Leadership Education for Advancement and Promotion

Faculty Climate Survey

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Technical Report:
Climate, Collegiality, Leadership, Mentoring, Diversity,
and Institutional Support According to Research and
Teaching Faculty in 2003 and 2007

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1. Measuring Institutional Change at the University of Colorado

1.1. 2003-2007 Faculty Climate Surveys

Leadership Education for Advancement and Promotion (LEAP) has been funded by the National Science Foundation's ADVANCE program. ADVANCE as a whole, and LEAP in particular, seek to facilitate women's representation, advancement, and leadership in academia. Through a variety of intervention strategies, such as intensive workshops to develop faculty leadership skills, a coaching program, and many talks, workshops, and informal networking activities, , LEAP has sought to improve the climate and advancement for academic women, especially in the STEM fields.

The 2003 and 2007 Faculty Climate Surveys benchmark the following indicators of the work environment at the University of Colorado: climate, collegiality, leadership, mentoring, diversity, and institutional support. On some measures, these results can be compared over time as one way to measure the LEAP program's impact on institutional change. On other measures, the survey data describe the university situation at a specific time point, including measures such as the difference between men's and women's perceptions of the institutional climate, but because of differences in the data collection approaches, results cannot be directly compared. In the 2007 survey, conducted near the end of LEAP's formal, grant-funded activities, comparison is made between results for LEAP participants and non-participants, as a further measure of LEAP's impact.

In this report, we present findings from the analyses of these data. In the full report, the results are presented in some detail for completeness, but relatively little is offered in the way of interpretation. This is in part due to limitations of the study design and in part because many of the results made more sense when interpreted in light of findings from other information from LEAP evaluation and implementation activities. Thus this report is intended primarily to serve as raw material for the reports of the LEAP principal investigator, internal and external evaluators, and for discussion with LEAP stakeholders as the program proceeds into its institutionalization phase.

1.2. Acknowledgements

Members of the 2003 team (Marschke, Sheff, and Nielsen) thank our colleagues at the University of Michigan who provided a model for our survey and all the individuals who piloted early surveys and participated as respondents. The 2003 team also thanks Anand Menon, who helped to create an interactive online version of the survey that was used in 2003.

Members of the 2007 team (Laursen and Hassi) thank Jeffrey Cox, Associate Vice Chancellor for Faculty Affairs, and Sallye McKee, Vice Chancellor for Diversity, Equity, and Community Engagement, for their assistance in encouraging faculty to complete the survey. We also thank Carole Capsalis for locating and sharing the available records of the 2003 survey, and for her long support and assistance with this and other evalution efforts.

Joyce Nielsen and Patricia Rankin supervised the 2003 Faculty Climate Survey from its conception. Robyn Marschke designed the survey, analyzed the results, and authored the report. Elisabeth Sheff edited the survey, distributed it to research and teaching faculty, and assisted with the analysis.

The 2007 survey was conducted by Sandra Laursen, following the 2003 survey to large degree. Marja-Liisa Hassi analyzed the data and wrote the report, with Laursen. Because of personnel changes during the years between the two survey administrations, the teams did not interact significantly, thus we are careful to acknowledge the particular contributions of the two survey teams.

2. Climate Survey Data Collection

2.1. Survey Instrument and Administration

The survey instrument was modeled after a survey conducted by an NSF ADVANCE program at the University of Michigan. The 2003 team selected and modified items from Michigan's 12-page survey and developed a few additional questions designed specifically for the CU campus. It is unknown whether these questions were subject to any testing or think-aloud procedures prior to the 2003 administration, but the Michigan items had been subject to statistical testing and validation on that campus. That five-page survey instrument contains 102 items or questions and is attached as Appendix C.

The items asked respondents to share demographic information about themselves and their employment, opinions as to the best and worst aspects of the work environment, and responses to six sets of items corresponding to major climate-related concepts: climate, collegiality, leadership, mentoring, diversity, and institutional support.

