics of academic culture that may make the career less satisfying for women and minorities than it is for those of majority groups. The academic workplace can be chilly and alienating for female and minority professors (Aguirre 2000, Stanford University Provost's Advisory Committee on the Status of Women Faculty, 2004), who may experience overt discouragement or discrimination, or may be more negatively affected by typically competitive and isolative practices (Summary of the Doctoral Education Literature in Mathematics). One study found that women of color may feel marginalized not only by feelings of isolation and lack of respect from their colleagues, but also by challenges from students (Turner 2002). Minority faculty may feel as if their role within the faculty is not acknowledged or taken seriously, since hiring policies considering race and ethnicity may make minority

Table D-2
Significant Race/Ethnicity, Gender and Field Differences in Academic Career Challenges
Faculty

Female Faculty Significantly More Likely to Report Being Challenged By:	Underrepresented Minority Faculty Significantly More Likely to Report Being Challenged By:
Tenure process	Tenure process
Academic politics	Issues related to race/ ethnicity**
Relocation	
Family obligations	Humanities, Social Sciences and Education Faculty Significantly More Likely to Report Being Challenged by:
Racial issues*	Tenure process
Gender issues*	Academic politics
Lack of family/friend support	Gender issues
Concern about being unsuccessful*	Race/ethnicity issues
Concern about lacking skills*	Lack of positions for qualified candidates
Concern about lacking Intelligence*	
Dedication to their field*	

* Female parents were found to be significantly more likely than male parents to be challenged by these factors

** Underrepresented minority males were found to be significantly more likely than underrepresented minority females to be challenged by issues related to race/ethnicity

Enjoyable Aspects of Academia

The faculty respondents reported that the most enjoyable aspects of being an academic are intellectual in nature (Table D-3). In order of frequency of “very enjoyable” activities, the faculty reported that having intellectual independence, being intellectually and creatively challenged, and doing research or scholarship are the most enjoyable job attributes.^{32 33}

Table D-3
Most Enjoyable Aspects of Academic Career
Faculty

Most Common Responses, in Descending Order of Frequency

Career Aspect	Percentage of “very enjoyable” responses
Having intellectual independence	85%
Being challenged intellectually and creatively	84%
Doing research or scholarship	76%

faculty seem like tokens. Women and minorities in academia are often expected to take on higher than average teaching, service, and mentoring responsibilities and to participate actively in promoting campus diversity, roles which are not often rewarded in the tenure system. These additional expectations can also lead to perceptions of salary inequity (Aguirre 2000).

³² In the study of minority women, an additional emphasis was placed on the opportunity to promote racial and ethnic understanding as appealing in an academic job (Turner 2002).

³³ These findings are consistent with a 2002 study that emphasized the importance of intellectually stimulating aspects of the academic (Turner 2002).

Satisfaction Level with Various Job Aspects

In the survey, the faculty members were asked about their level of satisfaction with various aspects of their academic job (Table D-4). The elements of being an academic that are most satisfying were having a flexible work schedule, the academic lifestyle, and the possibility or reality of lifetime employment. There were two significant group differences in this item. The first was that humanities, social sciences, and education faculty were significantly more satisfied with having a flexible work schedule than the science and engineering faculty ($p < .01$). The second was that tenured professors were significantly more likely than non-tenured professors to report that they enjoyed teaching undergraduates ($p < .03$).

**Table D-4
Most Satisfying Aspects of Academic Career
Faculty**

Most Common Responses, in Descending Order of Frequency

Career Aspect	Percent of “satisfied” and “very satisfied” responses
Flexible work schedule	93%
Academic lifestyle	90%
Possibility/reality of lifetime employment	80%

In contrast, the least satisfying aspects of academic life include the salary levels, the tenure process, obtaining research funding, the balance of work and family, and academic workload expectations (Table D-5). Underrepresented minority and humanities, social sciences and education faculty members were found to be significantly less satisfied with the tenure and promotion process than their colleagues. Female faculty members were less satisfied than male faculty with the salary levels, the work and family balance, and the ability to augment income with extra-university work.³⁴

**Table D-5
Least Satisfying Aspects of Academic Career
Faculty**

Most Common Responses, in Descending Order of Frequency

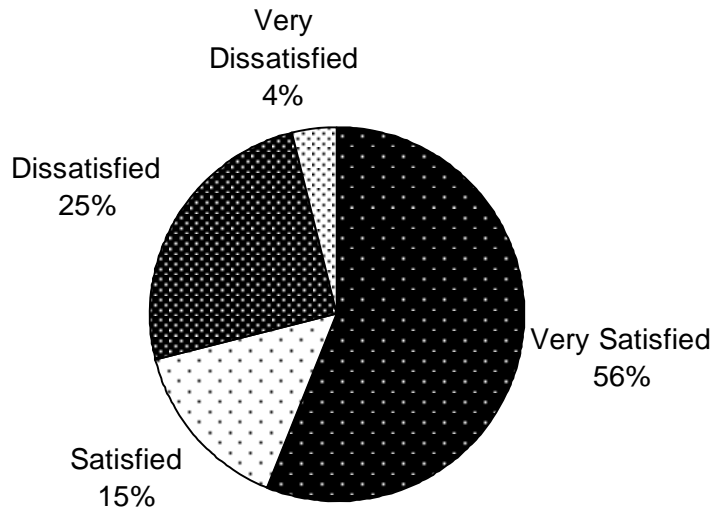
Career Aspect	Percent of “dissatisfied” and “very dissatisfied” responses
Salary levels	39%
Tenure process	38%
Obtaining research funding	36%
Work and family balance	31%
Academic workload expectations	28%

³⁴ The greater dissatisfaction of women compared to men with their workload and work/family issues echoes the findings of a recent Stanford Faculty Quality of Life Study (Stanford University Provost’s Advisory Committee on the Status of Women Faculty, 2004).

Satisfaction with Stanford University

When asked about their level of satisfaction with coming to Stanford University, the largest percentage of faculty members (56%) reported being “very satisfied” (Chart D-2).³⁵ It is important to highlight, however, that 20% reported being dissatisfied and another 4% reported being “very dissatisfied” with their decision to work at Stanford. There were no differences in responses when the sample was broken down by race/ethnicity, gender and field.

Chart D-2
Faculty Satisfaction with Stanford University
Faculty

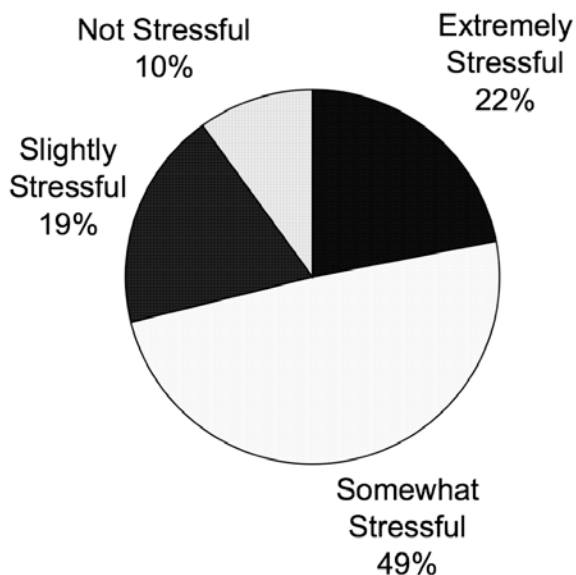


Stress

Half of the faculty who responded to our survey reported that their academic career had been “somewhat” and “slightly” stressful (Chart D-3). An additional 22% considered their academic career to be “extremely stressful.” Ten percent of the faculty sample did not find their academic career to be stressful at all. Female ($p < .02$), science and engineering ($p = .01$), and non-tenured ($p < .01$) faculty members were significantly more likely than the other faculty in the sample to consider their academic careers to be stressful.

³⁵ Although the exact items measuring academic satisfaction vary by study, a number of studies found that women are significantly less satisfied than men, which we did not find here, again echoing the similar level of general satisfaction of male and female faculty that was reported in the Stanford Faculty Quality of Life Study (Stanford University Provost’s Advisory Committee on the Status of Women Faculty, 2004). In a study of science and engineering faculty at Princeton, it was found that women have less general job satisfaction (Arenson, 2003).

Chart D-3
Stress Level in Academic Career
Faculty



Stanford faculty members were also asked to describe the three main stressors in their career to date. As shown in Table D-6 below, the most frequently reported stressors were the process of getting grants and the challenge of combining work and family³⁶, followed by the tenure process, workload and time management, personal and politics issues, and the high cost of housing.

Table D-6
Main Stressors in Academic Career
Faculty

Most Common Responses, in Descending Order of Frequency

Main Stressors	Percent of Responses
Grants and funding	21%
Work and family	21%
Tenure process	18%
Workload and time management	11%
Personal and political issues	11%
Housing costs	10%

³⁶ The Stanford University Provost’s Advisory Committee on the Status of Women Faculty found that women faculty were more likely to report work and family stress and were more concerned about childcare issues (Stanford University Provost’s Advisory Committee on the Status of Women Faculty, 2004).

Grants and Funding

Many faculty members reported being unaware of the importance of being successful at the “grants game” until they began their academic career as a newly minted professor. Learning how to write grants, being a successful grant recipient, and recognizing that one must continually seek grant money throughout their career were explanations as to why grants were at the top of the stress list for faculty.

Work and Family

Balancing work and family was another significant stressor for faculty. As one tenured male in humanities and sciences reported, “Balancing my career possibilities with my personal life has always been a challenge, and...led to the breakup of my first marriage.”

The work/family balance is a particularly stressful issue for female professors, as they have traditionally been responsible for child and elder care and in many cases continue to be the primary family caretaker. When a female professor decided to work part-time to improve her work and life balance, she reports that she was professionally ‘written off’ by her department chair. Described as “the woman’s dilemma” by a female faculty member, the most stressful aspect of her career is the “guilt that no matter where I am, I am not in the other place. When I am with my family, I am not at work and when I am at work, I am not at home.”

Tenure Process

The next most frequently-reported stressor for faculty was the tenure process.

A female professor in the social sciences explained, “Nothing in my academic training or my previous work experience prepared me to deal with the constant stress of this.” When one untenured male faculty reported that one of the most stressful elements in his career was related to the process of tenure, he elaborated: “(Tenure) should be stressful. Stress is good. That’s how hard work gets done.”

Workload and Time Management

It is generally agreed upon that the expectations for work in general as well as the specific demands for research, teaching/mentoring, and university service far exceed the hours in a day. One untenured female professor in the sciences reported that, “overwork led to two months of medical leave caused by a desire to achieve an unreasonable work requirement.” A tenured male professor in the School of Education reported that his stress has stemmed from:

...the high expectations for the amount of work output in the time available and the conflicting and inconsistent standards for judging excellence in academic work, making it impossible to ever feel confident that you’ve done outstanding work because you’re sure that some will dismiss all work of that kind as irrelevant or trivial.

Personal and Political Issues

Another significantly stressful issue for the majority of faculty responding to the survey was the personal and political issues at the department or school level. The stresses described range from general lack of support or collegiality to specific stressful instances. For example, one faculty member reported being “attacked by vicious rumor and innuendo by senior colleagues during a political fight within the department” and another describes a department chair “who treats me with complete disrespect, especially in private.” Still others describe a long-term unpleasant working environment:

I will be the first to say that there are many potential advantages to working at Stanford, and there are many colleagues with whom I enjoy interacting. However, in view of some dismal departmental politics that have driven others from the department, I have not found it a particularly pleasant place to try to work.

Housing Costs

Other stressors for faculty include financial stress due to the extremely high cost of housing in the San Francisco Bay Area and the geographic uncertainty that is commonplace in an academic career. The stress, according to a Humanities professor stems from “the necessity to move every few years as you move up the academic ladder and the uncertainty as to where I might be in two years time (something one experiences non-stop in my field for about ten years straight).”

Tenure

Given the importance of tenure for a successful academic career, we inquired about the extent to which the faculty at Stanford experienced the tenure process as difficult. One fourth (25%) of the sample reported that it was “not difficult”, but another 20% reported that it was “extremely difficult.” The largest group, 32% of the sample, deemed the process simply “difficult.”

Women ($p < .02$) and faculty in the humanities, social sciences, and education ($p < .01$) were significantly more likely to find the tenure process difficult than their comparison groups. When the faculty members were asked what would have made the tenure process less stressful, there was as strong call to make the tenure process transparent. By this, faculty members meant that they wanted to receive clear expectations that did not change over time. They also requested regular feedback throughout the tenure process, and for tenure criteria to be objective, rather than what they perceive as a subjective system that varies by school and in some cases, department.

One professor described what he sees as an industry problem, one that is not limited to Stanford:

Some vague sense of what the standards are would be most helpful. I am not suggesting this is a problem specific to Stanford and it may be worse in my field than in others. Having watched a couple of tenure cases I simply have no idea what is wanted. Every time I develop some kind of theory, the next data point destroys it. And when questioned no one else seems to be able to come up with a consistent account either. It's very puzzling. Of course in each individual case I can tell an explanatory story, but the problem is that no standards emerge from those stories. As far as I can tell it is almost always a result of a complicated mess of various quirks of the many, many different personalities involved in the system (including of course the personalities of those writing letters of support from outside of Stanford--this one of the reasons why I don't think this problem has anything in specific to do with Stanford).

In addition to a transparent tenure process, the faculty requested “strong, early and sustained mentoring” from multiple people during the tenure years. The faculty also strongly recommended simplifying the “administratively burdensome” tenure process. As a tenured professor in the biological sciences explained:

To have so many committees and layers of approval is really something out of Kafka. It really should be stripped down to the essentials of whether or not someone is extremely able or not. Having to run a gauntlet of academic potentates and their flunkies makes no sense, other than it must make some people feel important.

A frequent request was made for a change in the length of the tenure process. Some requested having the option for a shorter tenure track period in order to improve junior faculty morale. Others requested having the option of lengthening the tenure period for faculty who work part time. At least one faculty respondent called for a complete overhaul of the criteria for tenure. She recommended:

...more time for writing; less pressure from peers and administration to over-produce; better support regarding balance of life and work; realistic expectations of what should be asked in the first years and how much one can write of consistent quality; a better

general atmosphere rewarding humane values, kindness and humility and personal life, which are important if one is to be a real role-model to students.

What Helped Most in Academic Career

The faculty respondents reported on the personal attributes, the people, and the experiences that helped them most in their academic career.

Personal Attributes

The personal attributes that were most helpful to the faculty respondents were (in order of frequency) perseverance/hard work, personality/temperaments, confidence/courage, passion for the field, drive/dedication, and good judgment.

Perseverance: In addition to simple hard work and long hours, faculty reported that a personal attribute that helped them in their career was having “personal resilience in the face of repeated negative feedback.” One example is a professor who reported perseverance in the face of “rejected papers, unfunded grants, and denied promotions.” Others described qualities such as “stubbornness”, and “determination.” A professor reflected that “So many times early in my Stanford career, I was told that I wouldn’t be able to get a faculty position, wouldn’t get tenure, wouldn’t be able to do the type of research that I wanted to do, etc., but I stuck with it and now I am a tenured professor.”

Personality: Faculty respondents considered various personality traits to be helpful in their career success. Some reported that their positive and optimistic attitude was the most important, while others stated that it is their ability to interact successfully with others. One reported that she had the “ability to get along with diverse people.” Another reported his “ability to connect with people and to present my ideas in a compelling way.” Others reported on their personality from the perspective of their colleagues, that is, “Having a personality which my colleagues seem to like.”

Confidence: Having confidence was helpful to many faculty, particularly confidence that they would succeed even in the face of skepticism. One professor reported that the most important attribute to her career success was knowing that she had confidence that she could always find another job. Another respondent reported that his confidence allowed him to “not really care much what other people think.”

Academic Passion: Faculty reported that passion for their field was a critical attribute in their career success. Many described their high level of excitement and deep commitment to their work. One professor described this characteristic as “Doing research for reasons of passion rather than careerism.” Another proclaimed that, “I am passionately in love with what I am doing!”

Dedication: Dedication has served faculty well. Many attribute their success is at least partly due to their “extraordinary” or “relentless” drive. One tenured senior faculty reported that “I am happy to be in the lab 12 hours a day, seven days a week and have been for 25 years.”

Good Judgment: Good judgment was also reported to be important in terms of helping faculty achieve success. One professor reported that his choice of book topics resulted in a prestigious award that has led to considerable career advancement. Other professors listed, “Deciding to ignore what all of my colleagues were writing”; “Having the good fortune to pick research topics that later became popular”; “Having the tenacity to stick to my ideas even when others said they were stupid”; and “Realizing that I had to stop listening to well-intentioned but somewhat uninformed advice about what direction I should go and just do what I knew in my heart I needed to do.”

A combination of these personal characteristics seems important. One untenured professor summed it up when she responded, “I am confident, take risks, and the risks have paid off. The payoff might come from choosing good projects or it might be luck. I feel it is important to take risks and you can’t do this if you lack confidence.”

Table D-7
Personal Attributes
Important to Academic Career
Faculty

Most Common Responses, in Descending Order of Frequency

Personal Attributes	Percent of Responses
Perseverance	13%
Personality	8%
Confidence	7%
Academic passion	6%
Dedication	5%
Good judgment	5%

People

When the faculty reflected on the people who helped them most in their academic career, their responses were similar to those reported by the undergraduate and graduate students (Table D-8).

The most frequently mentioned group that was helpful in the careers of faculty were mentors or role models. The second group was colleagues who collaborated with the faculty on projects and publications.

Graduate, undergraduate and post-doc advisors and non-advisors as well as a high school teacher were also reported to be helpful to the faculty. It was through their tutelage that the faculty learned the fundamentals of research and how to select and manage students. These advisors also set impressive standards for their students and offered career advice. One professor reported that a “high school chemistry teacher made an incredible contribution to my ability to learn. It’s because I entered college with such a good background in that one subject that I had something to be proud of and that helped me hang in there.”

Students were other important people who helped faculty in their careers. Graduate students and post-docs were described by the faculty respondents as “terrific, brilliant, dedicated and creative.” Many students with whom the faculty worked eventually became collaborators and colleagues to the faculty.

Family members were clearly important to the success of Stanford faculty. Most credited their family, particularly their spouses, with offering much needed support, especially during the most stressful period of tenure. Fathers played a strong role for the faculty, just like they did for the undergraduate and graduate samples. Fathers were helpful to the faculty in both a role modeling and supportive capacity.

Table D-8
People Important to Academic Career
Faculty

Most Common Responses, in Descending Order of Frequency

Important People to Career	Percent of Responses
Mentors	30%
Colleagues	20%
Advisors	20%
Faculty	6%
Students	6%
Family	4%

Experiences

The faculty reported the types of experiences that were most helpful to them in their academic careers (Table D-9). The most frequent response was research experience. Many faculty members stated that the opportunity to do research as an undergraduate, graduate student, or post-doctoral student was the experience that helped them most.

The second most frequent response had to do with funding. One professor reported that starting his first job with funding made the most significant career difference for him. Others found that securing outside research funding gave them confidence, independence and additional time off teaching. When we asked the faculty what three attributes, people, and experiences were most helpful in their career, one faculty respondent emphasized the importance of funding by responding simply, “1) getting my first grant, 2) getting my second grant, and 3) getting my third grant.”

Approval and support were also frequently reported as critical in their career success. Faculty reported that receiving encouragement from others (family, colleagues inside and outside of Stanford), having work promoted by their advisor, and knowing that others believe in them, made a significant impact on their career. Having collaborators and successful collaborations were also helpful. These collaborations were reported to be with colleagues both inside and outside their department and Stanford, as well as with students. Awards/recognition were also highlighted. Faculty reported that winning prizes or awards and being elected into high profile positions (in national organizations, as the editor of journal, etc.) and the recognition and confidence that comes with it was a career boost.

A number of specific background characteristics were also reported to be important to faculty members. Some explained that they possessed a unique skill set while others explained that their academic background (high school, undergraduate or graduate) were critical to their success.

Faculty explained that simply coming from an academically-oriented family made a significant difference in their career. Some reported that their family’s emphasis on education was influential to them, while others explained that they received early role modeling from their parents in academic careers (mainly their fathers).

Job experience was also reported to be important to their career. These job experiences were diverse in terms of the type of job (private sector, public sector, research) and level (high school, undergraduate, post-undergraduate work, work while in graduate school, etc.) of the job.