In 2007, some items were modified slightly to improve wording or clarity, and some items had to be presented in a different format because the same survey administration tool was not available. However, most items were used as identical to the 2003 items so that results could be directly compared, despite some indications that some items had problematic wording, e.g. the intent of the question was unclear, the question made some assumptions that might not be shared by the reader, or the question implied exclusion of some groups. In fact, in 2007, approximately two dozen e-mail or phone contacts from survey recipients concerned problems or disagreements with the survey wording; it is unknown if other recipients had similar objections that they did not report.

The survey was conducted as an online, interactive survey. Using an interactive survey online allowed us to save time and money that would have been spent entering survey data by hand. The 2003 team used phpESP (php Easy Survey Package) to store respondents' answers in a database that was downloaded into SPSS and STATA to conduct the data analysis. In 2007, this tool was not available. SurveyMonkey, a commercial, online survey tool, was used instead.

In both years, we contacted individuals in the sample several times to ensure a high response rate. In 2003, the following procedure was used: Members of the sample were e-mailed an invitation asking them to visit the website where they could take the survey and submit their responses online. This was followed up with another e-mail. The third contact was a printed letter that was mailed to non-respondents, in case they had not checked their e-mail accounts and never knew of our attempt to contact them. Printed on letterhead with the names of several administrators supporting LEAP, the letter doubled the response rate. A fourth letter was followed by a phone call to encourage the remaining non-respondents, most of whom expressed their willingness to participate but had not yet found the time to do so.

In 2007, this extensive individual follow-up was not possible. Instead, all members of the sample (see below) were contacted using an all-campus e-mail message ("Buff Bulletin") signed by Patricia Rankin, Jeffrey Cox, and Sallye McKee. The message explained the survey and provided a web link to complete the survey. Two follow-up messages were sent to encourage completion of the survey. No personalized follow-up was conducted, but we responded individually to any persons who contacted us individually about the survey, including those with concerns about confidentiality or the wording of particular survey items.

2.2. Sample

The 2003 sample of respondents was drawn from the 2002 faculty population at the University of Colorado, Boulder. We deliberately sampled faculty who had been employed for at least one year, therefore excluding new hires in 2003. This faculty body consists of 2240 individuals; by our count, 46% are tenure-track professors and 44% are researchers with no instructional responsibilities. The remaining 10% are administrative and/or non-tenure-track faculty. In 2003, the sampling plan reflected the objective to compare whether men and women in tenure-track, research, and other positions share similar perceptions about the working environment on campus. A representative sample of 700 faculty was drawn according to the proportions of each job track within the tenure-track, teaching, and research faculty. However, for each job track, women were over-sampled so that each job title in the sample consisted of 50% women in 2003. Thus this sample was representative of the faculty as a whole by job track but not by gender. A detailed comparison of the survey respondents with the sample and population is provided below.

In 2003, the sample was refined as follows: after initiating contact with potential respondents, 125 individuals were removed from the sample. Most of these individuals were research associates who, we learned, worked in off-campus government labs affiliated with on-campus research institutes. It was thought that their responses would reflect accurate assessments of the campus climate or work environment. A handful of other potential respondents were also removed: individuals no longer employed at the university, faculty on sabbatical or leave, and any persons who expressed their wish not to participate. An additional four responses to the survey were eliminated because they had been submitted twice. After these omissions, the final 2003 sample consisted of 575 people; 449 of them responded to the survey for a response rate of 78%. This is a very high response rate for campus-based surveys, especially online surveys.

The 2007 team had a record of the 2003 population, but was unable to find a detailed record of the criteria for inclusion in the population, or a record of the sampling procedure used in 2003. The criteria were reverse-engineered from the list, and we believe the 2007 population is based on the same criteria; however, the increase in faculty size gives some reason for caution. Moreover, personnel were unavailable to conduct the extensive, individual follow-up that was required to achieve the high response rate achieved in 2003. Thus we chose instead to administer the survey to the entire faculty population, in hopes of obtaining a sample that was representative of the faculty as a whole and that was large enough to enable statistical comparisons of the two surveys.