Table D-9
Experiences Important to Academic Career
Faculty

Most Common Responses, in Descending Order of Frequency

Experiences Important to Career	Percent of Responses
Research experience	7%
Funding	6%
Approval	6%
Collaborations	5%
Awards/recognition	4%
Background	4%
Job experience	4%

How To Be Successful

The faculty respondents were asked what they felt it took to be successful at Stanford. Almost 100% of the faculty respondents agreed that being perceived by your colleagues both within and outside of Stanford as doing important research/scholarship was important to success (Table D-10). Other “important” or “very important” aspects of career success reported by a large percentage of the faculty included being a good collaborator and colleague, giving and receiving feedback well, being smart and confident, and trusting your own judgment.

Table D-10
Important Elements of Career Success at Stanford University
Faculty

Most Common Responses, in Descending Order of Frequency

Elements Important to Career	Percent of Responses
Being perceived by colleagues as doing important work	97%
Being a good collaborator and colleague	90%
Giving and receiving feedback well	88%
Being smart and confident	92%
Trusting your own judgment	68%

Many of the elements of career success varied significantly by gender and race/ethnicity. Most of these were not the most frequent responses so are not listed in Table D-10 above. Please see Appendix IX for detailed findings.

Underrepresented minority faculty members were significantly more likely than non-minority faculty to report that understanding the unspoken rules of academia, having the right mentor, being able to negotiate well, and being liked by colleagues are important to career success (Table D-11). Underrepresented minority men were significantly more likely (.03) than underrepresented minority women to consider that understanding unspoken rules of academia is important to career success at Stanford.

Table D-11
Important Elements of Career Success at Stanford University
Underrepresented Minority faculty significantly more likely to report the following as important to career success

Understanding the unspoken rules of academia
Having the right mentor
Being able to negotiate well
Being well-liked by colleagues

Female faculty members were significantly more likely to report the same career aspects as important for career success as their underrepresented minority colleagues (Table D-12). In addition, they were significantly more likely to report that having good social skills, being confident, and being part of the informal network in their department was important. Female parents (of children under 18 years old) were significantly more likely than male parents to consider many of these factors to be important to career success at Stanford.

Table D-12
Important Elements of Career Success at Stanford University
Female faculty significantly more likely to report the following as important to career success

Understanding the unspoken rules of academia
Having the right mentor
Being able to negotiate well
Being well liked by colleagues
Having good social skills
Being confident
Being part of the informal department network

When the data were broken down by field (science and engineering vs. humanities, social sciences, and education), significant differences were found as well. Science and engineering faculty were significantly more likely to report that having confidence, understanding the unspoken rules of academia, and being part of the informal department network were important to career success (D-13). However, science and engineering faculty were significantly less likely to report that having good social skills was important for career success.

Table D-13
Important Elements of Career Success at Stanford University
Science and engineering faculty significantly more likely to report the following as important to career success

Having confidence
Understanding the unspoken rules of academia
Being part of the informal department network

Significant differences were also found when the data were broken down by tenure status. Non-tenured faculty were significantly more likely to consider understanding the unspoken rules of academia, having good social skills, having the right mentor, being part of the informal network in your department, being able to give and receive feedback well, and being liked by your colleagues (see Appendix XI for details).

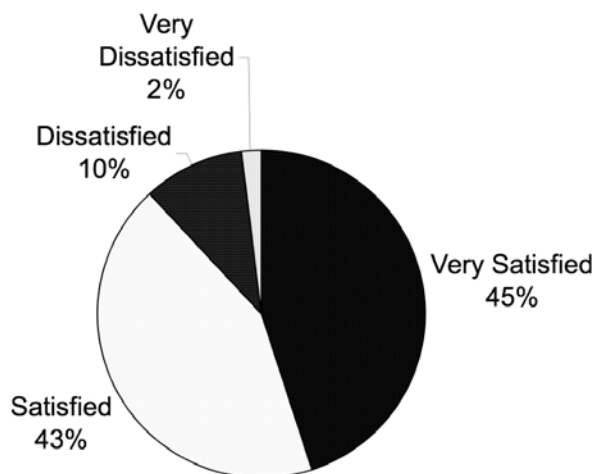
Table D-14
Important Elements of Career Success at Stanford University
Non-tenured faculty significantly more likely to report the following as important to career success

Understanding the unspoken rules of academia
Having good social skills
Having the right mentor
Being part of the informal department network
Being able to give and receive feedback well
Being liked by your colleagues

Career Satisfaction

Forty five percent of the faculty in the sample reported being “very satisfied” and an additional 25% were “satisfied” with their academic careers (Chart D-4). Only 6% reported being “dissatisfied” or “very dissatisfied”. No significant differences were found by race/ethnicity, gender and field. Tenured professors, however, were found to be significantly more likely than non-tenured professors (.04) to be satisfied with their academic careers.

Chart D-4
Academic Career Satisfaction
Faculty



What Faculty Would Have Done Differently

Although most of the faculty are either “satisfied” or “very satisfied” with their academic careers, most responded positively when asked, “If you could do it again, would you do your career differently?”

The most frequent description of what the faculty would have done differently if they could was to choose a different route or career trajectory. The faculty reported wishing that they had studied a slightly different sub-field or studied the same discipline at a different university. Many of these respondents wished that they had better or longer training periods or that they took advantage of some post-doctoral opportunities in order to hone in their skills before taking their first academic position. In some cases, faculty members felt that they should have studied a different field than they did, and in a few cases they reported regretting choosing a career in academia altogether. One tenured faculty wished that he had chosen a more “creative and consequential” career before the tenure decision. At that point, he felt that he had “sacrificed a decade and worked like a dog until tenure time and it’s quite hard to throw it all aside.” Another faculty member simply reported, “The price of academia is just too hard to ask of your family.”

The next largest group reported that they wished that they were a better self-advocate. In most cases, this means that they would have said “no” more often when asked to serve on committees and to participate in activities that were not self-serving. In explaining why he wishes he said no more often, one tenured professor explained that “Unfortunately, as it turns out, being an all around agreeable and unselfish person doesn't seem to provide proportional benefits in

academia. I would still be a good and contributing person, but not feel as much pressure to do things that I knew I didn't want to do.”

In other cases, being more self-protective referred to salary negotiations, relationships with colleagues and promoting one's own work. A tenured medical school professor reported that “I would be more aggressively self-serving, rather than trying to cooperate with my colleagues, as a matter of self-defense.” A female tenured professor explained that she would have behaved “more like a man” in judging her own work to be “wonderful upon meeting lower standards than I applied and in being more self-promoting.”

A small number of other faculty members felt that they would have preferred to work at a different university. Specifically, they regretted not working at an institution that emphasized teaching rather than research and that was less prone to elitist behavior. As one tenured female faculty explained:

I'm not sure I'd teach at Stanford, or at least not as it was when I first came and for many of my years here. I might have been happier at a liberal arts college that valued teaching or a good state university that valued research but had a large enough faculty to find kindred spirits and feel less isolated. I do not like the elitism of Stanford, the 'better than Harvard' standards that can undermine rather than encourage quality and innovation.

A number of faculty also reported regret about their choices in balancing work and life. They mainly regretted not spending more time with their families or spending more time and energy on their personal life when they were younger. One tenured woman reported the opposite because she has seen the career implications of her decision. “I would not have tried to work part-time (for the first nine years) in order to “legitimately” spend time with young children. I would either have started full-time or stayed outside of (my field) altogether.”

What Faculty Wished They Had Known

In addition to being asked what they wish they had *done* differently in their career, the faculty was also asked what they wish they had *known* earlier in their career. The responses fall into four main categories: career management, teaching and research, interpersonal relationships, and personal issues.

Most responses concerned career management. This category encompasses all the knowledge required to navigate the institution, including how to network, collaborate, manage time, get grants and manage politics. Grants were the most frequent “surprise” for faculty. A tenured social science professor described that he wish he knew “that pulling in big grants would make so much difference at Stanford. I always did well, but never worked at it as much as I could have. I think it cost me. People who pull in the bucks around here can pretty much write their own ticket - as long as they keep pulling in the bucks.”

Another response category is preparation for teaching and research. Our findings showed that it is quite common for new professors to feel unprepared to teach and manage students when they begin their academic career. In some cases, professors also felt unprepared to develop their research agenda and choose specific research topics.

The third category is interpersonal relationships (such as working with others and developing communication skills). A female professor sums up much of what was said by many in the sample. “I should have understood the value of collaborations with more senior scientists at Stanford earlier.” she reported, “When sought, these opportunities were readily available and important to me.”

“Personal Issues” is the final category. It includes balancing work and family, overcoming a lack of confidence, and dealing with issues of gender and race/ethnicity. Those who reported that they lacked confidence often felt that their lack of confidence took a considerable amount of energy from them in the early stages of their career. One tenured professor wished he knew

early in his career “that I would get tenure so that I didn’t have to worry about it so much.” And in dealing with the concerns about work and family decisions one tenured woman reported that she wished she knew “that my children felt they had an ideal childhood and felt fortunate that I had a career outside, as well as inside, our home.”

In terms of race/ethnicity, one tenured professor said that before taking his academic job he wished that he had known “...that people of color have to prove their competence while whites are presumed to be competent.”

A number of faculty reported wishing they had done things differently in relation to gender issues. One woman reported that she wished that women would be taught to say “no” and avoid trying to please others. She continued to explain that “I have seen more women faculty at Stanford ‘self-destruct’ because they can’t say no to others’ requests and feel guilty putting themselves first.” Another tenured female professor of the humanities wished that she had been aware of the “lack of salary equity for female faculty at Stanford.”

Summary

Section D: Academic Career Experiences

Academic Preparation

Our findings show that most (75%) of the faculty felt very prepared for their academic positions when they arrived at Stanford.

Career Challenges

Despite feeling prepared, the faculty reported facing various career challenges, including (most common responses, in descending order of frequency):

1. The tenure process
2. Politics in academia
3. Family obligations
4. Low salary

Faculty reported that the following factors were not a challenge to their academic career (most common responses, in descending order of frequency):

- Lack of support
- Lack of dedication to field
- Length of training

Enjoyable and Satisfying Aspects of Academia

The aspects of the academic career that the faculty find the most enjoyable and satisfying include:

- Having intellectual independence
- Being challenged intellectually
- Doing research /scholarship
- Having a flexible work schedule
- The academic lifestyle
- Lifetime employment

Tenured faculty in the sample were significantly more likely than non-tenured faculty to report being satisfied with teaching undergraduates.

The least satisfying aspects of academia include (most common responses, in descending order of frequency):

- Salary levels
- The tenure process
- Obtaining research funding
- Work and family balance
- Academic workload expectations

Satisfaction with Stanford

Approximately 75% of the Stanford faculty were “satisfied” or “very satisfied” in coming to Stanford.

Summary

Section D: Academic Career Experiences (continued)

Stress in Academic Careers

Almost 75% of the Stanford faculty reported that their academic career was “stressful” or “very stressful”. The main stressors for the faculty included (most common responses, in descending order of frequency):

- Grants and funding
- Work and family
- The tenure process
- Workload and time management
- Personal and political issues
- Housing costs

Career Help

The faculty reported that the following personal attributes, people, and experiences helped them in their academic career (most common responses, in descending order of frequency):

Personal Attributes

- Perseverance
- Personality
- Confidence
- Academic passion
- Dedication
- Good judgment

People

- Mentors
- Colleagues
- Advisors
- Faculty
- Students
- Family

Experiences

- Research experience
- Funding approval
- Collaborations
- Awards/recognition
- Background
- Job experience

Stanford Success

To be successful at Stanford, the faculty reported that the most important factors include:

- Understanding the unspoken rules of academia
- Having the right mentor
- Being able to negotiate well
- Being well -liked by colleagues
- Having good social skills
- Being confident
- Being part of the informal department network

Summary

Section D: Academic Career Experiences (continued)

What They Would Have Done Differently

Faculty reported that they would have done the following things differently if they could (most common responses, in descending order of frequency):

- Chosen a different route or trajectory
- Been a better self advocate
- Worked at a different institution
- Balanced work and family differently

What They Wished They Knew

The faculty in our study reported that they wished they had knowledge of various topics before becoming a professor such as (most common responses, in descending order of frequency):

- Career management
- Teaching and research
- Interpersonal relationships
- Personal issues

Racial/Ethnic and Gender Differences

There are aspects of the academic career in which underrepresented minorities and women differ significantly from the rest of the faculty (Appendix IX).

Underrepresented minorities and women faculty share some similar beliefs and experiences regarding their academic careers.

Some issues that were significantly more challenging for underrepresented minorities and women faculty members were:

- The tenure and promotion process
- Issues related to my race/ethnicity

Underrepresented minority males were significantly more likely than underrepresented minority females to report being challenged by race and ethnicity issues.

Additional obstacles that were significantly more challenging to females than males were:

- The politics of academia
- The need to relocate for career advancement
- Issues related to my gender
- Family obligations
- Lack of support from my family and friends
- Concern about not succeeding
- Not having the requisite skills
- Not feeling intelligent enough
- Not feeling dedicated enough to my field

Underrepresented minority and women faculty are significantly less likely than their counterparts to be satisfied with the process of tenure and promotion. Underrepresented minority males were significantly more satisfied than underrepresented minority females with the process of tenure and promotion.

Summary
Section D: Academic Career Experiences (continued)

Additionally, female faculty members are less likely to report satisfaction with:

- Salary levels in academia
- The ability to augment income with work outside the university
- Academic work load expectations
- The ability to balance work and family

Both underrepresented minority and female faculty are significantly more likely than other faculty to consider the following as important to career success at Stanford:

- Understanding the unspoken rules of academia
- Having the right mentor
- Being able to negotiate well
- Being liked by your colleagues
-

Underrepresented minority males were significantly more likely than underrepresented minority females to report the importance of “understanding the unspoken rules of academia” as important to career success at Stanford.

In addition, female faculty were significantly more likely to report that the following are important to career success at Stanford:

- Having good social skills
- Being confident
- Being part of the informal network in your department

Female faculty were also significantly more likely than male faculty to report that the tenure process was difficult and that their academic career has been stressful.

E. Work and Family

There is considerable evidence that female academics are more affected by work and family issues than male academics, therefore this section is devoted specifically to these issues.³⁷

Students

The overwhelming majority of graduate students in our study reported a high level of commitment (26% “committed” and 64% “very committed”) to pursuing a career upon completion of their studies. Despite the abundance of research showing that family issues affect women and men unequally in terms of their academic career trajectory, we found that women (as well as underrepresented minorities) are significantly more likely to report being committed to pursuing a career upon graduation than their male and majority counterparts, respectively.

Family Commitments

Our study shows that 40% of the doctoral student sample reported that their current family commitments (including marriage, child care and elder care) have a “huge impact” on their school and work commitments. An additional 40% report a “minor impact” of family on school and work commitments. Female graduate students were significantly more likely than males to report that family commitments have an impact on their work and school commitments ($p < .04$).³⁸

Timing of Children and Career Demands

In looking to the future, more than half of the current doctoral students (54%) in our sample reported that they anticipate problems with the timing of children and career demands. Almost 30% were uncertain and 17% did not expect any problems. Women were significantly more likely ($p < .01$) to expect problems than men.

In the undergraduate sample, 42% reported that they envisioned a problem with the timing of children and career demands and 33% were “uncertain”. No significant differences were found by race/ethnicity or gender.

³⁷ In a 2002 report based on discrete-time event history analysis of the *Survey of Doctorate Recipients*, Mason found that for each year after the receiving the PhD, married women with a child under six years of age are half as likely to enter a tenure track position than men with the same family makeup ($N > 30,000$). Furthermore, for each year after securing a tenure track position, women are 20 percent less likely to achieve tenure than men ($N > 11,000$) (Mason, 2002). Academic dual-career issues (also known as the “two-body problem”) are also a larger issue for women because women academics are more likely to have a spouse or partner with an advanced degree than academic men and are therefore less likely to have a spouse willing to relocate for her job (Mason, 2002). While this is an issue for all women with careers requiring a high level of education, it is more salient for academic women because it is often difficult to find two academic positions at the same institution or geographical area and relocating a number of times throughout the course of a career is common.

A recently-completed study of the status of women faculty at Stanford also found gender differences in relation to work and family issues. While this study did not find significant overall difference in satisfaction between male and female faculty, it did find that women were more likely than men to report work and family stress and were more concerned with childcare issues than men (Stanford University Provost’s Advisory Committee on the Status of Women Faculty, 2004). Also, a 2002 study of faculty women of color in all disciplines found that family obligations resulted in marginalizing female faculty of color (Turner, 2002).

In recent publications by the American Council on Education and the Carnegie Initiative on the Doctorate, academic women were found to be more likely than men to take non-tenure track career paths in order to manage work and family. (Carnegie Initiative on the Doctorate, Chemistry, 2003; American Council on Education, 2005).

³⁸ Please see Appendices VI-XI for the means and p-values for all significant test results.

In explaining the problems that they anticipated with the timing of children and career demands, undergraduates and graduate students emphasized similar issues (Table E-1). They addressed the intensive and often conflicting time commitments of early career and early parenting phases, the financial issues associated with having children, the challenges of negotiating family care with ones partner, and the difficulties finding adequate and affordable childcare options. There was however, a difference between the two groups of students in tone and detail.

Table E-1
Anticipated Problems with Timing of Children and Career Demands
Graduate and Undergraduate Students

Most Common Responses
Conflicting time commitments during early career and early parenting phases
Financial burden
Negotiating parenting responsibility with partner
Finding affordable, quality childcare
Affording quality childcare

Due to the fact that few undergraduates are married and even fewer have children, their responses were more theoretical and tended toward idealistic in their proposed “solutions” to the work and family dilemma. One undergraduate explained:

I would like to have children before I am 30, but this is also a time when women are supposed to be beginning to build a career. I think it's unfortunate that these two aspects of life have to compete against each other instead of be natural complements, but I hope to have the opportunity to combine the two.

Another explained that, “we just have to have better time management skills.”

While they were clearly aware of the issues of work and family in our society, the responses by the undergraduate sample were more likely to state their perspective on the problem than to propose a solution. “I think by the time I have children, one undergraduate reported, “I will be very involved and committed to my work. However, I assume that I will be in a committed relationship and that we would together find a solution that would allow us both to continue work and family life.”

Graduate students tended to be more realistic as well as pessimistic, than the undergraduates. One doctoral student in the medical school reports that “If you want to be a full time mother at any time, you will have to take a few years off and then you will pay a heavy career price for it.” Another explained that “My current 60-75 hour work week doesn't leave time for children. It will require that I reduce the amount of work and sacrifice career options.”

A doctoral student in education reported that she observed that it is “very difficult on tenure track to make up for the time “lost” having children. If you go half-time to care for kids, you are considered out of the race.” A humanities doctoral student reported that in her department, “even women who are married and well over 30 are seen as throwing away their careers if they have children, especially more than one.”

The majority of the respondents to this open-ended item about the timing of children and career demands were female. Only a few males responded and when they did, they mostly discussed challenges such as the small academic salaries, the high costs associated with having a family, and the amount of travel required by their career. Other men implied that work and family issues are women's concerns and would only affect them to the extent that their wives' career would be impacted. As one doctoral student in the school of education explained, “If my partner were an academic, the timing of children would be crucial so as not to impact her career.”

Work and Family in Future Career

More than half (54%) of the doctoral student respondents and 49% of the undergraduates reported that they anticipated having difficulty integrating work and family in their future careers. There were no differences in responses by gender or race/ethnicity for this item in graduate school, but undergraduate females were significantly more likely to report anticipating work and family integration difficulties in their careers than did male undergraduates.

Some undergraduates had a specific plan in mind, whether it be focusing primarily on work:

“I am a work-a-holic and I have always put work before family and friends and I do not see this as a bad thing. Since I am satisfied with this, I do not need to address the issue at all;”

emphasizing family:

“Since I want my family to be a priority above career, I just plan on making the time to be with them no matter how busy or tired I am;”

or developing a work and family plan:

“Wait for a while to have kids until I am established in a job;”

“Day care, work with my husband on the issue, take time off for a while and then come back to my career, use the help of my parents, hire nannies maybe.”

Other undergraduates described how they will “find a balance” and “not work so hard so that I can have a life.”

Still others (mainly women) emphasized that their choice of spouse is critical. One woman in the social sciences explained that she needs to “find a sensitive and understanding husband who has similar values and is willing to compromise.” Another reported that she intends to “marry someone that has a flexible work schedule or is financially secure enough, so that I don’t need to work.” Some were in self-described denial of the issue:

I am a woman! At some point I need to have children and according to my career path I won’t have *time* to do that until I am about 36 – not the best time to *start* having children. A discouraging thought that I prefer not to think about.

One woman specifically stated that she has ruled out an academic career because of the challenges with work and family. Her ideas for addressing future work and family issues are “working in an environment where I don’t have to work 100 hours a week; working in a field where I can easily take a year or two off to start raising a family; finding a company that is supportive of work and family balance.” She reported that she wanted to be a professor while she was growing up, but, “this changed drastically once I got to Stanford and saw the demands on faculty and the near impossibility of having a successful career as a professor and some sort of family life.”

The graduate student respondents were slightly more realistic and often quite opinionated about the topic of balancing work and family. Many still did not have a specific plan in place, such as a business student who described herself as being on the “wait and see track.” Others spoke theoretically about balancing work and family such as this underrepresented minority female: “I’ll do the best I can to be a good mother, wife and friend, but I am unwavering in my belief that one can achieve ‘balance’. I’m unapologetic about my ambitions and will remain so.”

And even on the brink of beginning their professional careers after receiving their graduate degrees, some lack both a plan and a theory. “I have no good plans at this time”, reports one MD/Ph.D. candidate, “I am trying to convince myself that trading off months/years between family and work will be possible.”

Like the undergraduates, some graduate students emphasized work, others emphasized family and still others do not plan to have children at all. Most spoke about sharing responsibility with their spouse, separating work and family while focusing on both, and finding an affordable place to live with excellent quality childcare options.

Effect of Parenthood on Career

Students

When the undergraduate and doctoral students were asked what effect they anticipated parenthood to have on their career, our sample was neatly divided into thirds. Approximately 1/3 of both groups reported that they think that parenthood will have a “positive” or “very positive” effect on their career. Another 1/3 of both samples reported that they expect parenthood to have a “negative” or “very negative” effect on their career. The final third were uncertain of the potential impact.

Underrepresented minority graduate students were significantly more likely than non-minorities ($p < .02$) to expect a negative effect of parenthood on their career. Females in both the undergraduate ($p < .01$) and graduate ($p < .01$) samples were significantly more likely than their male counterparts to expect a negative effect of parenthood on their career.

Faculty

Thirty-two percent of the Stanford faculty respondents reported that they experienced “significant problems” integrating their career and family/personal life. An additional 50% of the faculty reported having “some problem”. Only 20% of the faculty reported that they have not experienced problems integrating their career and family/personal life. There were no significant differences by race/ethnicity, gender, or field.

In explaining the problems that they are encountering or already encountered in integrating their career and family/personal life, the majority of the faculty respondents felt that they required more time in order to adequately balance their work and family lives (Table E-2).

Table E-2
Problems Integrating Career and Family/Personal Life
Faculty

Most Common Responses, in Descending Order of Frequency

Problems	Percent of Responses
Lack of time	31%
Family life negatively impacted	13%
Work negatively impacted	5%
Low academic salaries	4%
Quality childcare hard to find	2%
Quality childcare unaffordable	2%

Many other respondents reported that their family life had suffered while being a professor at Stanford. Some considered themselves an absent parent and/or an absent spouse and many suspected their absence led to family problems such as behavioral problems in children and divorce.

One male, non-tenured professor explained, “There are so many demands and opportunities in academia and it is so easy to keep putting your family last—but that is a huge mistake, one that I have explored personally.” Another professor explained in more detail, “I missed many important events of my children’s childhood because of commitments at work; ultimately the enormous stress related to attending to succeed at Stanford catalyzed the demise of my marriage.”

In all, a great deal of pessimism was expressed about the chances of having a desired type of family life. One untenured male professor reported, “There is simply no way to have a reasonable family life while pursuing tenure at a top research university, while maintaining your integrity.”

Some respondents also reported that their work was negatively affected as they tried to integrate both work and family in their life. It is important to note that only female professors reported this to be the case. “ I decided to work part-time.”, one female non-tenured professor reported, “My husband is a full-time tenure line academic so I felt that if I didn’t work part-time, the kids would not be raised by their parents.”

Low academic salaries were also integral to the discussion about balancing work and family. One male non-tenured professor explained:

A single academic salary is too low to support a family comfortably in this area, so both parents have to work. This places severe time pressures on the family, especially since the astronomical housing costs force one to live outside the immediate Stanford area.

Childcare was highlighted as both difficult to find and unaffordable. A tenured professor reflecting on years past explained:

Childcare in the early years is terribly expensive, especially for persons in dual-career marriages without (extended) family members who can pinch in. The cost of quality childcare is almost prohibitive and severely limits women and families from achieving some degree of independence.

Other faculty respondents explained that they did not feel that having children was an option because of work demands and the lack of sensitivity to family issues in their department.

Despite the number of significant work and family challenges faced by faculty, it is important to note that many faculty members reported that the flexible academic work schedule was helpful in balancing work and family.

Work and Family Advice to Future Faculty

The faculty advice that was most frequently offered to students and post-docs about integrating work and family centered on planning and preparation. The advice was primarily about the decision to have children, although some of it addressed marriage as well.

Faculty members strongly recommend that young academics be aware of the challenges of work and family, but encouraged them to have children. Many respondents reminded students that there is no good time to “schedule” having children. A tenured female faculty member sums up the main message from the faculty:

Think very hard about what they want and then make a *conscious, deliberate* decision about what to do and what not to do, because you can't do everything. It is better to decide that up front than slip into it gradually and then look back and regret it.”

One male professor reported concern that students are often misled by the fact that many of their professors have families.

They don't realize that many of those faculty got tenure in the days in which one needed just a couple of articles and a phone call from one's advisor to land a job at a top department. Furthermore I think it is fair to say that the gender roles prevalent then also made it ‘easier’ to ‘balance’ career and family. I tell students to make a choice: if you want to be a top researcher, avoid having a family if you can. If you want to have a family, get a teaching job at a small liberal arts college.

The advice offered for prospective faculty members who have or plan to have children were very practical in nature. “If you have young children or are about to have them”, a non-tenured female faculty member warns, “only take on a full-time teaching job with tenure-track expectations of research if you have a good support system for child-rearing (a family member who can help,

and/or outstanding day care or nanny). If such a support system is not available, don't start the tenure clock until the children are in school; teach part-time until then."

Others strongly urged students to "Have a very supportive spouse who is willing to share 50-50", or to simply "Marry well."

Current Stanford faculty also recommended making a conscious effort at striking a good balance between work and family. Both men and women were far more likely to recommend placing family (51 responses) before work (4 responses) as their first priority. Some offered discouraging comments such as "prepare for pain" and "find another career". However, most current Stanford faculty remained encouraging about having a family and an academic career. One female professor explained that, "It all works out", and another one declared, "it is difficult, but can be done."

A sound bit of advice came from an untenured male faculty member. "Work to change the system", he stressed. "Be an advocate for women in academics -- if it gets better for them, it'll be better for men, too. Don't shortchange your family -- you'll regret it."

Advice for the University

The faculty sample was asked to recommend ways that the university can help faculty balance their work and family obligations (Table E-3).

Almost all respondents reported that the single most helpful change would be to provide day care options and to develop on-site childcare. They also proposed providing some flexibility in the tenure system in various ways such as emphasizing quality instead of quantity of scholarship and extending the tenure clock.

Others recommended developing more flexibility in the work schedule. Specifically, one tenured female professor explained that work goals should be made clear and the plan should be to "maintain frequent communication between individual and individual's mentor/supervisor as an individual approaches those goals."

It would also be helpful to be more sensitive to time commitments outside of work and limiting the administrative and committee assignments to the standard work day. One tenured male professor recommended that the university should:

Make sure that academic activities are not in the evenings and weekends. For example, all of my department's educational conferences and meetings are in the evening or weekends. A disaster for those with families who still want to be a vibrant member of an academic community. In my division, there is no consideration of family life.

Table E-3
Work and Family Recommendations
Faculty

Most Common Responses, in Descending Order of Frequency

Recommendations	Percent of Responses
More day care options	23%
Flexibility and clarity in tenure system	10%
Flexible work schedules	4%
Limit meetings and commitments after regular work hours	3%

Other, less frequently stated recommendations include to offer more maternity and paternity leave, offer counseling or mentoring to those who want it, increase faculty salaries in order to offset high costs of housing and childcare, reduce the teaching load, and develop a spousal hiring policy.

Some respondents also highlighted the importance of encouraging male colleagues to be supportive and to openly acknowledge the existence of the problem. One even suggested offering “sensitivity training for the generation of older male professors whose wives brought up the kids and they don’t see why having a family distracts their junior female colleagues from their work.” Another stressed that senior faculty, especially men, should set the example by making it clear when they are dealing with family obligations, rather than concealing these responsibilities.”

Some faculty respondents interpreted the question to mean that Stanford will relax some academic expectations for professors. They cautioned against this proposed change because “even if the university relaxes some criteria to allow young faculty to balance work and family life, external peer review, funding and national/international status (of the university) will be influenced.”

Others (mostly men but also one woman) argued that it is an individual’s responsibility and that the university should not be involved in the issue at all. A male respondent explained that, “if everyone around you is doing world class work, you have to also. If you’re smart enough to do that without jeopardizing family life, great. If not, you have to choose.” A female faculty member stated, “I don’t think the university should do anything at all regarding this issue. No one is forced to have children or to marry a demanding spouse.” Another male non-underrepresented minority faculty respondent reported:

Last time I checked, the mission of a university was to increase knowledge through teaching and research. The university’s primary responsibilities are to its students and society, both of whom voluntarily invest the university with resources and power, so as to carry out its role as a home of learning and inquiry. The university thus does not exist to make the lives of its faculty easier or more comfortable. Recruiting and retaining the best faculty, and providing the best possible working conditions, is part of its mission. But helping people balance work and home is far beyond this (shouldn’t the university be emphasizing the “work” part?). And I imagine that people who would, in fact, make the best faculty members realize that working at Stanford is a job, and that a university is not a mutual-aid association set up to pamper them.

Summary

Section E: Work and Family

Students

The overwhelming majority of graduate students in our study reported a high level of commitment (26% “committed” and 64% “very committed”) to pursuing a career upon completion of their studies. However, family issues are a significant issue facing those who are pursuing an academic career, particularly underrepresented minorities and women.

Family Commitments

Our study shows that 40% of the doctoral student sample reported that their current family commitments (including marriage, child care and elder care) have a “huge impact” on their school and work commitments.

Timing of Children and Career Demands

Fifty-four percent of the current doctoral students in our sample reported that they anticipate problems with the timing of children and career demands. In the undergraduate sample, 42% reported that they envisioned a problem with the timing of children and career demands. The challenges anticipated by the graduate and undergraduate students include (most common responses, in descending order of frequency):

- Conflicting time commitments during early career and early parenting phases
- Financial burdens
- Negotiating parenting responsibility with partner
- Finding quality childcare
- Affording quality childcare

Work and Family in Future Career

More than half (54%) of the doctoral student respondents reported that they anticipated having difficulty integrating work and family in their future careers.

Effect of Parenthood on Career

One-third of the undergraduate and doctoral students reported that they anticipated parenthood will have a “positive” or “very positive” effect on their career. Another 1/3 of both samples reported that they expect parenthood to have a “negative” or “very negative” effect on their career. The final third were uncertain of the potential impact.

Faculty

Thirty-two percent of the Stanford faculty respondents reported that they experienced “significant problems” integrating their career and family/personal life. An additional 50% of the faculty reported having “some problem”. Some of the problems encountered by faculty members include (most common responses, in order of frequency):

- Lack of time
- Family life negatively impacted
- Work negatively impacted
- Low academic salaries
- Quality childcare hard to find
- Quality childcare unaffordable

Summary

Section E: Work and Family (Continued)

Work and Family Advice to Future Faculty

The faculty advice that was most frequently offered to students and post-docs about integrating work and family centered on planning and preparation. The advice includes (most common responses, in descending order of frequency):

- Make conscious and deliberate work and family decisions
- Choose a very supportive spouse
- Strike a good balance between work and family
- Work to change the system

Advice for the University

The faculty sample was asked to recommend ways that the university can help faculty balance their work and family obligations (most common responses, in descending order of frequency):

- More day care options
- Flexibility and clarity in tenure system
- Flexible work schedules
- Limit meetings and commitments

Others (mostly men but also one woman) argued that it is an individual's responsibility and that the university should not be involved in the issue at all.

Race/Ethnicity and Gender Differences

Both underrepresented minority and women graduate students were significantly more likely than other graduate students to report being committed to pursuing a career upon completion of their studies (Appendix X).

Female graduate students were significantly more likely than male students to report that their family commitments have a negative impact on their school and work commitments. Female undergraduate and graduate students were also more likely to envision problems in the timing of children and career demands and the integration of career plans with a family life. In addition, they are also more likely to expect a negative effect of parenthood on their career.

V. Conclusions and Recommendations for Intervention

The purpose of the Pipeline Project is to understand the obstacles and barriers to pursuing academic careers for underrepresented minorities and women. In focusing on the areas that are most salient to underrepresented minorities and women, we also identify issues of concern for other students and faculty. In doing so, we hope to develop the most relevant strategies for attracting and retaining the best and the brightest students to academia, including those in currently underrepresented groups.

A. How can universities attract more minorities and women to academic careers?

The first step in attracting underrepresented minorities and women to academic careers is to interest them in attending graduate school programs (Ph.D. Programs for most fields). Our study showed that while most students reported that either a person or event helped to crystallize their thinking about graduate school, underrepresented minority students were significantly more likely than non-minorities to be positively influenced to attend graduate school by a non-school-related employer. Our study showed that both positive and negative experiences, that is, a good work experience (such as interacting with others engaged in work that requires an advanced degree), or a bad work experience (such as the desire to avoid getting stuck in a dead-end job), may inspire minority students to consider attending graduate school.

Our recommendation for university action is to provide work opportunities for underrepresented minority students that allow them to interact with individuals engaged in academic work, especially individuals who clearly enjoy their work and actively encourage students to follow in their footsteps.

From our research, we also learned that underrepresented minority students were positively influenced to attend graduate school by knowledge that funding for graduate school is available. Additionally, underrepresented minority students were positively influenced by the idea of graduate school providing access to a variety of career opportunities. As we highlighted in our report, other researchers have demonstrated that underrepresented minority students are seven times more likely to attend professional school than graduate school. This is due, in part, because they viewed the costs involved in undertaking a graduate degree as well as the expected return on investment to be less than salubrious.

If universities are to attract the best underrepresented minority students to academic careers, it is critical that talented, potential graduate students understand that funding is usually available to fully cover educational costs (unlike professional schools). It is also important to convey that once a Ph.D. is completed, an academic career could be both a desirable and *attainable* career trajectory. Our research has also demonstrated that undergraduate, as well as graduate students have little notion of how and what graduate school entails, how academics live their lives, pay their bills and enjoy the opportunities and autonomy that academic life affords. We found that while students are well aware of the negative aspects of academic careers (for example, the long hours and heavy work loads both before and after an advanced degree, the difficulties in obtaining an appointment, promotion and tenure challenges, academic politics and relatively low salaries compared to some of the professions), many students are relatively unaware of the positive aspects. We found that students do not realize that academic careers can offer the opportunity to do satisfying, meaningful and largely self-directed work, to become an expert in one's field, to be able to apply knowledge in new and creative ways, to teach and mentor the next generation of young people, and to have an autonomous and flexible, albeit busy, schedule. These positive aspects of an academic career need to be made more explicit to our students.

While we do not suggest that academia is an easy career, it is important to note that most of our Stanford faculty respondents reported being very satisfied with their career choice. This is information that students, particularly minority students, need to hear. This is especially important

in light of the fact that the minority faculty in our survey reported, significantly more often than others, that their choice of an academic career was crystallized by an event or experience that changed the way they thought about both academics and themselves.

Stanford Efforts and Programs

Our study showed that underrepresented minority students were more concerned about financial issues than majority students and were strongly influenced to attend graduate school by the availability of financial support. To increase the sense of security a underrepresented minority student will feel (and to make Stanford aid offers more attractive), some of the schools have special support programs for graduate students who bring diversity, broadly defined, to their graduate programs. For example, the school of Humanities and Sciences, provides two-year graduate fellowships to incoming diversity graduate students.

In a new program that began in the spring, 2006 recruiting season, the Office of the Dean of Research and Graduate Policy has provided departments with funding to interview and recruit applicants who would contribute to the diversity of their graduate student population. The office will reimburse up to \$500 in travel expenses for each applicant a department is interested in interviewing and/or recruiting. This is in addition to the funding that has been provided in the past, including any funding the department already has for such visits and the funding for admitted students to attend Graduate Diversity Admit Weekend. For a student to be eligible for this funding, s/he must be an applicant to a Ph.D. program or, in the Schools of Engineering, Earth Sciences, and Humanities and Sciences, to a regular M.S. program. (Students who are applying for co-terminal M.S. degrees or non-PhD programs in the professional schools are not eligible.)

In January, 2007, the responsibilities of the Dean of Research and Graduate Policy were separated, with the naming of the first Vice Provost for Graduate Education, Professor Patti Gumpert. Initiatives to promote graduate student diversity are high on her agenda.

The *Distinguished Alumni Scholars Day* is another Stanford effort that has been developed to attract a more diverse graduate student population and to encourage academic careers. It was developed by Associate Vice-Provost for Faculty Development and Diversity Sally Dickson, in part because of the findings of the Pipeline Study. This program, which will be held annually, will feature visits from Stanford alumni of color who are currently professors at universities across the country. They will spend a day on campus meeting with current Stanford undergraduate and graduate students during which they will discuss their lives as professors, their current research endeavors, the factors that influenced them to become an academic, and their doctoral student experiences. The day will continue with a reception attended by graduate students and the invited faculty and will conclude with a dinner at the Faculty Club for the faculty visitors, the Provost, the students, faculty, and the staff of the ethnic community centers. President John Hennessy has guaranteed five years of funding for this program,

The program had its official start last year, May 2006; it was attended by the following alumni (with their Stanford degrees and current universities):

- Derrick Brazill (African-American) Ph.D., Biology (Hunter College, CUNY)
- Angelica Duran (Mexican-American) Ph.D., English(Purdue University)
- Stephanie Fryberg (Native-American) Ph.D., Psychology (University of Arizona)
- Leslie Harris (African American) Ph.D. History (Emory University)
- Mae Lee (Asian-American) , Ph.D., Anthropology (DeAnza Community College)
- William A. Massey (African American) Ph.D., Mathematics (Princeton University)
- Gloria Marie Pitti (Mexican-American) Ph.D., History (Arizona State University)
- Lok Siu (Asian-American), Ph.D. Anthropology (New York University)

Plans are being developed for the second annual *Distinguished Alumni Scholars Day*, to be held on May 7, 2007. To give our graduate students more time to talk with our faculty alumni, we have scheduled a session for them to interact with our alumni. We have asked the alumni to come prepared to this meeting to discuss with our students information about preparing for the job

market. The following alumni (with their Stanford degrees and current universities indicated) have confirmed their participation for the 2007 session:

- Alicia Arrizon (Mexican American) Ph.D Spanish and Portuguese (University of California, Riverside)
- Bevan Baas (Native American) Ph.D. Electrical Engineering (University of California, Davis)
- Brian Baker (Native American) Ph.D. Sociology (Sacramento State)
- Kareem Crayton (African American) J. D. , Ph.D. Political Science (University of Southern California)
- Andrew Ho (Asian American), Ph.D. Education (University of Iowa)
- Benjamin Ortiz (Puerto Rican) Ph.D. Immunology (Hunter College, New York, New York)
- Valerie Purdie-Vaughns (African American) Ph.D. Psychology (Yale University)
- Celine Shimizu (Asian American) Ph.D. Modern Thought and Literature (University of California, Santa Barbara)

Another new program under development to increase the diversity of students interested in academic careers in the sciences and engineering is the Arthur B. Walker Program for the Advancement of Science and Engineering Pilot Program Seminar Series. The overall goal of the Walker Program is to increase the representation of minorities, women, and others who would add and promote diversity (broadly defined) within the fields of earth science, engineering and the natural sciences.

The Walker Program will begin in Spring, 2007 with a lecture series for graduate and undergraduate students. The seminar will provide graduate students with information that will improve their graduate educational experience and enhance their career opportunities, as well as provide them with a forum to meet with Stanford faculty who are doing research in various areas of science and engineering. The seminar will consist of five sessions to be held in the late afternoon, with a light supper provided.

Undergraduate students who have been selected for the program will be invited to the lectures that cover various topics in the field of science and technology. Including undergraduate students from diverse backgrounds who share a common intellectual interest with the graduate students and faculty can provide them with role models for their future academic and professional careers.

B. How can universities encourage more underrepresented minorities and women to see themselves as academics?

One of the most striking findings of our research was the extent to which underrepresented minorities and women often did not consider themselves up to the task of becoming or succeeding as faculty members. Underrepresented minority undergraduates reported feeling unprepared for graduate school significantly more often than did non-minority undergraduates. Underrepresented minority graduate students were significantly more likely than others in their cohort to report that they perceive their lack of intelligence as an obstacle to becoming a professor. Additionally, both underrepresented minority undergraduate and graduate students reported that they considered their race/ethnicity to be an obstacle to becoming and succeeding as a professor. Despite the fact that we surveyed students who overcame the intellectual hurdles of entrance and performance at Stanford, doubts about preparation, intelligence and the role of race and ethnicity were still experienced as compelling obstacles to academic careers. This is an area in clear need of further research.

The women in our sample demonstrated concerns similar to those of underrepresented minorities with respect to academic preparation and envisioning themselves as academics. Female graduate students were significantly less likely than male graduate students to report feeling

academically capable in their fields. Similarly, female faculty were significantly less likely than male faculty to report that they felt prepared when they began their graduate programs. Both female graduate students and female faculty members reported feeling more stressed in their graduate programs than did their male cohorts. Female faculty members were also significantly more likely than their male colleagues to have considered dropping out of graduate school at some point in their training.

In our sample, female undergraduates and graduate students also reported seeing issues of gender as obstacles to their becoming or succeeding as an academic. Additionally, even after becoming faculty, the women in our sample were more likely than the men to report concerns about not feeling intelligent enough, not having the requisite skills, and not being sufficiently dedicated to their fields. Also, women faculty reported more frequently than men that they felt that the politics of academia, issues related to family and relocation, and the tenure and promotion process were obstacles in their careers.

An important question raised by our research is whether women and underrepresented minorities are more sensitive to issues of self-confidence and efficacy, or whether they are just more willing than non-minority men to acknowledge concerns in those areas. While our current research does not address this particular question, it is important to note that both groups who have not traditionally been a part of the academic landscape articulated significantly more self-doubt and concerns about adequacy in their academic roles.

To attract and retain talented minorities and women, universities must recognize the importance of inviting and encouraging talented women and minorities to legitimately see themselves in the role of faculty. This may not come naturally to groups that have historically been barred from the door. The role of race and gender stereotyping and discrimination in perpetuating the doubts that minorities and women report with respect to their abilities, preparation, and legitimacy in academia must be further understood. In the interim, universities must recognize that for minorities and women, the very qualities that would ensure their success might be in short or somewhat precarious supply for a variety of reasons.

Universities must actively reduce subtle and not-so-subtle biases, which may contribute to or exacerbate the doubts that both groups, and in some instances their colleagues, have expressed about their preparation, intellectual capabilities, and the effect of race and/or gender on their success as academics. This is especially important in terms of developing and retaining high quality faculty because other options, such as professional or industrial careers, may provide more affirming, compelling, and often more lucrative options.

To this end, it is essential that universities truly interested in recruiting and retaining talented minorities and women institute programs to support and legitimize their status as respected members of the academic community. Several avenues are suggested by our study findings:

1. Increase the diversity of the student and faculty populations. Increasing diversity would increase the number of available role models, particularly ones who share the same race/ethnicity/gender characteristics of the population to be attracted. While not every woman or minority is going to want or need to have a role model of the same race or gender, many minority and female students and faculty in our study reported that, "seeing someone like me" helped to inspire them to consider an academic career.
2. Provide the opportunity for underrepresented minorities and women to participate in special programs, i.e. summer research programs for undergraduates, research programs for minority scholars, etc. In light of the concerns expressed by underrepresented minorities and women in our survey about funding issues, it would seem that providing funding for such programs could make an important difference in the career choices of potential academics.

3. Encourage faculty to be mentors. If a university's goal is to increase the yield of women and underrepresented minority scholars, then mentoring is a clear and direct way to accomplish that goal. This is particularly important in light of the fact that "having a mentor" ranked high on the list of factors that Stanford faculty reported as contributing significantly to their own success. It is also important to note that underrepresented minority faculty tended to report better relationships with their primary advisors in graduate school than did non-minorities. As a result, it is critical for faculty to recognize the significant role mentoring plays in the development of future academics. It is also important to underscore the fact that mentoring should not be considered solely the responsibility of women and underrepresented minorities, as they are often over-burdened with advising/ mentoring burdens, and in some cases the commitment of faculty to these worthy activities can negatively impact career development, including tenure.

To encourage good mentoring, universities must offer training to faculty on how to be a mentor and provide incentives for them to function in this role. From our study, we learned that the ways in which mentors operated were highly variable, but often came down to simply letting a student know he or she was considered talented, and directly encouraging that student to become an academic. Encouragement could also take the form of helping the student to identify training or publishing opportunities, encouraging talented students' participation in summer research programs and national meetings, and nominating appropriate students for special awards. It is also important to recognize that research has demonstrated that "benign neglect" has a differential affect on men and women – an absence of feedback can be seriously disadvantageous to women students. As a mentor, taking the time to recognize good work, rather than focusing only on what remains to be done, can make an important difference in terms of a student's desire and confidence to proceed. To this end, serious, active mentoring is critically important to increasing the numbers of women and minorities choosing academics as a career path.

4. Provide students with the opportunity to see what "being faculty" is all about. We learned from our research that interest in academic careers is highly affected by role models who were academics themselves, and who encouraged students to follow in their footsteps, and/or who demonstrated a passion for learning and a dedication to the academic process. It is probably no coincidence that 12% of our current Stanford faculty have a parent who is a faculty member. It may be difficult for faculty to remember and understand how mysterious and unwieldy the academic process can seem from outside of the field. Given that most underrepresented minorities and women have historically been academic outsiders, this issue is particularly relevant to their career success. Having the opportunity to observe faculty in their roles and to experience their excitement and enthusiasm about their work can be uniquely inspirational to future academics.
5. Provide seminars, workshops, and websites for both students and faculty on topics of concern, for example:

Students:

- a. What to expect in an academic career
- b. How to select a mentor, understand the mentoring process, and use your mentor effectively.
- c. What expectations should one have of the mentoring relationship- how to develop the best relationship for facilitating the mentoring process, how to ask for and deal with feedback, etc.
- d. How to work with an advisor, including what to do if that relationship is not working.
- e. Time management strategies

- f. Stress management strategies
- g. Financial management strategies

Faculty:

- a. Research/lab management issues for faculty, including handling feedback, performance evaluation, personnel issues, etc.
 - b. Training regarding funding, teaching, course creation etc.
 - c. Grant proposal writing and managing
 - d. The promotion and tenure process – expectations, process, timeline, etc.
 - e. The mentoring process, including recognizing unconscious biases in the selection process, feedback issues, etc.
 - f. The advising process, including ways of assessing progress, interpersonal issues, etc.
 - g. Negotiation strategies
 - h. Dual career / work-life issues
 - i. Time management strategies
 - j. Stress management strategies
 - k. Financial management strategies
6. Provide professional development seminar series to encourage the normalization of the experiences of minorities and women. In our research, the course, *Women's Perspective in Engineering*, developed by Professor Sheri Sheppard in the Mechanical Engineering Department at Stanford (see below), was repeatedly lauded for its significance in the professional and personal development of women engineering students at Stanford. Creating similar courses in other departments would be a similarly effective way of improving the graduate and faculty experience for minorities and women. Additionally, regular social/professional events that allow women and minorities to get to know each other and to create a community of scholars would aid in developing a more legitimate presence in the academic community.
7. Provide a support/forum group program for women and minority graduate students and faculty. Earlier research demonstrated that a critical mass of “like souls” is necessary for a normative experience to occur, and that without a critical mass, doubts about one’s efficacy and capabilities may emerge. Until such a time that a critical mass of women and minorities in academic departments is established, it would appear to be important for minorities and women to engage in discussions and reality testing about issues of efficacy, dedication, etc. It would also be critical for women and minorities to recognize that some of these concerns are not unique to themselves as individuals, but rather are anxieties that others share, anxieties that may stem from situational experiences rather than personal inadequacies. Expansion of the support group program, such as the one that currently exists for graduate student women in science and engineering at Stanford, would help reduce such anxieties and allow constructive ways of addressing these concerns to evolve. This is particularly important because we know from our research that how one is viewed by one’s colleagues, both internally and externally to the university, is an essential component of faculty success. If minorities and women are not clear within themselves about their capabilities, they will less likely engage in the kinds of intellectual risk taking and exposure that will contribute to their academic success.

Stanford Efforts and Programs

More than 20 years ago and in response to the 1984 Pipeline Study (Zappert and Stansbury, 1984), Stanford’s counseling and psychological services (CAPS) began a support group program

for women in science, engineering and medicine which was also supported by the Provost's office and the Dean's Offices. The program provided small group forums for women to meet weekly with a trained facilitator. Some women members remained involved in the groups throughout their graduate careers and in some cases, groups continued personal and professional support for their members for decades. For the last five years a similar program has been available, the Women in Science and Engineering (WISE) discussion group program, directed by Dr. Laraine Zappert and funded by the Vice-Provost and Dean of Research and Graduate Policy.

Described below are several career development courses and programs for graduate students.

1. ME/E 311 Women's Perspective in Engineering. 1 unit.

Under the guidance of Professor Sheri Sheppard, the Mechanical Engineering Graduate Women's Group offers a seminar series, every year since the group's inception in 1998. Speakers are asked to address the factors, experiences, and lessons that have been particularly important to their success in industry, academia, and life.

2. HUMSCI 201: Graduate Environment of Support. 1 unit.

Official description: Psychosocial, financial and career issues in adapting graduate students to Stanford, how these issues relate to diversity, resources, policies, and procedures. Discussions among faculty, advanced graduate students, campus resource people, and the dean's office.

Explanation: This course was taught for the first time in fall 2005. It is designed to introduce students to many of the key resources that assist in the successful completion of graduate degrees. Topics include writing and teaching development, advisor/advisee relationships, funding opportunities, getting involved outside of research and thinking about your future career. Students have the opportunity to meet and interact with key campus administrators, diverse faculty and advanced graduate students as well as other first year diverse graduate students.

3. CHEM309: Navigating Career Options for Ph.D. Chemists. 1 unit.

Official description: Planning a post-graduate career. Topics include career options, job search strategies, job application process, long-term career planning, and minority issues in science careers. Workshops focused on developing professional skills working with CDC and CTL, and panel discussions with chemistry Ph.D.'s working in a range of fields.

Explanation: This course was offered for the first time in summer quarter 2005 to doctoral students in Chemistry. The course format alternated between workshops provided by counselors at the Career Development Center and panel discussions featuring Ph.D. chemists working in the Bay Area, from Stanford and elsewhere. The workshops covered important job skills and also introduced students to the many careers-related resources available on campus. The panel discussions covered academia, industry and alternative careers, allowing students to draw on panelists' experiences of working in their field. An evening reception was held in the last week of the class, giving students the chance to interact informally with representatives from a range of companies and institutions.

4. Distinguished Women in Science (DWIS) Colloquia

The DWIS Colloquia are two-day visits by prominent female scientists. On the first day, the speaker discusses research with students and post-docs and presents a formal seminar. On the second day, the speaker gives an informal talk from her experiences as a woman in science. Students are invited to meet informally with the speaker throughout the day to discuss issues of the student's choosing.

5. BioMASS (*BioMedically-Affiliated Stanford Students*)

BioMASS is an organization of graduate students in the biological and biomedical sciences that, in addition to social events, organizes career development programs to familiarize graduate students with careers in academia, biotechnology, and other areas.

6. BioAIMS (*Biomedical Association for the Interest of Minority Students*)

The purpose of BioAIMS is to address the needs and concerns of current minority graduate students in the biosciences. Its purpose is to promote a supportive community and to enrich the opportunities available for minority students pursuing an advanced degree in science. It has the following goals: to promote the recruitment and active retention of minority students for graduate studies in the biomedical sciences, to stimulate professional growth through career development sessions, to make an impact on the surrounding Stanford communities through various outreach and mentoring programs, and to foster a student support network through social interactions

7. Graduate Student Center and Arillaga Family Recreation Center

After the Pipeline survey was conducted, the university opened both the Graduate Student Center at 750 Escondido Road and the Arillaga Family Recreation Center, in an effort to improve the experience of graduate students and others in the campus community.

C. How can universities make academic careers more appealing to minorities and women?

Students in our study reported that the most appealing aspects of an academic career were the flexible schedule it afforded, the opportunity to create and apply knowledge in important and relevant ways, and the opportunity to teach and mentor. In addition to these career aspects, the opportunity to obtain research funding was significantly more often reported to be appealing to underrepresented minority students than to other students. It follows from this that universities need to provide opportunities for students to become involved in applied research and/or teaching. These activities would allow underrepresented minority students and women to envision and experience the aspects of an academic career that most appeal to them.

Among our faculty respondents, the issues of tenure and promotion were reported to be significantly more challenging by underrepresented minority and female faculty. Both women and minority faculty, more often than their colleagues, reported that understanding the unspoken rules of academia, having the right mentor, being able to negotiate well, and being liked by your colleagues were important to career success at Stanford. From this we may infer that both underrepresented minorities and women faculty are aware of and sensitive to the interpersonal aspects of academic career success. This can be of significant advantage to them, particularly given that collegial relations were noted by many of our faculty respondents as critical to academic success. Having the right advice early on in one's career, having a senior colleague offer to review one's work or offering advice on how best to advance one's research career, etc. were among the practical strategies that Stanford faculty offered as ways to further success in the academic arena. While it is clear that success at a place like Stanford is not just a matter of whom you know, lacking "connections" and adequate mentoring can be a considerable detriment.

To this end, providing good information to women and minorities about the process of academic success is critical to their professional development. For example, as many faculty in our study recommended, making the promotion and tenure process more transparent and objective would enhance the academic experience for all faculty, not just minorities and women. Providing all junior faculty with information early on in their careers about performance expectations, salary negotiation, research management, research funding, running a lab, selection of students, etc. would serve to reduce uncertainty, and create an enhanced climate for academic

accomplishment. Additionally, alerting students and junior faculty to the importance of relationship building and reputation management, both inside and outside the university, would be instrumental in enhancing their academic success.

Stanford Efforts and Programs

Stanford University expects that all schools and departments will provide mentoring and counseling to all junior faculty. The “Guidelines on Mentoring and Counseling Junior Faculty” are described in a brochure “Building on Excellence: Guidelines for Establishing an Excellent and Diverse Faculty”, which is available on-line at <http://www.stanford.edu/dept/provost/diversity>. The Faculty Development Office offers resources and programs to support junior faculty across the university, including New Faculty Orientation. It organizes a number of workshops each year on topics including the tenure process (led by the Provost), combining academic careers with family, etc. The Office’s website, <http://facultydevelopment.stanford.edu>, describes resources available to junior faculty.

Working with the Center for Comparative Studies in Race and Ethnicity (CCSRE) and other groups, the Faculty Recruitment Office within Faculty Development, led by Associate Vice Provost for Faculty Development Sally Dickson, organizes programs to support junior faculty of color. There is an annual reception for new faculty of color, attended by the President, Provost, deans, and senior faculty. Associate Vice Provost Dickson meets individually with junior faculty of color to discuss their development and any issues that might arise. Seminars and events at CCSRE bring many faculty of color together and provide opportunities for professional as well as social interactions.

The Faculty Women’s Forum, initiated in the fall of 2005 following the recommendation of the Provost’s Advisory Committee on the Status of Women Faculty, is providing programming and support for women faculty. In the past two years, the Forum’s programs for women have focused on leadership, negotiation, and influence, with a series of seminars and workshops that have provided information on research findings related to gender differences, skill-building, and practical guidance on negotiating and advocating for oneself in academia. Other programs have included workshops on stress management and presentations by visiting gender scholars. The Forum is in the process of organizing a “women mentoring women” network to provide mentoring for women at all stages of academic careers, beginning with graduate students.

D. What can universities do about work/life balance?

Both minorities and women reported more concerns than their colleagues about possible negative effects of parenthood on their careers. Women students and faculty, in particular, reported that they envisioned difficulty integrating career plans with family/personal life. The biological clock issue was reported to be one of the most significant detriments to an academic career for women. Many respondents, particularly graduate women, expressed doubts that career/family integration in academics could actually occur for women, in part because they knew no one who had succeeded in doing it. In those instances where a role model who had done it was available, that person was often seen as a superstar, or more dedicated, or certainly “not like me”. Even where some measure of career/life balance was viewed as possible, questions arose as to whether it was worth it; whether what it took to succeed in a place like Stanford was so staggering as to be simply “not worth it”.

Clearly, good-quality, available and affordable childcare and salaries adequate to afford the other services necessary to provide a healthy work/life balance would be of great help. This is indeed one place where money can make a difference; being able to afford flexible child-care options, like nannies, and certain non-childcare services, such as house cleaning, would greatly lessen the burden that has historically fallen on women, particularly in two career families. But beyond that, it is essential that universities look at their policies with respect to tenure clocks and what the real costs of slowing the tenure clock may be for faculty who chose that option. Similarly, universities should consider the possibility of alternative career trajectories for women and

minorities who are unwilling to follow the traditionally prescribed timeline. In addition, addressing the “two-body” issue is of significant import for women faculty, as a higher proportion of female than male faculty have academic spouses and women have traditionally been the spouse/partner who relocates. Finally, and perhaps most importantly, universities need to allow students to see women and minorities who have “done it, done it well, and enjoyed it”, without sacrificing their own sanity or that of their families.

Stanford Efforts and Programs

In order to recognize the simple fact that a woman's prime childbearing years are the same years she is likely to be in graduate school, doing postdoctoral training, and establishing herself in a career, Stanford instituted in January, 2006, a “Childbirth Policy for Women Graduate Students” to complement existing policies covering postdoctoral scholars and women faculty. The university’s goal in designing the policy was to partially ameliorate the intrinsic conflict between the “biological” and the “research” and “training” clocks for women graduate students, and to send clear messages that Stanford University is welcoming of women graduate students and that pursuit of an advanced degree need not be inimical to a woman starting a family. The Childbirth Policy is intended to provide an accommodation for the demands placed on a woman by late-stage pregnancy, childbirth, and the care of a newborn. It is designed to make it possible to maintain the mother's full-time, registered student status, and to facilitate her return to full participation in classwork, and, where applicable, research, teaching, and clinical training in a seamless manner.

The Childbirth Policy has four components. All women graduate students (including students in professional schools) anticipating or experiencing a birth who are registered, matriculated students: (1) are eligible for an Academic Accommodation Period of up to two academic quarters before and after the birth, during which the student may postpone course assignments, examinations, and other academic requirements; (2) are eligible for full-time enrollment during this period and will retain access to Stanford facilities, student health insurance, and Stanford housing; and (3) will be granted an automatic one-quarter extension of University and departmental requirements and academic milestones, with the possibility of up to three quarters by petition under unusual circumstances. In addition, (4) women graduate students supported by fellowships, teaching assistantships, and/or research assistantships will be excused from their regular TA or RA duties for a period of six weeks during which they will continue to receive support. (Students will not receive a stipend or salary if none was received previously, but all are eligible for the Academic Accommodation Period and the one-quarter extension of academic milestones.)

Stanford University continues to develop family-friendly resources, programs, and policies for members of its community. Although it already provides on-campus childcare centers and nursery schools accommodating 550 children, another childcare center is being built on campus. Recognizing how important it is for the university to be family-friendly to faculty, not only to support the ability of faculty with families to have successful careers but also to make academic careers seem more feasible for students who desire to have families, the university is both enhancing and publicizing its offerings. In 2005, the Provost’s Office developed a brochure, “Family Matters @ Stanford for Faculty” (see <http://www.stanford.edu/dept/provost/family>). The brochure, sent to all faculty, describes policies, resources and offices that can provide assistance to faculty with families, broadly defined to include spouses/partners, children, dependent adults, etc. Discussion is ongoing about other ways in which academic careers can be made more manageable for faculty with family responsibilities, including making childcare both more affordable (through a Junior Faculty Child Care Assistance Program being implemented in 2007) and more available (through the university’s commitment to build two additional on-campus child care centers).

E. Conclusion

Developing and implementing strategies to address the recommendations that evolved from the Pipeline Project research will take time and resources. Universities dedicated to increasing the presence, participation, and success of women and members of minority groups in their academic ranks will need to change institutional cultures and allocate resources to ensure a healthy pipeline of future generations of talented and diverse students and faculty.

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Appendix I

Pipeline Project Advisory Board Irvine Campus Diversity Initiative Stanford University

Patricia P. Jones – Principal Investigator
Vice-Provost – Faculty Development
Biological Sciences

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Director, Black Community Services Center

Richard Yuen
Director, Asian American Activities Center

Cynthia Ng
Assistant Director, Asian American Activities
Center

John Pearson
Director, Bechtel International Center

Clinton W. Taylor
Doctoral Student
Department of Political Science

Greg Graves
Native American Graduate Student
Recruiter

Denni Woodward
Assistant Director AIANNHP/NACC

Appendix II
Faculty Survey

Appendix II

Faculty Survey

Use the buttons at the bottom of each page to navigate this survey.

Note: Do not use the 'Back' and 'Forward' buttons built in to your browser.

This survey is part of a study funded by the Irvine Foundation that is exploring the factors that impact the decisions that graduate students make about pursuing a career in academia. We place an emphasis on the decisions made by minorities and women. In investigating this, we are interested in the decisions and experiences of those at Stanford who have chosen academic careers. We appreciate your participation in this important project. This survey will take approximately 20-30 minutes to complete, depending on the length of your responses.

You may pause the survey at any point by clicking the pause button at the bottom of the page and you can complete the survey at a later time.

There are 5 sections in this survey.

Start Survey

Faculty Survey - Consent Form

Page 1 of 1

Consent Form

Dear Stanford Faculty Member:

You are invited to participate in a confidential and anonymous research study on the academic experiences that led you to a career at Stanford. You are being asked to answer survey questions on a web-based survey.

For questions about the study, contact:
Mary Rauner, Ph.D.
650-771-0083

There are no foreseeable risks or benefits to you as a result of participating in this research, and you will receive no reimbursement for your participation. Your participation in this research will take approximately 20-30 minutes, depending on the length of your responses.

If you have read this form and have decided to participate in this project, please understand your participation is voluntary and you have the right to withdraw your consent or discontinue participation at any time without penalty. You have the right to refuse to answer particular questions. Your individual privacy will be maintained in all published and written data resulting from the study.

If you have questions about your rights as a study participant, or are dissatisfied at any time with any aspect of this study, you may contact - anonymously, if you wish - the Administrative Panels Office, Stanford University, Stanford, CA (USA) 94305-5401 (or by phone (650) 723-2480 - you may call collect).

You may keep a copy of this consent form for your records by printing it out.

By clicking "I agree" below, you are indicating your consent to participate in this project, and the survey will begin.

I Agree **I Disagree**

I. Career Influences

In this section, we ask questions about the people and experiences that influenced your decision to pursue a career in academia. There are 9 items in this section.

I-1. As an undergraduate, how interested were you in pursuing a career in academia? Please mark one.

- Not at all interested
- Possibly interested
- Interested
- Very interested

Faculty Survey - I. Career Influences (2)

Page 1 of 1

I. Career Influences

I-2. As a graduate student, how interested were you in pursuing a career in academia? Please mark one.

- Not at all interested
- Possibly interested
- Interested
- Very interested

Faculty Survey - I. Career Influences (3)

Page 1 of 1

I. Career Influences

I-3. Was there a person(s) who influenced your decision to pursue an academic career? Please mark one.

- No
- Yes

I. Career Influences

I-4. If there was a person(s) who influenced you to pursue an academic career, please briefly describe the person(s) and how they influenced you.

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Faculty Survey - I. Career Influences (5)

I. Career Influences

I-5. Was this person(s) who influenced you the same sex as you? *Please mark one.*

- No
- Yes
- Both sexes were influential

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I. Career Influences

I-6. What is/was his or her racial/ethnic background? Please mark all that apply.

- American Indian/Alaska Native
- Ethnic Hawaiian
- Black/African American
- Chinese American
- Filipino American
- Japanese American
- Korean American
- South Asian American
- Vietnamese American
- Other Asian American
- Latin American/Latino
- Mexican American/Chicano
- Puerto Rican American
- Other Hispanic American
- White, non-minority American
- International/Non-resident

If International/non-resident, please indicate his or her country of origin.

Other

If Other, please specify:

I. Career Influences

I-7. Was there an event(s) or experience(s) that crystalized your decision to pursue an academic career?
Please mark one.

- No
 Yes

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Faculty Survey - I. Career Influences (8)

Page 1 of 1

I. Career Influences

I-8. Please briefly describe the event(s) or experience(s).

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Faculty Survey - I. Career Influences (9)

Page 1 of 1

I. Career Influences

I-9. When did you decide to become an academic? Please mark one.

- When I was an undergraduate student
 When I was a graduate student
 When I was a post-doc
 Other

If Other, please specify:

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II. Graduate Experience

In this section, we ask you questions about your experiences while you were in graduate school. There are 8 items in this section.

II-1. What was your program of study in graduate school? Please check all that apply and include name of program or area.

Business

Program/Area:

Education

Program/Area:

Engineering

Program/Area:

Humanities

Program/Area:

Law

Program/Area:

Life Sciences

Program/Area:

Medicine

Program/Area:

Physical Sciences

Program/Area:

Social Sciences

Program/Area:

Other

If Other, please specify:

Program/Area:

II. Graduate Experience

II-2. When you began your graduate program, how prepared did you feel you were? *Please mark one.*

- Very unprepared
- Unprepared
- Prepared
- Very prepared
- Other

If Other, please specify:

II. Graduate Experience

II-3a. During graduate school did you work as a research assistant?

- No
- Yes

II-3ai. How important was being a research assistant to your ability to obtain an academic position? Please mark one.

- Very unimportant
- Unimportant
- Somewhat unimportant
- Important
- Somewhat important
- Very important
- Not applicable

II-3b. During graduate school did you work as a teaching assistant?

- No
- Yes

II-3bi. How important was being a teaching assistant to your ability to obtain an academic position? Please mark one.

- Very unimportant
- Unimportant
- Somewhat unimportant
- Important
- Somewhat important
- Very important
- Not applicable

II-3c. After graduate school did you have a post-doc?

- No
- Yes

II-3ci. How important was having a post-doc to your ability to obtain an academic position? Please mark one.

- Very unimportant
- Unimportant
- Somewhat unimportant
- Important

- Somewhat important
- Very important
- Not applicable

Back Next Reset Pause

II. Graduate Experience

II-4. How satisfied were you with the following elements of your experience with your primary advisor in graduate school? Please check one answer for each item below.

	Very dissatisfied	Dissatisfied	Satisfied	Very satisfied	Not Applicable
a. The frequency of communication with your advisor	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
b. Your advisor's management style (highly directive, not directive, etc.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
c. The <u>amount</u> of feedback about your work from your advisor	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
d. The <u>quality</u> of feedback about your work from your advisor	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
e. Your advisor's assistance in securing you funding	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
f. Your advisor's reviews of your progress	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
g. Your advisor's general career advice	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
h. Your advisor's assistance in your academic job search	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
i. Your advisor's assistance in your non-academic job search	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
j. Your advisor's assistance in finding a post-doc	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
k. Your overall relationship with your advisor	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

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II. Graduate Experience

II-5. During your graduate program, how did you perceive your ability in your field? *Please mark one.*

- I felt less able than most of my peers
- I felt equal in ability to most of my peers
- I felt more able than most of my peers
- Don't know/don't remember
- Other

If other, please specify.

Faculty Survey - II. Graduate Experience (6)

Page 1 of 1

II. Graduate Experience

II-6. In general, how stressful was graduate school for you? *Please mark one.*

- Very stressful
- Stressful
- Not stressful at all
- Not certain

Please briefly explain.

II. Graduate Experience

II-7. Did you ever consider dropping out of graduate school? *Please mark one.*

- No
 Yes

If yes, why.

--

II. Graduate Experience

II-8. If you did consider dropping out of graduate school, why did you decide to continue? *Please explain.*

--

III. Academic Career Experience

In this section, we ask you questions about your experiences as a professor at Stanford. There are 15 items in this section.

III-1. How prepared did you feel when you began your academic career? Please mark one.

- Very unprepared
- Unprepared
- Prepared
- Very prepared
- Don't know
- Other

If Other, please specify.

What would have helped you to feel more prepared as a new professor?

III. Academic Career Experience

III-2. How significant of a challenge are/were the following obstacles for you in your academic career?
Please mark one answer for each item.

	A significant challenge	A challenge	Not a challenge	Not applicable
a. The length of training required	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
b. The real cost or opportunity cost of training	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
c. The lack of positions for qualified candidates	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
d. The amount of work required to be successful	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
e. The salary level of an academic job	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
f. The tenure process	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
g. The politics of academia	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
h. The need to relocate for career advancement	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
i. Issues related to my gender	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

please specify:

	A significant challenge	A challenge	Not a challenge	Not applicable
j. Family obligations	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
k. Issues related to my race/ethnicity	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

please specify:

	A significant challenge	A challenge	Not a challenge	Not applicable
l. A lack of support from family and friends	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
m. Concern about not succeeding	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
n. Not having the requisite skills	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
o. Not feeling intelligent enough	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

p. Not feeling dedicated enough to my field

q. Other

If Other, please specify:

III. Academic Career Experience

III-3. To what extent do you find the following aspects of being an academic enjoyable? *Please mark one answer for each item.*

	Very unenjoyable	Unenjoyable	Neutral	Enjoyable	Very Enjoyable	Not Applicable
a. Teaching undergraduates	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
b. Teaching graduate students	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
c. Doing research/scholarship	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
d. The opportunity to apply academic knowledge to society in important and relevant ways	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
e. The intellectual/creative challenge	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
f. The intellectual independence	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
g. The opportunity to be a mentor	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
h. The opportunity to work with interesting colleagues	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
i. Other	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

If Other, please specify:

III. Academic Career Experience

III-4. How satisfied are you with the following aspects of being an academic? Please mark one answer for each item.

	Very dissatisfied	Dissatisfied	Neutral	Satisfied	Very Satisfied	Not Applicable
a. The process of tenure and promotion	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
b. The salary levels in academia	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
c. The ability to augment income with work outside the university	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
d. Academic work load expectations	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
e. The need to obtain research funding	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
f. The possibility/reality of lifetime employment	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
g. The lifestyle of being an academic	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
h. The ability to balance work and family	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
i. Having a flexible work schedule	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
j. The social recognition associated with being a faculty member	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
k. Other	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

If Other, please specify:

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III. Academic Career Experience

III-5. How many years have you been at Stanford?

Faculty Survey - III. Academic Career Experience (6)

Page 1 of 1

III. Academic Career Experience

III-6. How satisfied are you with your decision to come to Stanford? *Please mark one.*

- Very dissatisfied
- Dissatisfied
- Somewhat dissatisfied
- Satisfied
- Somewhat satisfied
- Very satisfied
- Other

If Other, please specify.

III. Academic Career Experience

III-7a. From your experience, how difficult is/was the tenure process? *Please mark one.*

- Extremely difficult
- Difficult
- Slightly difficult
- Not difficult
- Other

If Other, please specify.

III-7b. What, if anything, might have made the tenure process easier?

III. Academic Career Experience

III-8. How important are the following to career success at Stanford?

Please check one answer for each item below.

	Very unimportant	Unimportant	Slightly Important	Important	Very important
a. Being perceived by your colleagues at Stanford as doing important research/scholarship	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
b. Being perceived by your colleagues in your field outside of Stanford as doing important research/scholarship	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
c. Understanding the unspoken rules of academia	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
d. Being positive/optimistic	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
e. Being extraordinarily smart	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
f. Having good instincts	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
g. Feeling free to seek advice	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
h. Having good social skills	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
i. Trusting your judgement	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
j. Having the right mentor	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
k. Being confident	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
l. Being part of the informal network in your department	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
m. Being able to set and keep limits	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
n. Being able to negotiate well	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
o. Being able to give and receive feedback well	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
p. Being liked by your colleagues	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
q. Speaking up when bothered by something	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
r. Being a good collaborator/colleague	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
s. Other	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

If Other, please specify:

III. Academic Career Experience

III-9. What are the three (3) experiences, attributes or people that helped you the most in your career?

III. Academic Career Experience

III-10. In general, how stressful has your academic career been? *Please mark one.*

- Extremely stressful
- Somewhat stressful
- Slightly stressful
- Not Stressful
- Other

If Other, please specify.

What are/were the three major stressors in your career to date?

III. Academic Career Experience

III-11. To what extent are you satisfied with the way that your academic career has turned out or is evolving? *Please mark one.*

- Very dissatisfied
- Dissatisfied
- Somewhat dissatisfied
- Satisfied
- Somewhat satisfied
- Very satisfied
- Other

If Other, please specify.

III. Academic Career Experience

III-12a. If you could do it again, would you do your career differently? *Please mark one.*

- No
- Yes

III-12b. If so, what would you do differently in your career?

III. Academic Career Experience

III-13. Is there anything you know now that you wish you had known earlier in your career? *Please mark one.*

- No
- Yes

If so, what do you wish that you had known?

III. Academic Career Experience

III-14. Do you agree with the following statements? Please mark one answer for each statement.

a. A person can step off the academic career path and return to it in a successful way.

- Disagree
- Agree

Please comment.

b. An academic career can be financially rewarding.

- Disagree
- Agree

Please comment.

c. It is difficult for women to be successful in my field.

- Disagree
- Agree

Please comment.

d. It is difficult for minorities to be successful in my field.

- Disagree
- Agree

Please comment.

III. Academic Career Experience

III-15. What advice would you offer to a graduate student or post-doc who is contemplating a career in academia?

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IV. Work and Family

Section IV includes questions about the ways that you combine work and family. There are 5 items in this section.

IV-1. Please indicate your status below. Please mark one.

- Single
- Married/committed in a partnership
- Other

If other, please describe:

[Back](#) [Next](#) [Reset](#) [Pause](#)

IV. Work and Family

IV-2. Do you have children? *Please mark one.*

- No
 Yes

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Faculty Survey - IV. Work and Family (3)

Page 1 of 1

IV. Work and Family

IV-3. What are the ages of your child/children? *Please record number of children in each age category.*

- a. Number of preschool age children
- b. Number of children in grade school
- c. Number of children in high school
- d. Number of children over the age of 18

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IV. Work and Family

IV-4. How much of a problem is/was integrating your career and your family/personal life? *Please mark one.*

- No problem
- Some problem
- A significant problem

Please explain.

What advice do you have for students regarding this issue?

IV. Work and Family

IV-5a What can a university do to help with the issue of balancing work and family or personal life? *Please explain*

IV-5b. Stanford offers the option of a one year tenure clock extension for faculty with a new child. From your perspective, would a person face any challenges if they chose this option?

V. Background and Experience

This is the final section of the survey. These items help us understand more about your background and experience. Your responses will be kept anonymous and confidential and will never be presented in any way that would permit responses to be associated with a specific individual. There are 7 items in this section.

V-1. What is your current status? Please mark one.

- Tenure line, tenured
- Tenure line, not tenured
- Medical center line
- Teaching Professor, Research Professor, Applied Research Professor, Clinical Professor
- Senior Fellow
- Other

If other, please specify:

Faculty Survey - V. Background and Experience (2)

Page 1 of 1

V. Background and Experience

V-2. What is your current title? Please mark one.

- Assistant Professor
- Associate Professor
- Professor
- Senior Fellow
- Other

If Other, please specify:

V. Background and Experience

V-3. In what school/division do you work? *Please mark one.*

- Graduate School of Business
- School of Earth Sciences
- School of Education
- School of Engineering
- School of Humanities and Sciences, Humanities
- School of Humanities and Sciences, Social Science
- School of Humanities and Sciences, Physical Sciences
- School of Humanities and Sciences, Life Sciences
- School of Law
- School of Medicine, Basic Sciences Division
- School of Medicine, Clinical Sciences Division

Faculty Survey - V. Background and Experience (4)

Page 1 of 1

V. Background and Experience

V-4. What is your sex? *Please mark one.*

- Female
- Male

V. Background and Experience

V-5. What is your age? *Please mark one.*

- 30 years or younger
- Between 31 and 40 years old
- Between 41 and 50 years old
- Between 51 and 60 years old
- Between 61 and 70 years old
- 71 years or older

V. Background and Experience

V-6. What best describes you? Please mark all that apply.

- American Indian/Alaska Native
- Ethnic Hawaiian
- Black/African American
- Chinese American
- Filipino American
- Japanese American
- Korean American
- South Asian American
- Vietnamese American
- Other Asian American
- Latin American/Latino
- Mexican American/Chicano
- Puerto Rican American
- Other Hispanic American
- White, non-minority American
- International/Non-Resident

If you are International/a Non-resident, please indicate your country of origin.

Other

If Other, please specify:

V. Background and Experience

Thank you again for your assistance with this important project!

V-7. If there is a question that you feel is relevant that we did not ask, but should have, please ask and answer it here.

Faculty Survey - Lottery

Page 1 of 1

If you would like to be entered in the drawing, please enter your e-mail address below. It will be kept separate from your responses, and the survey will remain anonymous.

Appendix III
Graduate Student Survey

Appendix III

Graduate Student Survey

Use the buttons at the bottom of each page to navigate this survey.

Note: Do not use the 'Back' and 'Forward' buttons built in to your browser.

We appreciate your participation in this important project. This survey will take approximately 30-50 minutes to complete. You may pause the survey at any point by clicking the pause button at the bottom of the page and you can complete the survey at a later time.

There are 6 sections in this survey.

Start Survey

Consent Form

Dear Stanford Graduate Student:

You are invited to participate in a confidential and anonymous research study on your academic and life experiences at Stanford. You are being asked to answer survey questions on a web-based survey.

For questions about the study, contact:
Dr. Mary Rauner
650-771-0083

There are no foreseeable risks or benefits to you as a result of participating in this research, and you will receive no reimbursement for your participation. Your participation in this experiment will take approximately 30-50 minutes.

If you have read this form and have decided to participate in this project, please understand your participation is voluntary and you have the right to withdraw your consent or discontinue participation at any time without penalty. You have the right to refuse to answer particular questions. Your individual privacy will be maintained in all published and written data resulting from the study.

If you have questions about your rights as a study participant, or are dissatisfied at any time with any aspect of this study, you may contact - anonymously, if you wish - the Administrative Panels Office, Stanford University, Stanford, CA (USA) 94305-5401 (or by phone (650) 723-2480 - you may call collect).

You may keep a copy of this consent form for your records by printing it out.

By clicking "I agree" below, you are indicating your consent to participate in this project, and the survey will begin.

I Agree I Disagree

I. Influences to Attend Graduate School

In the first section, we are interested in the people and experiences that influenced your decision to attend graduate school. There are 8 items in this section.

I-1. To what extent did the following persons have a positive or negative influence on your decision to attend graduate school? Please mark one answer for each item below.

	Very negative	Negative	Positive	Very positive	Not applicable
a. Official undergraduate faculty advisor	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
b. Other faculty member	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
c. University administrator/staff member	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
d. Non-school related employer	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
e. Teaching assistant or other graduate student	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
f. Father	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
g. Mother	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
h. Spouse/significant other/partner	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
i. Other family members	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
j. Friends	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
k. Career counselor	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
l. Resident Advisor	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
m. Athletic Coach	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
n. Other	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

If Other, please specify:



I. Influences to Attend Graduate School

I-2. Is there one person or event that stands out as having the most significant positive influence on your decision to attend graduate school? Please mark one.

- No
- Yes



I. Influences to Attend Graduate School

I-3. If it is a person, from the following list, please indicate who the influential person is. *Please mark one.*

- Official undergraduate faculty advisor
- Other faculty member
- University administrator/staff member
- Non-school related employer
- Teaching assistant or other graduate student
- Father
- Mother
- Spouse/significant other/partner
- Other family members
- Friends
- Career counselor
- Resident advisor
- Athletic coach
- Other

If Other, please specify:



I. Influences to Attend Graduate School

I-4. Please briefly describe the ways that this person or event influenced you to go to graduate school.



I. Influences to Attend Graduate School

I-5. Is this person the same sex as you? *Please mark one.*

- No
- Yes



I. Influences to Attend Graduate School

I-6. What is the racial/ethnic background of this person? *Please check all that apply.*

- American Indian/Alaska Native
- Black/African American
- Chinese American
- Ethnic Hawaiian
- Filipino American
- International/Non-resident
- Japanese American
- Korean American
- Latin American/Latino
- Mexican American/Chicano
- Puerto Rican American
- South Asian American
- Vietnamese American
- White, Non-minority American
- Other Asian American
- Other Hispanic American



I. Influences to Attend Graduate School

I-7. If there is more than one person who significantly influenced you, what characteristics do they have in common that influenced you to go to graduate school? *Please briefly describe.*



I. Influences to Attend Graduate School

I-8. To what extent did the following factors or experiences have a positive or negative influence on your decision to attend graduate school? Please mark one answer for each item below.

	Very negative	Negative	Positive	Very positive	Not applicable
a. Undergraduate coursework	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
b. Undergraduate research experience/ thesis writing experience	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
c. Work experience after undergraduate education	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
d. Undergraduate grade point average	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
e. Availability of funding for graduate school	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
f. Access to career opportunities because of graduate degree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
g. Taking a course from or working with a particular faculty member	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
h. Other	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

If Other, please specify:



II. Career Influences

In this section, we will ask you a few questions about the people and experiences that influenced your career plans. There are 20 items in this section.

II-1. To what extent did the following persons have a positive or negative influence on your current career plans? Please mark one answer for each item below.

	Very negative	Negative	Positive	Very positive	Not applicable
a. Official graduate faculty advisor	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
b. Other graduate faculty member	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
c. University administrator/staff member	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
d. Non-school related employer	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
e. Other graduate students	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
f. Father	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
g. Mother	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
h. Spouse/significant other/partner	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
i. Other family members	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
j. Friends	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
k. Career counselor	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
l. Undergraduate faculty advisor or mentor	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
m. Other	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

If Other, please specify:



II. Career Influences

II-2. Is there one person or event that stands out as having the most significant influence on your current career plans? Please mark one.

- No
 Yes



II. Career Influences

II-3. If it is a person, please indicate who the influential person is from the following list. Please mark one.

- Official graduate faculty advisor
- Other faculty member
- University administrator/staff member
- Non-school related employer
- Other graduate students
- Father
- Mother
- Spouse/significant other/partner
- Other family members
- Friends
- Career counselor
- Other



II. Career Influences

II-4. In what ways did this person or event influence you to have your current career plans? Please briefly

describe.



II. Career Influences

II-5. Is this person the same sex as you? Please mark one.

- No
- Yes



II. Career Influences

II-6. What is the racial/ethnic background of this person? *Please check all that apply.*

- American Indian/Alaska Native
- Black/African American
- Chinese American
- Ethnic Hawaiian
- Filipino American
- International/Non-resident
- Japanese American
- Korean American
- Latin American/Latino
- Mexican American/Chicano
- Puerto Rican American
- South Asian American
- Vietnamese American
- White, Non-minority American
- Other Asian American
- Other Hispanic American



II. Career Influences

II-7. If there is more than one person who significantly influenced you, what characteristics do they have in common that influenced you to have your current career plans? *Please briefly describe.*



II. Career Influences

II-8. To what extent did the following **factors or experiences** have a positive or negative influence on your current **career plans**? Please mark one answer for each item below.

	Very negative	Negative	Positive	Very positive	Not applicable
a. Graduate coursework	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
b. Graduate research experience and scholarship	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
c. Thesis or dissertation writing experience	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
d. Work experience after undergraduate education	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
e. Family obligations	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
f. Obligations to my community	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
g. Seeing the life of academics around me	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
h. financial considerations	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
i. The current job market	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
j. Other	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

If Other, please specify:

Back Next Reset Pause

II. Career Influences

II-9. How important are the following job characteristics in choosing your career? Please mark one answer for each item below.

	Not at all important	Important	Very important	Extremely important
a. Stability and job security	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
b. Intellectual components	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
c. Financial compensation	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
d. Flexible time schedule	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
e. Opportunity to work for causes I believe in	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
f. Social recognition/status	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
g. Creativity	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
h. Autonomy	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
i. Authority/influence	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
j. Amount of time commitment required	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
k. Likelihood of getting a job	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
l. Other	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

If Other, please specify:

II. Career Influences

II-10. Presently, what are your future career plans? Please briefly describe.

II. Career Influences

II-11. Presently, how certain are you about your future career plans? Please mark one.

- Not at all certain
- Somewhat certain
- Certain
- Very certain

II. Career Influences

II-12. Do you have any interest in pursuing a career as a college or university professor? *Please mark one.*

- Not at all interested
- Possibly interested
- Interested
- Very interested
- Not applicable

Back Next Reset Pause

II. Career Influences

II-13. Was there an event or occurrence that helped to crystalize your desire to be an academic? *Please mark one.*

- No
- Yes

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II. Career Influences

II-14. Please briefly describe the event or occurrence that helped to crystalize your desire to be an academic.

Back Next Reset Pause

II. Career Influences

II-15. If you were to become a professor, in what kind of institution do you think it is most likely that you will be employed? *Please answer even if you are not currently planning a career as a college or university professor.*

- Two year community college
- Four year liberal arts college with predominantly undergradu
- Four year comprehensive university with undergraduates and M
- Large research university, with undergraduates, master's, and doctoral students

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II. Career Influences

II-16. Since you began your program, has your interest in pursuing a career as a college or university professor decreased, stayed the same, or increased? Please mark one and briefly explain why.

- My interest decreased
- My interest stayed the same
- My interest increased

Please explain why:

II. Career Influences

II-17. What, if anything, do you see as potential obstacles to you becoming a college or university professor? Please mark all that apply even if you are not currently planning a career as a college or university professor.

- I do not have the requisite skills
- I do not feel intelligent enough
- I do not feel dedicated enough to my field
- There are not enough positions available for qualified candidates
- Issues related to my gender
- Issues related to my race/ethnicity
- The length of training
- The real cost and opportunity cost of training
- Fear of failure
- I do not see any obstacles
- Other

If Other, please specify:

What might be helpful to overcome these obstacles?

II. Career Influences

II-18. What, if anything, do you see as potential obstacles to you being successful as a college or university professor? *Please check all that apply even if you are not currently planning to be a college or university professor.*

- I do not have the requisite skills
- I do not feel intelligent enough
- I do not feel dedicated enough to my field
- There are not enough positions available for qualified candidates
- Issues related to my gender
- Issues related to my race/ethnicity
- Fear of failure
- I do not see any obstacles
- Other

If Other, please specify:

What might be helpful to overcome these obstacles?

II. Career Influences

II-19. How supportive would your parents be if you decided to become a college or university professor?
Please mark one and briefly describe why.

- They would be very unsupportive
- They would be unsupportive
- They would not care one way or another
- They would be supportive
- They would be very supportive
- My parents have differing opinions on this topic
- Don't know

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II. Career Influences

II-20. To what extent are the following aspects of being a college or university professor appealing or unappealing to you? *Please respond even if you do not plan an academic career.*

	Very unappealing	Unappealing	Appealing	Very appealing
a. Teaching undergraduates	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
b. Teaching graduate students	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
c. Doing research	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
d. Applying academic knowledge to society in important and relevant ways	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
e. Being a mentor	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
f. The academic work environment	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
g. The lifestyle of faculty members	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
h. The process of tenure and promotion	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
i. Having a flexible work schedule	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
j. The salary levels in academia	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
k. Academic work load expectations	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
l. The way professors are treated within society	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
m. The way professors are treated within a university	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
n. Obtaining research funding	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
o. The satisfaction level of faculty members	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
p. The ability to raise a family	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
q. The ability to lead a balanced life	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
r. The opportunity to create knowledge	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
s. What it takes to get there	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
t. The ability to start your own company	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
u. The ability to do outside consulting on interesting projects	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
v. Other	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

If Other, please specify:

III. Academic Experience

In this section, we ask you questions about your experiences while you are in graduate school. We ask questions about your advisor, the extent to which you feel academically prepared for your career and the state of your health throughout your graduate experience. There are 30 items in this section.

III-1. What degree are you seeking? Please mark all that apply.

- MA/MS/MFA/MAT
- MBA
- Engineer
- Ed.S.
- PhD
- EdD
- DMA
- JD
- MD
- MLD
- JSM
- JSD
- Other



III. Academic Experience

III-2. What is your current degree program at Stanford? Please check all that apply and include name of program or area.

Graduate School of Business

Program/Area:

Law School

Program/Area:

School of Earth Sciences

Program/Area:

School of Education

Program/Area:

School of Engineering

Program/Area:

School of Humanities and Sciences

Program/Area:

School of Medicine

Program/Area:

Other

If Other, please specify:

Program/Area:

III. Academic Experience

III-3. How many years have you COMPLETED in your current Graduate Program? *I have completed...*

- < 1 year
- 1 year
- 2 years
- 3 years
- 4 years
- 5 years
- 6 years
- 7 years
- > 7 years



III. Academic Experience

III-4. What was your approximate undergraduate GPA? *Please mark one.*

- Under 2.5
- 2.5-2.9
- 3.0-3.4
- 3.5-3.9
- 4.0
- Over 4.0



III. Academic Experience

III-5. What were your approximate GRE, LSAT, GMAT, and/or MCAT scores? *Please fill in relevant scores*

GRE

Math

Verbal

Analytic

LSAT

GMAT

MCAT



III. Academic Experience

III-6. What is the approximate GPA from the courses you have taken so far in this graduate program?

Please mark one.

- Under 2.5
- 2.5-2.9
- 3.0-3.4
- 3.5-3.9
- 4.0
- Over 4.0



III. Academic Experience

III-7. Since you have been in your current graduate program, have you received any academic honors or performance based scholarships? *Please mark one.*

- No
- Yes



III. Academic Experience

III-8. Since you have been in your current graduate program, have you worked as a research assistant? *Please mark one.*

- No
- Yes



III. Academic Experience

III-9. Since you have been in your current graduate program, have you been a teaching assistant? *Please mark one.*

- No
- Yes



III. Academic Experience

III-10. How prepared do you feel that you were for graduate school? *Please mark one.*

- Very unprepared
- Unprepared
- Prepared
- Very prepared



III. Academic Experience

III-11. What is the most common mode of communication that you have with your primary advisor? *Please mark one.*

- Face to face
- Telephone
- E-mail
- Other

If Other, please specify:



III. Academic Experience

III-14. How would you describe the management style of your advisor? *Please check one.*

- Highly directive
- Slightly directive
- Not directive at all



III. Academic Experience

III-15. How satisfied are you with the following elements of your experience with your primary advisor to date? Please check one answer for each item below.

	Very dissatisfied	Dissatisfied	Satisfied	Very satisfied	Not Applicable
a. The primary mode of communication with your advisor (face-to-face, e-mail etc.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
b. The frequency of communication with your advisor	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
c. The management style of your advisor (highly directive, not directive, etc.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
d. The <u>amount</u> of feedback about your work from your advisor	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
e. The <u>quality</u> of feedback about your work from your advisor	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
f. Your advisor's assistance in selecting your coursework	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
g. Your advisor's assistance in securing you funding	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
h. Your advisor's assistance in preparing you for your qualifying exam, paper, etc.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
i. Your advisor's regular assistance in reviewing your progress in the program	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
j. Your advisor's assistance in your academic job search	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
k. Your advisor's assistance in your non-academic job search	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
l. Your advisor's assistance in finding a post-doc	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
m. Your overall relationship with your advisor	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

III. Academic Experience

III-16. Is your primary faculty advisor the same gender as you? *Please mark one.*

- No
- Yes



III. Academic Experience

III-17. Is your primary faculty advisor in the same racial/ethnic group as you? *Please mark one.*

- No
- Yes



III. Academic Experience

III-18. Has someone other than your advisor served as a mentor or guide for you in graduate school? *Please mark one.*

- No
- Yes



III. Academic Experience

III-19. How much of a difference has your mentor made in your professional planning and preparation? *Please mark one.*

- No difference
- Little difference
- Some difference
- A great deal of difference
- No mentor



III. Academic Experience

III-20. Have you taken any courses that are relevant to your racial/ethnic background or gender (for example, women in management, or African Americans in society)? Please mark one.

- No
- Yes

If yes, please list.

III. Academic Experience

III-21. How has taking these courses influenced the following? Please mark one answer for each item below.

	Very Negative	Negative	Positive	Very Positive	Not Applicable or No Influence
a. Your experience at Stanford	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
b. Your career plans	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
c. Your desire to be an academic	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

III. Academic Experience

III-22. Were there any courses that directly impacted your career plans? Please mark one.

- No
- Yes

If yes, please list.

III. Academic Experience

III-23. How has taking these courses influenced the following? Please mark one answer for each item below.

	Very Negative	Negative	Positive	Very Positive	Not Applicable or No Influence
a. Your experience at Stanford	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
b. Your career plans	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
c. Your desire to be an academic	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>



III. Academic Experience

III-24. What is your overall level of satisfaction with your graduate school experience so far? Please mark one.

- Very dissatisfied
- Dissatisfied
- Satisfied
- Very satisfied



III. Academic Experience

III-25. How has your graduate school experience so far compared to your expectations upon entering the program? Please mark one.

- Much worse than expected
- Slightly worse than expected
- Similar to expectations
- Slightly better than expectations
- Much better than expectations



III. Academic Experience

III-26. How would you assess your academic ability in your field? *Please mark one.*

- I am less able than most of my classmates
- I am equal in ability to most of my classmates
- I am more able than most of my classmates
- Do not know



III. Academic Experience

III-27. At this stage in your graduate program, how academically prepared do you feel you are for your intended career? *Please mark one.*

- Very unprepared
- Unprepared
- Prepared
- Very prepared
- Do not know



III. Academic Experience

III-28. At this stage in your graduate program, how committed are you to your current field of study? *Please mark one.*

- Very uncommitted
- Uncommitted
- Committed
- Very committed
- Don't know



III. Academic Experience

III-29. How likely are you to stay in your program until you achieve your current degree objective?

- Very unlikely
- Unlikely
- Likely
- Very likely



III. Academic Experience

III-30. How difficult is it for someone like you to be successful in your field?

- Very difficult
- Difficult
- Easy
- Very easy
- Do not know

Please explain:

Section IV includes questions about the ways in which you combine work and family, both now and in the future. There are 8 items in this section.

IV. Work and Family

IV-1. In thinking about your future, how would you order your personal priorities. Please rank the following options in order of importance to you, with 1 being your top priority and 3 being your last priority.

Work/career goals

Non-work related interests and activities

Marriage/family life/friends

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IV. Work and Family

IV-2. How committed are you to pursuing a career upon graduation or completion of post-doctoral studies?

- Very uncommitted
- Uncommitted
- Committed
- Very committed
- Unsure

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IV. Work and Family

IV-3. Do you envision any difficulty integrating your career plans with a family/personal life?

- No
- Yes
- Uncertain
- Not applicable

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IV. Work and Family

IV-4. Please briefly describe your ideas for addressing this issue.

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IV. Work and Family

IV-5. How much of an impact do your family commitments (including marriage, child care and elder care) have on your school and work commitments?

- No impact
- Minor impact
- Huge impact
- Other

If Other, please specify:



IV. Work and Family

IV-6. Do you want to have children someday? Please mark one.

- No
- Maybe
- Yes
- I already have children



IV. Work and Family

IV-7. Do you envision any problems in the timing of children and career demands?

- No
- Maybe
- Yes

If yes or maybe, please briefly explain how.



IV. Work and Family

IV-8. What type of effect do you think parenthood may have on your career?

- Very positive effect
- Positive effect
- Negative effect
- Very negative effect
- Don't know



This section is about how you experience Stanford's campus and the climate in which you are a graduate student. There are 13 items in this section.

V. Your Stanford Experience

V-1. Since beginning your graduate program, how often do you...
Please check one answer for each item below.

	Never	Rarely	Sometimes	Frequently	Always
a. Feel happy and content with your life	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
b. Wake early in the morning and have difficulty getting back to sleep	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
c. Feel depressed	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
d. Lose your appetite or overeat	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
e. Feel energetic and strong	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
f. Feel like you are at an emotional breaking point	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
g. Feel that life is overwhelming	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
h. Feel relaxed and carefree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
i. Feel stressed	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
j. Consider yourself physically healthy	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
k. Feel in good spirits	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
l. Feel irritable	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
m. Sleep too little or too much	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

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V. Your Stanford Experience

V-2. What do you do to relieve pressure or stress?

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V. Your Stanford Experience

V-3. Please list any programs or offices that have offered support to you in your graduate years at Stanford and please describe the ways that you were supported.

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V. Your Stanford Experience

V-4. Have you ever had a significant negative (discouraging, threatening, humiliating, etc.) experience with a faculty member, staff member or student at Stanford? *Please mark one.*

- No
- Yes



V. Your Stanford Experience

V-5. Please specify to which group the person belongs. *Please mark one.*

- Faculty
- Staff
- Student

Please briefly describe the significant negative experience.



V. General Campus Climate

V-6. Have you ever felt pressured into an unwanted personal relationship with a faculty member, staff member or student at Stanford? *Please mark one.*

- No
- Yes



V. Your Stanford Experience

V-7. Please specify to which group the person belongs. *Please mark one.*

- Faculty
- Staff
- Student

Please briefly describe the experience.



V. General Campus Climate

V-8. During your graduate program at Stanford, have you ever felt you were the target of racial, ethnic or sexual discrimination? *Please mark one.*

- No
 Yes

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V. General Campus Climate

V-9. Please identify which type of discrimination you experienced. *Please check all that apply.*

- Racial/ethnic discrimination
 Gender discrimination
 Discrimination based on sexual orientation
 Religious discrimination
 Other

If Other, please specify:

Please briefly describe.

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V. General Campus Climate

V-10. Since beginning your graduate program, how often do you...
Please check one answer for each item below.

	Never	Rarely	Sometimes	Frequently	Always
a. Feel socially isolated	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
b. Feel intellectually isolated	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
c. Feel you aren't taken seriously	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
d. Feel unwelcome	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
e. Feel afraid of making major decisions	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
f. Feel free to seek help or advice when faced with a problem	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
g. Find criticism or feedback hard to accept	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
h. Have trouble giving feedback or criticism	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
i. Have difficulty standing up for yourself	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
j. Question your ability to handle your work	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
k. Feel able to set limits and pace yourself	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
l. Feel there are more things you could and should be doing	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
m. Feel able to negotiate confidently for your needs	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
n. Trust your own judgement	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
o. Feel that you have to be the best at all you do	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
p. Feel confident in speaking up in class	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
q. Fear that if you expressed yourself in class, you would expose your inadequacies	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
r. Feel that Stanford makes a sincere effort to recruit women and minorities	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
s. Feel like you fit in at Stanford	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
t. Feel that other students are respectful of your background and characteristics	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
u. See my mistakes not my accomplishments	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
v. Other	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

If Other, please specify:

V. General Campus Climate

V-11. Do you belong to a student organization on campus that supports your racial/ethnic background?
Please mark one.

- No
- Yes



V. General Campus Climate

V-12. Do you belong to a student organization on campus that supports your gender? Please mark one.

- No
- Yes



V. General Campus Climate

V-13. What three things can Stanford do to make Stanford a better place for you?

1.
2.
3.



This is the final section of the survey. These items help us understand more about your background and your experience. Remember that all of your answers are completely confidential and anonymous. There are 16 items in this section.

VI. Background and Experience

VI-1. What is your gender? Please mark one.

- Female
- Male

VI. Background and Experience

VI-2. What is your age?

VI. Background and Experience

VI-3. Please indicate your status below. Please mark one.

- Single
- Married/committed in a partnership
- Divorced/separated

VI. Background and Experience

VI-4. Do you have any children? Please mark one.

- No
- Yes

VI. Background and Experience

VI-5. What are the ages of your child/children? Please record number of children in each age category.

- a. Number of preschool age children
- b. Number of children in grade school
- c. Number of children in high school
- d. Number of children over the age of 18



VI. Background and Experience

VI-6. Which best describes you? Please check all that apply.

- American Indian/Alaska Native
- Black/African American
- Chinese American
- Ethnic Hawaiian
- Filipino American
- International/Non-resident
- Japanese American
- Korean American
- Latin American/Latino
- Mexican American/Chicano
- Puerto Rican American
- South Asian American
- Vietnamese American
- White, Non-minority American
- Other Asian American
- Other Hispanic American



VI. Background and Experience

VI-8. Have you taken out any loans for your graduate education so far? Please mark one.

- No
- Yes



VI. Background and Experience

VI-9. What is the highest level of education that your father completed? *Please mark one.*

- 8th grade or less
- Grade School
- High School
- Some College/University
- College/University Graduate
- Some Graduate School
- Masters Degree
- Doctorate (Ph.D)
- First professional degree (M.D., J.D., D.D.S)
- Don't know

VI. Background and Experience

VI-10. Was your father employed while you were growing up (1-18 years)? *Please mark one.*

- No
- Yes

VI. Background and Experience

VI-11. What is/was your father's primary occupation?

VI. Background and Experience

VI-12. What was the highest level of education that your mother completed? *Please mark one.*

- 8th grade or less
- Grade School
- High School
- Some College/University
- College/University Graduate
- Some Graduate School
- Masters Degree
- Doctorate (Ph.D)
- First professional degree (M.D., J.D., D.D.S)
- Don't know

VI. Background and Experience

VI-13. Was your mother employed while you were growing up (1-18 years)? *Please mark one.*

- No
- Yes

VI. Background and Experience

VI-14. What is/was your mother's primary occupation while you were growing up (1-18 years)?

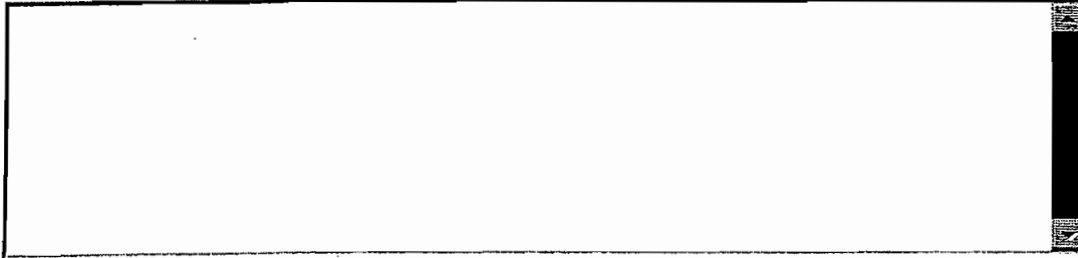
VI. Background and Experience

VI-15. Is anyone in your immediate family a professor at a college or university? *Please mark one.*

- No
- Yes

VI. Background and Experience

VI-16. Is there anything else that you would like to tell us about your experience as a graduate student at Stanford and it's effects on your career plans?



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Appendix IV
Undergraduate Student Survey

Appendix IV

Undergraduate Student Survey

Use the buttons at the bottom of each page to navigate this survey.

Note: Do not use the 'Back' and 'Forward' buttons built in to your browser.

We appreciate your participation in this important project. This survey will take approximately 30-50 minutes to complete. You may pause the survey at any point by clicking the pause button at the bottom of the page and you can complete the survey at a later time.

There are 6 sections in this survey.

Undergraduate Student Survey - Consent Form

Page 1 of 1

Consent Form

Dear Stanford ^{Under} Graduate Student:

You are invited to participate in a confidential and anonymous research study on your academic and life experiences at Stanford. You are being asked to answer survey questions on a web-based survey.

For questions about the study, contact:
Dr. Mary Rauner
650-771-0083

There are no foreseeable risks or benefits to you as a result of participating in this research, and you will receive no reimbursement for your participation. Your participation in this experiment will take approximately 30-50 minutes.

If you have read this form and have decided to participate in this project, please understand your participation is voluntary and you have the right to withdraw your consent or discontinue participation at any time without penalty. You have the right to refuse to answer particular questions. Your individual privacy will be maintained in all published and written data resulting from the study.

If you have questions about your rights as a study participant, or are dissatisfied at any time with any aspect of this study, you may contact - anonymously, if you wish - the Administrative Panels Office, Stanford University, Stanford, CA (USA) 94305-5401 (or by phone (650) 723-2480 - you may call collect).

You may keep a copy of this consent form for your records by printing it out.

By clicking "I agree" below, you are indicating your consent to participate in this project, and the survey will begin.

I. Undergraduate Experience and Graduate School Interest

I-2. To what extent are you currently interested in attending graduate school? *Please mark one.*

- Not at all interested
- Somewhat interested
- Interested
- Very interested



Undergraduate Student Survey - I. Undergraduate Experience and Graduate School Intere... Page 1 of 1

I. Undergraduate Experience and Graduate School Interest

I-3. To what extent did the following persons have a positive or negative influence on your interest in attending graduate school? *Please mark one answer for each item below. Please answer even if you are not currently planning to attend graduate school.*

	Very negative	Negative	Positive	Very positive	Not applicable
a. Official undergraduate faculty advisor	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
b. Other faculty member	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
c. University administrator/staff member	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
d. Non-school related employer	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
e. Teaching assistant or graduate student	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
f. Father	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
g. Mother	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
h. Spouse/significant other/partner	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
i. Other family members	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
j. Friends	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
k. Career counselor	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
l. Resident Advisor	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
m. Athletic Coach	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
n. Other	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

If Other, please specify:



I. Undergraduate Experience and Graduate School Interest

I-8. If it is a person, what is her or his racial/ethnic background? Please mark all that apply.

- American Indian/Alaska Native
- Black/African American
- Chinese American
- Ethnic Hawaiian
- Filipino American
- International/Non-resident
- Japanese American
- Korean American
- Latin American/Latino
- Mexican American/Chicano
- Puerto Rican American
- South Asian American
- Vietnamese American
- White, Non-minority American
- Other Asian American
- Other Hispanic American
- Other

If Other, please specify:

If he or she is not a citizen of the United States, please specify his or her country of origin:

I. Undergraduate Experience and Graduate School Interest

I-9. If there is more than one person who significantly influenced you, what characteristics do they have in common that influenced your interest in attending graduate school? Please briefly describe.

II. Career Influences

In this section, we will ask you a few questions about the people and experiences that influenced your current career plans. There are 19 items in this section.

II-1. To what extent did the following persons have a positive or negative influence on your current career plans? Please mark one answer for each item below.

	Very negative	Negative	Positive	Very positive	Not applicable or no influence
a. Official undergraduate faculty advisor	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
b. Other undergraduate faculty member	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
c. University administrator/staff member	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
d. Non-school related employer	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
e. Other undergraduate students	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
f. Father	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
g. Mother	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
h. Spouse/significant other/partner	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
i. Other family members	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
j. Friends	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
k. Career counselor	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
m. Other	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

If Other, please specify:



II. Career Influences

II-2. Is there one person or event that stands out as having the most significant influence on your current career plans? Please mark one.

- No
 Yes



II. Career Influences

II-6. If it is a person, what is his or her racial/ethnic background? Please mark all that apply.

- American Indian/Alaska Native
- Black/African American
- Chinese American
- Ethnic Hawaiian
- Filipino American
- International/Non-resident
- Japanese American
- Korean American
- Latin American/Latino
- Mexican American/Chicano
- Puerto Rican American
- South Asian American
- Vietnamese American
- White, Non-minority American
- Other Asian American
- Other Hispanic American
- Other

If Other, please specify:

If he or she is not a citizen of the United States, please specify his or her country of origin:

II. Career Influences

II-7. If there is more than one person who significantly influenced you, what characteristics do they have in common that influenced you to have your current career plans? Please briefly describe.

II. Career Influences

II-9. How important are the following job characteristics in choosing your career? Please mark one answer for each item below.

	Not at all important	Important	Very important	Extremely important
a. Stability and job security	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
b. Intellectual components	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
c. Financial compensation	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
d. Flexible time schedule	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
e. Opportunity to work for causes I believe in	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
f. Social recognition/status	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
g. Creativity	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
h. Autonomy	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
i. Authority/influence	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
j. Amount of time commitment required	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
k. Likelihood of getting a job	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
l. Other	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

If Other, please specify:

II. Career Influences

II-13. Was there an event or occurrence that helped to crystalize your desire to be an academic? Please mark one.

- No
- Yes

II. Career Influences

II-14. Please briefly describe the event or occurrence that helped to crystalize your desire to be an academic.

II. Career Influences

II-15. If you were to become a professor, in what kind of institution do you think it is most likely that you will be employed? Please mark one, even if you are not currently planning a career as a college or university professor.

- Two year community college
- Four year liberal arts college with predominantly undergraduates
- Four year comprehensive university with undergraduates and Master's students
- Large research university, with undergraduates, master's, and doctoral students

II. Career Influences

II-19. To what extent are the following aspects of being a college or university professor appealing or unappealing to you? Please mark one answer for each item, even if you do not plan an academic career.

	Very unappealing	Unappealing	Appealing	Very appealing
a. Teaching undergraduates	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
b. Teaching graduate students	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
c. Doing research	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
d. Applying academic knowledge to society in important and relevant ways	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
e. Being a mentor	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
f. The academic work environment	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
g. The lifestyle of faculty members	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
h. The process of tenure and promotion	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
i. Having a flexible work schedule	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
j. The salary levels in academia	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
k. Academic work load expectations	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
l. The way professors are treated within society	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
m. The way professors are treated within a university	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
n. Obtaining research funding	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
o. The satisfaction level of faculty members	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
p. The ability to raise a family	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
q. The ability to lead a balanced life	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
r. The opportunity to create knowledge	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
s. What it takes to get there	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
t. The ability to start your own company	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
u. The ability to do outside consulting on interesting projects	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
v. Other	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

If Other, please specify:

III. Academic and Personal Experiences

In this section, we ask you questions about your undergraduate academic and personal experiences. There are 13 items in this section.

III-1. What is/are your current major or majors at Stanford? Please mark all that apply.

- Earth Systems
- Geological and Environmental Sciences
- Engr.Geol. & Hydrogeology
- Geophysics
- Petroleum Engineering
- Chemical Engineering
- Civil Engineering
- Environmental Engineering
- Computer Science
- Computer Systems Engineering
- Electrical Engineering
- Engineering (individually designed)
- Managment Science and Engineering
- Material Science and Engineering
- Mechanical Engineering
- Product Design
- African and African American Studies
- American Studies
- Anthropological Sciences
- Archaeology
- Art History
- Studio Art
- Asian American Studies
- Asian Languages
- Chinese
- Japanese
- Biological Sciences
- Chemistry
- Chicana/o Studies
- Classics
- Communication
- Comparative Literature
- Comparative Studies in Race and Ethnicity
- Cultural and Social Anthropology
- Drama
- East Asian Studies
- Economics
- English
- Feminist Studies

III. Academic and Personal Experiences

III-2. What degree are you seeking? *Please mark all that apply.*

B.A.

B.S.

M.A. (coterm)

M.S. (coterm)

Undergraduate Student Survey - III. Academic and Personal Experiences (3)

Page 1 of 1

III. Academic and Personal Experiences

III-3. What is your current year at Stanford? *Please mark one.*

Junior

Senior

Undergraduate Student Survey - III. Academic and Personal Experiences (4)

Page 1 of 1

III. Academic and Personal Experiences

III-4. What is your approximate undergraduate GPA to date? *Please mark one.*

Under 2.5

2.5-2.9

3.0-3.4

3.5-3.9

4.0

Over 4.0

III. Academic and Personal Experiences

III-8. Have you taken any courses that are relevant to your racial/ethnic background or gender (for example, women in management, or African Americans in society)? Please mark one.

- No
- Yes

If yes, please list.

III. Academic and Personal Experiences

III-9. How has taking these courses influenced the following? Please mark one answer for each item below.

	Very Negative	Negative	Positive	Very Positive	Not Applicable or No Influence
a. Your experience at Stanford	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
b. Your career plans	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
c. Your desire to be an academic	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

III. Academic and Personal Experiences

III-10. Were there any courses that directly impacted your career plans? Please mark one.

- No
- Yes

If yes, please list.

IV. Work and Family

Section IV includes questions about the ways in which you combine work and family, both now and in the future. There are 7 items in this section.

IV-1. In thinking about your future, how would you order your personal priorities. Please rank the following options in order of importance to you, with 1 being your top priority and 3 being your last priority.

Work/career goals

Non-work related interests and activities

Marriage/family life/friends

Undergraduate Student Survey - IV. Work and Family (2)

Page 1 of 1

IV. Work and Family

IV-2. How committed are you to pursuing a career upon graduation or completion of graduate studies? Please mark one.

- Very uncommitted
- Uncommitted
- Committed
- Very committed
- Unsure

Undergraduate Student Survey - IV. Work and Family (3)

Page 1 of 1

IV. Work and Family

IV-3. Do you envision any difficulty integrating your career plans with a family/personal life? Please mark one.

- No
- Yes
- Uncertain
- Not applicable

IV. Work and Family

IV-7. What type of effect do you think parenthood may have on your career? Please mark one.

- Very positive effect
- Positive effect
- Negative effect
- Very negative effect
- Don't know

Undergraduate Student Survey - V. Your Stanford Experience (1)

Page 1 of 1

V. Your Stanford Experience

This section is about how you experience Stanford's campus and the climate in which you are an undergraduate student. There are 16 items in this section.

V-1. Since beginning your undergraduate years, how often do you...

Please mark one answer for each item below.

	Never	Rarely	Sometimes	Frequently	Always
a. Feel happy and content with your life	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
b. Wake early in the morning and have difficulty getting back to sleep	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
c. Feel depressed	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
d. Lose your appetite or overeat	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
e. Feel energetic and strong	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
f. Feel like you are at an emotional breaking point	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
g. Feel that life is overwhelming	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
h. Feel relaxed and carefree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
i. Feel stressed	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
j. Consider yourself physically healthy	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
k. Feel in good spirits	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
l. Feel irritable	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
m. Sleep too little or too much	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

V. Your Stanford Experience

V-5. Please specify to which group the person belongs. Please mark one.

- Faculty
- Staff
- Student

Please briefly describe the significant negative experience.

Undergraduate Student Survey - V. Your Stanford Experience (6)

Page 1 of 1

V. Your Stanford Experience

V-6. Have you ever felt pressured into an unwanted personal relationship with a faculty member, staff member or student at Stanford? Please mark one.

- No
- Yes

Undergraduate Student Survey - V. Your Stanford Experience (7)

Page 1 of 1

V. Your Stanford Experience

V-7. Please specify to which group the person belongs. Please mark one.

- Faculty
- Staff
- Student

Please briefly describe the experience.

V. Your Stanford Experience

V-10. Since beginning your undergraduate program, how often do you...

Please mark one answer for each item below.

	Never	Rarely	Sometimes	Frequently	Always
a. Feel socially isolated	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
b. Feel intellectually isolated	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
c. Feel you aren't taken seriously	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
d. Feel unwelcome	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
e. Feel afraid of making major decisions	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
f. Feel free to seek help or advice when faced with a problem	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
g. Find criticism or feedback hard to accept	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
h. Have trouble giving feedback or criticism	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
i. Have difficulty standing up for yourself	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
j. Question your ability to handle your work	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
k. Feel able to set limits and pace yourself	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
l. Feel there are more things you could and should be doing	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
m. Feel able to negotiate confidently for your needs	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
n. Trust your own judgement	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
o. Feel that you have to be the best at all you do	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
p. Feel confident in speaking up in class	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
q. Fear that if you expressed yourself in class, you would expose your inadequacies	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
r. Feel that Stanford makes a sincere effort to recruit women and minorities	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
s. Feel like you fit in at Stanford	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
t. Feel that other students are respectful of your background and characteristics	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
u. See my mistakes not my accomplishments	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
v. Other	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

If Other, please specify:

V-14. Does your interaction with a racial/ethnic community with which you identify... Please mark one answer for each item below.

No Yes

- a. make you more comfortable at Stanford? No Yes
- b. make you happier at Stanford? No Yes
- c. make you more confident at Stanford? No Yes
- d. increase your desire to be an academic? No Yes

Back Next Reset Pause

V. Your Stanford Experience

V-15. Please briefly describe the reasons that you chose to attend Stanford University as an undergraduate.

[Empty text input box for V-15]

Back Next Reset Pause

V. Your Stanford Experience

V-16. What three things can Stanford do to make Stanford a better place for you? Please briefly describe.

1. [Empty text input box]
2. [Empty text input box]
3. [Empty text input box]

Back Next Reset Pause

VI. Background and Experience

VI-4. Do you have any children? *Please mark one.*

- No
 Yes

Undergraduate Student Survey - VI. Background and Experience (5)

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VI. Background and Experience

VI-5. What are the ages of your child/children? *Please record number of children in each age category.*

- a. Number of preschool age children
- b. Number of children in grade school
- c. Number of children in high school
- d. Number of children over the age of 18

VI. Background and Experience

VI-8. What is the highest level of education that your father completed? *Please mark one.*

- 8th grade or less
- Grade School
- High School
- Some College/University
- College/University Graduate
- Some Graduate School
- Masters Degree
- Doctorate (Ph.D)
- First professional degree (M.D., J.D., D.D.S)
- Don't know

Undergraduate Student Survey - VI. Background and Experience (9)

Page 1 of 1

VI. Background and Experience

VI-9. Was your father employed while you were growing up (1-18 years)? *Please mark one.*

- No
- Yes

VI. Background and Experience

VI-13. What is/was your mother's primary occupation while you were growing up (1-18 years)?

Undergraduate Student Survey - VI. Background and Experience (14)

Page 1 of 1

VI. Background and Experience

VI-14. Is anyone in your immediate family a professor at a college or university? *Please mark one.*

- No
- Yes

Undergraduate Student Survey - VI. Background and Experience (15)

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VI. Background and Experience

VI-15. Is there anything else that you would like to tell us about your experience as an undergraduate student at Stanford and it's effects on your career plans?

Appendix V
Demographic Breakdown Academic Year 2003-04
Comparing Population and Sample Data by Race/Ethnicity and Gender
Faculty, Graduate Students (PhD students only), and Undergraduates

Faculty			
Population =	1749	Sample (Population) =	1749
		# of respondents =	615
		Response Rate =	36%
Male	1,355(77%)	Male	421(68%)
Female	394(23%)	Female	192(32%)
Underrepresented Minority	108(6%)	Underrepresented Minority	50(8%)
Non-minority	1,641(94%)	Not-underrepresented minority	567(92%)
Graduate Students			
Population =	7,800	Sample =	1232
		# of respondents =	272
		Response Rate =	22%
Male	5,007 (64%)	Male	138(56%)
Female	2,793 (36%)	Female	131(44%)
Underrepresented Minority	656 (9%)	Underrepresented Minority	100(41%)
Non-minority	7130 (91%)	Not-underrepresented minority	152(59%)
Doctoral Students (PhD students only)			
Population =	3972	Sample =	219
Male	2571(65%)	Male	114(53%)
Female	1401(35%)	Female	102(47%)
Underrepresented Minority	263(7%)	Underrepresented Minority	83(41%)
Non-minority	3681(93%)	Not-underrepresented minority	120(59%)
Undergraduate Sample (Juniors and Seniors)			
Population =	3287	Sample =	1408
		# of respondents =	395
		Response Rate =	28%
Male	3287(50%)	Male	168(42%)
Female	1658(50%)	Female	226(57%)
Underrepresented Minority	695 (21%)	Underrepresented Minority	173(44%)
Non minority	2583 (79%)	Not-underrepresented minority	222(56%)

Definitions:

Underrepresented minority: American Indian/Alaskan Native, Black/African American, Latin American/Latino, Mexican American/Chicano, Puerto Rican American, Other Hispanic American

Non-minority (Not underrepresented minority) minority: All others in population except underrepresented minority. Asian and Asian-Americans are included in this population as are international respondents. In both the population and sample for this study, some students do not identify their race/ethnicity and hence are not included in either the underrepresented minority or the non-minority groups.

Appendix VI
Significant Race/Ethnicity and Gender Findings
Section A: Decision to Attend Graduate School

Items for which Underrepresented Minorities Responses Differ Significantly from the Responses of Non-Minorities.
Faculty, Doctoral Students and Undergraduate Students

Population	Item Number and Description	Means (Level of Significance)	Directionality
Section A: Decision to Attend Graduate School			
Graduate Students	I-1dG. To what extent did the following persons have a positive or negative influence on your decision to attend graduate school? d. non-graduate school related employer	3.59, 3.28 ($<.05$)	Underrepresented minority graduate students were significantly more likely than non-minority graduate students to be positively influenced to attend graduate school by an non-school related employer
Graduate Students	I-8G. To what extent did the following factors and experiences have a positive or negative influence on your decision to attend graduate school? e. Availability of funding for graduate school f. Access to career opportunities because of graduate degree	e. 3.66, 3.36 ($<.01$) f. 3.39, 3.64 ($<.01$)	Underrepresented minority graduate students were significantly more likely than non-minority graduate students to be positively influenced to attend graduate school by having funding made available for graduate school and because of the access to career opportunities that it will provide.
Under-graduate Students	I-11UG. Currently, how prepared do you feel for graduate school?	2.41, 2.61 ($<.01$)	Underrepresented minority undergraduates were significantly more likely to feel unprepared for graduate school than non-minority undergraduates.

Items for which Female Responses Differ Significantly from the Responses of Males.
Faculty, Doctoral Students and Undergraduate Students

Population	Item Number and Description	Level of Significance	Directionality
Section A: Decision to Attend Graduate School			
Graduate Students	I-3bG. To what extent did the following persons have a positive or negative influence on your decision to attend graduate school? b. other faculty member	$<.01$	Female graduate students were significantly more likely than non-minority graduate students to be positively influenced to attend graduate school by non-advisor faculty member.

Appendix VII
Significant Race/Ethnicity and Gender Findings
Section B: Graduate School Experience

Items for which Underrepresented Minorities Responses Differ Significantly from the Responses of Non-Minorities.
Faculty, Doctoral Students and Undergraduate Students

Population	Item Number and Description	Means (Level of Significance)	Directionality
Section B: Graduate School Experience			
Faculty	<p>II-4kF. How satisfied were you with the following elements of your experience with your primary advisor in graduate school?</p> <p>k. Your overall relationship with your advisor</p>	3.65, 3.47 ($<.01$)	Underrepresented minority faculty were significantly more satisfied with their overall relationship with their advisor while they were in graduate school than non-minority faculty.

Items for which Female Responses Differ Significantly from the Responses of Males.
Faculty, Doctoral Students and Undergraduate Students

Population	Item Number and Description	Means (Level of Significance)	Directionality
Section B: Graduate School Experience			
Faculty	II-2F. When you began your graduate program, how prepared did you feel you were?	2.87, 3.11 ($<.05$)	Female faculty members were significantly less likely than male faculty to report that they felt prepared when they began their graduate program.
Graduate Students	III-26G. How would you assess your academic ability in your field?	2.23, 2.25 ($<.01$)	Female graduate students were significantly less likely than male graduate students to feel academically capable in their field
Faculty	II-6F. How stressful was graduate school for you?	2.04, 2.27 ($<.01$)	Female faculty were significantly more likely than male faculty to feel stressed in their graduate program.
Graduate Students	V-1G. Since beginning your graduate program, how often do you...feel stressed	3.83, 3.54 ($<.01$)	Female graduate students were significantly more likely than male graduate students to feel stressed
Faculty	II-7F. Did you ever consider dropping out of graduate school?	1.26, 1.14 ($<.01$)	Female faculty were significantly more likely than male faculty to consider dropping out of graduate school.

Appendix VIII
Significant Race/Ethnicity and Gender Findings
Section C: Interest in Academic Careers

Items for which Underrepresented Minorities Responses Differ Significantly from the
Responses of Non-Minorities.
Faculty, Doctoral Students and Undergraduate Student

Population	Item Number and Description	Means (Level of Significance)	Directionality
Section C: Interest in Academic Careers			
Faculty	I-7F. Was there an event(s) or experience (s) that crystallized your decision to pursue an academic career?	1.52, 1.38 ($<.05$)	Underrepresented minority faculty were significantly more likely than non-minority faculty to report that an event or experience crystallized their decision to pursue an academic career.
Graduate Students	II-17G. What, if anything, do you see as potential obstacles to your <u>becoming</u> a college or university professor? b. I do not feel intelligent enough. f. Issues related to my race/ethnicity	b. .130, .217 ($<.05$) f. .280, .046 ($<.01$)	Underrepresented minority graduate students were significantly more likely than non-minority graduate students to report that they consider not feeling intelligent enough and issues of race/ethnicity are obstacles to becoming a professor.
Under-graduate Students	II-17UG. What, if anything, do you see as potential obstacles to your <u>becoming</u> a college or university professor? f. Issues related to my race/ethnicity	f. .235, .095 ($<.01$)	Underrepresented minority undergraduate students were significantly more likely than non-minority undergraduate students to report that they consider race/ethnicity issues to be an obstacle to becoming a professor. <i>Underrepresented minority females were significantly more likely (to the $<.01$ level) than underrepresented minority males to report that issues related to race/ethnicity are potential obstacles to becoming a college or university professor.</i>
Graduate Students	II-18G. What, if anything, do you see as potential obstacles to your <u>being successful</u> as a college or university professor? f. Issues related to my race/ethnicity	f. .170, .026 ($<.01$)	Underrepresented minority graduate students were significantly more likely than non-minority graduate students to report that they consider race/ethnicity issues to be an obstacle to being successful as a professor.

Items for which Underrepresented Minorities Responses Differ Significantly from the Responses of Non-Minorities.

Faculty, Doctoral Students and Undergraduate Student (continued)

Population	Item Number and Description	Means (Level of Significance)	Directionality
Section C: Interest in Academic Careers			
Graduate Students	<p>II-20dG. To what extent are the following aspects of being a college or university professor appealing to you?</p> <p>d. Applying academic knowledge to society in important and relevant ways n. Obtaining research funding t. The ability to start your own company</p>	<p>d. 3.66, 3.53 (<.05)</p> <p>n. 2.12, 1.78 (<.01)</p> <p>t. 2.23, 2.58 (<.01)</p>	<p>Underrepresented minority graduate students were significantly more likely than non-minority graduate students to report that applying academic knowledge in important and relevant ways, and obtaining research funding are appealing aspects of being a professor.</p> <p>Underrepresented minority graduate students were significantly less likely than non-minority graduate students to report that starting your own company is an appealing aspect of being a professor.</p>

**Items for which Female Responses Differ Significantly from the Responses of Males.
Faculty, Doctoral Students and Undergraduate Students**

Population	Item Number and Description	Means (Level of Significance)	Directionality
Section C: Interest in Academic Careers			
Graduate Students	II-17G. What, if anything, do you see as potential obstacles to your <u>becoming</u> a college or university professor? e. Issues related to my gender f. Issues related to my race/ethnicity	e. .259, .022 (<.01) f. .160, .116 (<.01)	Female graduate students were significantly more likely than non-minority graduate students to report that they consider gender and race/ethnicity issues to be obstacles to becoming a professor.
Under-graduate Students	II-16UG. What, if anything, do you see as potential obstacles to your <u>becoming</u> a college or university professor? Issues related to my gender	.208, .012 (<.01)	Female undergraduates were significantly more likely than male undergraduate students to report that gender issues are an obstacle to becoming a professor.
Graduate Students	II-18G. What, if anything, do you see as potential obstacles to your <u>being successful</u> as a college or university professor? e. Issues related to my gender i. Work and family issues	e. .221, .014 (<.01) i. .076, .014 (<.05)	Female graduate students were significantly more likely than male graduate students to report that gender issues and work and family issues are obstacles to being successful as a professor.
Under-graduate Students	II-17UG. What, if anything, do you see as potential obstacles to your <u>being successful</u> as a college or university professor? Issues related to my gender	.239, .006 (<.01)	Female undergraduate students were significantly more likely than male undergraduate students to report that gender issues were an obstacle to being successful as a professor.

**Items for which Female Responses Differ Significantly from the Responses of Males.
Faculty, Doctoral Students and Undergraduate Students (Continued)**

Population	Item Number and Description	Means (Level of Significance)	Directionality
Section C: Interest in Academic Careers			
Graduate Students	<p>II-20G. To what extent are the following aspects of being a college or university professor appealing to you?</p> <p>a. Teaching Undergraduates</p> <p>d. Applying academic knowledge to society in important and relevant ways</p> <p>e. Being a mentor</p> <p>p. The ability to raise a family</p> <p>q. The ability to lead a balanced life</p> <p>t. The ability to start your own company</p>	<p>a. 3.40, 3.18 (<.01)</p> <p>d. 3.66, 3.48 (<.05)</p> <p>e. 3.64, 3.36 (<.01)</p> <p>p. 2.52, 2.80 (<.05)</p> <p>q. 2.57, 2.78 (<.01)</p> <p>t. 2.24, 2.62 (<.01)</p>	<p>Female graduate students were significantly more likely than male graduate students to report that teaching undergraduates, applying academic knowledge in important and relevant ways and being a mentor are appealing aspect of being a professor.</p> <p>Females were less likely to report that the ability to raise a family, the ability to lead a balanced life and the ability to start your own company were appealing aspects of being a professor.</p>
Under-graduate Students	<p>II-19UG. To what extent are the following aspects of being a college or university professor appealing to you?</p> <p>a. Teaching Undergraduates</p> <p>d. Applying academic knowledge to society in important and relevant ways</p> <p>n obtaining research funding</p> <p>t. The ability to start your own company</p>	<p>a. 3.16, 3.36 (<.01)</p> <p>d. 3.57, 3.30 (<.01)</p> <p>n. 2.23, 2.00 (<.01)</p> <p>t. 2.58, 2.81 (<.01)</p>	<p>Female undergraduate students were significantly more likely than male undergraduate students to report that applying academic knowledge in important and relevant ways and obtaining research funding are appealing aspect of being a professor.</p> <p>Female undergraduate students were less likely than male students to report that teaching undergraduates and the ability to start your own company were appealing aspects of being a professor.</p>

Appendix IX
Significant Race/Ethnicity and Gender Findings
Section D: Academic Career Experiences

Items for which Underrepresented Minorities Responses Differ Significantly from the Responses of Non-Minorities.
Faculty, Doctoral Students and Undergraduate Student

Population	Item Number and Description	Means (Level of Significance)	Directionality
Section D: Academic Career Experiences			
Faculty	<p>III-2fF. How significant of a challenge are/were the following obstacles for you in your academic career?</p> <p>f. the tenure and promotion process</p> <p>k. issues related to my ethnicity</p>	<p>f. 1.68, 1.94 (<.05)</p> <p>k. 2.02, 2.86 (<.01)</p>	<p>Underrepresented minority faculty were significantly more likely than non-minority faculty to find the tenure process and issues related to ethnicity/race to be obstacles in their academic career.</p> <p><i>Underrepresented minority females were significantly less likely than underrepresented minority males (to the .03 level) to consider issues related to their race and ethnicity a challenge in their academic career.</i></p>
Faculty	<p>III-4aF. How satisfied are you with the following aspects of being an academic?</p> <p>a. the process of tenure and promotion</p>	<p>2.71, 3.12 (<.05)</p>	<p>Underrepresented minority faculty were significantly less likely than non-minority faculty with the process of tenure and promotion.</p> <p><i>Underrepresented minority females were significantly less likely than underrepresented minority males (to the <.01 level) to be satisfied with the process of tenure and promotion.</i></p>
Faculty	<p>III-8cF. How important are the following to career success at Stanford?</p> <p>c. Understanding the unspoken rules of academia</p> <p>j. Having the right mentor</p> <p>n. Being able to negotiate well</p> <p>p. Being liked by your colleagues</p>	<p>c. 3.50, 3.05 (<.01)</p> <p>j. 3.44, 3.08 (<.01)</p> <p>n. 3.30, 3.03 (<.01)</p> <p>p. 3.17, 3.04 (<.05)</p>	<p>Underrepresented minority faculty were significantly more likely than non-minority faculty to consider that understanding the unspoken rules of academia, having the right mentor, being able to negotiate well and being liked by one's colleagues are important to academic career success at Stanford.</p> <p><i>Underrepresented minority females were significantly less likely than underrepresented minority males (to the .03 level) to consider "understanding the spoken rules of academia" to be important to career success at Stanford.</i></p>

**Items for which Female Responses Differ Significantly from the Responses of Males.
Faculty, Doctoral Students and Undergraduate Students**

Population	Item Number and Description	Means (Level of Significance)	Directionality
Section D: Academic Career Experiences			
Faculty	<p>III-2F. How significant of a challenge are/were the following obstacles for you in your academic career?</p> <p>f. the tenure and promotion process</p> <p>g. The politics of academia</p> <p>h. The need to relocate for career advancement</p> <p>i. Issue related to my gender</p> <p>j. Family obligations</p> <p>k. Issues related to my race/ethnicity</p> <p>l. Lack of support from family and friends</p> <p>m. concern about not succeeding</p> <p>n. Not having the requisite skills</p> <p>o. Not feeling intelligent enough</p> <p>p. Not feeling dedicated enough to my field</p>	<p>f. 1.76, 1.99 (<.01)</p> <p>g. 1.71, 2.08 (<.01)</p> <p>h. 2.23, 2.42 (<.05)</p> <p>i. 2.05, 2.94 (<.01)</p> <p>j. 1.80, 2.08 (<.01)</p> <p>k. 2.66, 2.84 (<.01)</p> <p>l. 2.77, 2.89 (<.01)</p> <p>m. 2.15, 2.39 (<.01)</p> <p>n. 2.48, 2.72 (<.01)</p> <p>o. 2.48, 2.70 (<.01)</p> <p>p. 2.65, 2.82 (<.01)</p>	<p>Female faculty were significantly more likely to report that the tenure and promotion process, the politics of academia, the need to relocate for career advancement, issue related to my gender, family obligation, issues related to my race/ethnicity, lack of support from family and friends, concern about not succeeding, not having the requisite skills, not feeling intelligent enough and not feeling dedicated enough to my field to be obstacles to them in their academic career.</p> <p><i>When comparing female parents to male parents, female parents were significantly more likely to report that most of these same items were challenges to their academic career. (i. <.01, k. <.01, m. <.01, n. <.01, o. <.01, and p. <.01). No significant differences were found between female parents and female non-parents.</i></p>

**Items for which Female Responses Differ Significantly from the Responses of Males.
Faculty, Doctoral Students and Undergraduate Students (continued)**

Population	Item Number and Description	Means (Level of Significance)	Directionality
Section D: Academic Career Experiences			
Faculty	<p>III-4F. How satisfied are you with the following aspects of being an academic?</p> <p>a. the process of tenure and promotion</p> <p>b. the salary levels in academia</p> <p>c. the ability to augment income with work outside the university</p> <p>d. academic work load expectations</p> <p>h. the ability to balance work and family</p>	<p>a. 2.73, 2.66 (<.01)</p> <p>b. 2.66, 2.93 (<.01)</p> <p>c. 3.05, 3.49 (<.01)</p> <p>d. 2.73, 3.20 (<.01)</p> <p>h. 3.11, 3.39 (<.05)</p>	<p>Female faculty were significantly less likely than male faculty to be satisfied with the salary levels in academia, the ability to augment income with work outside the university, and the ability to balance work and family.</p> <p>On the other hand, faculty women were significantly more likely than male faculty to be satisfied with the process of tenure and promotion and the academic workload expectations.</p> <p><i>Male parents were significantly more likely than female parents to report satisfaction with the ability to augment their income with outside work (<.01) and academic workload expectations (<.01). No significant differences were found between female parents and female non-parents</i></p>
Faculty	<p>III-7. From your experiences, how difficult was the tenure process?</p>	2.36, 2.77 (<.05)	<p>Female faculty were significantly more likely than male faculty to report that the tenure process was difficult.</p>
Faculty	<p>III-8F. How important are the following to career success at Stanford?</p> <p>c. understanding the unspoken rules of academia</p> <p>h. having good social skills</p> <p>j. having the right mentor</p> <p>k. being confident</p> <p>l. being part of the informal network in your department</p> <p>n. being able to negotiate well</p> <p>p. being liked by your colleagues</p>	<p>c. 3.38, 2.96 (<.01)</p> <p>h. 3.01, 2.95 (<.05)</p> <p>j. 3.30, 3.03 (<.01)</p> <p>k. 3.32, 3.17 (<.05)</p> <p>l. 3.24, 2.96 (<.01)</p> <p>n. 3.28, 2.95 (<.01)</p> <p>p. 3.15, 3.00 (<.05)</p>	<p>Female faculty were significantly more likely than male faculty to report that understanding the unspoken rules of academia, having good social skills, having the right mentor, being confident, being part of the informal network in your department, being able to negotiate well, and being liked by your colleague are important to career success at Stanford.</p> <p><i>Female parents were significantly more likely to report that most of these same items were important to career success at Stanford. (c. <.01, j. <.01, k. <.01, l. <.01, and n. <.01). No significant differences were found between female parents and female non-parents.</i></p>

**Items for which Female Responses Differ Significantly from the Responses of Males.
Faculty, Doctoral Students and Undergraduate Students (continued)**

Population	Item Number and Description	Means (Level of Significance)	Directionality
Section D: Academic Career Experiences			
Faculty	III-10. In general, how stressful has your academic career been?	1.89, 2.25 (<.05)	Female faculty were significantly more likely than male faculty to report that their academic career has been stressful.

Appendix X
Significant Race/Ethnicity and Gender Findings
Section E: Work and Family

Items for which Underrepresented Minorities Responses Differ Significantly from the
Responses of Non-Minorities.
Faculty, Doctoral Students and Undergraduate Student

Population	Item Number and Description	Means (Level of Significance)	Directionality
Section E: Work and Family			
Graduate Students	IV-2G. How committed are you to pursuing a career upon graduation or completion of post-doctoral studies?	3.66, 3.56 (<.05)	Underrepresented minority graduate students were significantly more likely than non-minority graduate students to report that they are committed to pursuing a career upon completion of their studies.
Graduate Students	IV-8G. What type of effect do you think parenthood may have on your career?	2.92, 3.28 (<.05)	Underrepresented minority graduate students were significantly less likely than non-minority graduate students to report that they think parenthood will have a negative effect on their career.

**Items for which Female Responses Differ Significantly from the Responses of Males.
Faculty, Doctoral Students and Undergraduate Students**

Population	Item Number and Description	Means (Level of Significance)	Directionality
Section E: Work and Family			
Graduate Students	IV-2G. How committed are you to pursuing a career upon graduation or completion of post-doctoral studies?	3.69, 3.47 (<.01)	Female graduate students were significantly more likely than male graduate students to report that they are committed to pursuing a career upon completion of their studies.
Graduate Students	IV-5G. How much of an impact do your family commitments (including marriage, child care and elder care) have on your school and work commitments?	2.28 , 2.13 (<.05)	Female graduate students were significantly more likely than male graduate students to report that their family commitments will have an impact on their school and work commitments.
Graduate Students	IV-7G. Do you envision any problems in the timing of children and career demands	2.70, 2.05 (<.05)	Female graduate students were significantly more likely than male graduate students to report that they envision problems with the timing of children and career demands.
Under-graduate Students	IV-3UG. Do you envision any difficulty integrating your career plans with a family/personal life?	1.74, 1.57 (<.05)	Female undergraduates were significantly more likely than male undergraduates to report that they envision difficulty integrating your career plans with a family/personal life?
Graduate Students	IV-8G. What type of effect do you think parenthood may have on your career?	2.69, 2.20 (<.05)	Female graduate students were significantly more likely than male graduate students to report that they expect a negative effect of parenthood on their career.
Under-graduate Students	IV-7UG. What type of effect do you think parenthood may have on your career?	2.48, 2.16 (<.05)	Female undergraduates were significantly more likely than male undergraduates to report that they expect a negative effect of parenthood on their career.

Appendix XI
Significant Tenure/Non-Tenure Findings

Items for which Tenure Faculty Responses Differ Significantly from the Responses of Non-tenured faculty.

Population	Item Number and Description	Means (Level of Significance)	Directionality
Section D: Academic Career Experiences			
Faculty	<p>III-3F. To what extent do you find the following aspects of being an academic enjoyable? How significant of a challenge are/were the following obstacles for you in your academic career?</p> <p>a. Teaching undergraduates</p>	a. 3.92, 4.15 (<.05)	Tenure faculty were significantly more likely than non-tenured faculty to report that they find teaching undergraduates to be enjoyable.
Faculty	<p>III-8F. How important are the following to career success at Stanford?</p> <p>c. understanding the unspoken rules of academia</p> <p>h. having good social skills</p> <p>j. having the right mentor</p> <p>l. being part of the informal network in your department</p> <p>o. being able to give and receive feedback well</p> <p>p. being liked by your colleagues</p>	<p>c. 3.18, 3.03 (<.05)</p> <p>h. 3.03, 2.89 (<.05)</p> <p>j. 3.23, 2.95 (<.01)</p> <p>l. 3.12, 2.95 (<.01)</p> <p>o. 3.11, 2.98 (<.05)</p> <p>p. 3.12, 2.99 (<.05)</p>	Non-tenured faculty were significantly more likely than tenured faculty to report that understanding the unspoken rules of academia, having good social skills, having the right mentor, being part of the informal network in your department, being able to give and receive feedback well, and being liked by your colleague are important to career success at Stanford.
Faculty	<p>III-10. In general, how stressful has your academic career been?</p>	1.83, 2.27 (<.01)	Non-tenured faculty were significantly more likely than tenured faculty to report that their academic career has been stressful.
Faculty	<p>III-11. To what extent are you satisfied with the way that your academic career has turned out or is evolving?</p>	4.72, 5.05 (<.05)	Tenured faculty were significantly more likely than non-tenured faculty to report that they are satisfied with the way that their career has turned out or is evolving.