As in 2003, the 2007 population was defined to exclude brand-new hires and was thus drawn from the regular tenure-track, teaching, and research faculty population in spring 2007, at the end of the prior academic year, from a list provided by the Institutional Research office. When

individuals with no provided e-mail address were removed, the sample thus included 2768 individuals.

In both 2003 and 2007 surveys, the respondents were asked to report their gender and their current title or rank, according to a menu of choices. The titles of Full Professor (including Distinguished Professor), Associate Professor, and Assistant Professor were included in a main category called here "tenure-track faculty." Respondents with titles of Research Professor (with several subcategories indicating tenure status), Research Associate (including Senior RA), and Professional Research Assistants (including Senior PRA) formed a category of "research faculty." "Teaching faculty" included titles of Instructor (including Senior Instructor), and a few Lecturers (although this job title was excluded from the request to the Institutional Research office, as they are part-time, non-regular faculty, a few received the e-mail). Because this group is small, we have also included with them the separate category of "Other," mostly faculty in administrative positions. Thus, while this category includes multiple titles, most of the respondents in this category were instructors.

In 2007, the final sample consisted of 657 people, and the response rate was 24%. While lower than the 2003 response rate, the number of responses is still large. Table 2.1 shows the number and percentage of people in each category, for the population, the sample, and the respondents for 2003 and 2007 separately. These percentages show that the respondents, sample, and population in 2003 and in 2007 are similar according to job title. Thus, the survey results can be taken as representing the faculty population according to job title. However, because of the sampling by gender in 2003, the survey results do not match the gender distribution of faculty as a whole in 2003.

Table 2.2.1: Population and Respondents

Job Title	Population				Respondents			
	2003		2007		2003		2007	
	N	%	N	%	n	%	n	%
Tenure-Track								
assistant professor	259	12%	270	10%	46	10%	59	9%
associate professor	303	14%	300	11%	64	14%	88	13%
full professor	475	21%	455	16%	91	20%	119	18%
Non-Tenure-Track Teaching (and Other)								
instructor	169	8%	369	13%	31	7%	81	12%
director (in 'other' in 2007)	22	1%	-	-	5	1%	-	-
other	22	1%	35	1%	7	2%	13	2%
Research Track								
PRA	514	23%	734	27%	101	22%	109	17%
RA	456	20%	579	21%	84	19%	78	12%
research professor	20	1%	26	1%	5	1%	8	1%
missing values (job title not reported)					15	3%	102	16%
Total	2240	100%	2768	100%	449	100	657	100%

Table 2.1 also shows some differences in the faculty population from 2003 to 2007. The number and proportion of non-tenure-track teaching faculty increased notably, and the number of tenure-track faculty is essentially flat. The number of non-tenure-track researchers increased sizably.

There were some differences were between the 2003 and 2007 samples:

• Only 7% of the sample represented teaching faculty in 2003, whereas the percentage was 12% in the 2007 sample.

• The job title of 'director' was not included in the 2007 sample.

• The proportion of research faculty was smaller in 2007 as compared to the 2003 sample.

  • 19% of the 2003 sample represented research associates, but in 2007 the proportion was 12%.

  • There were slightly fewer professional research assistants (17%) in the 2007 sample than the 2003 sample (22%).

The largest groups in the both 2003 and 2007 samples were:

• professional research assistants (22% in 2003; 17% in 2007),

• full professors (20% in 2003; 18% in 2007),

• research associates in 2003 (19%) and associate professors in 2007 (13%).

The smallest group of respondents was research professors in both 2003 (1%) and 2007 (1%). However, in all,102 (16%) respondents did not report their current job title in 2007. The number of cases of missing information in 2003 was only 15 (3%). This difference may cause some bias in the 2007 data.

2.3 Analysis

The data from the 2003 and 2007 surveys were analyzed by using the statistical software package SPSS. Various statistical analyses were applied in studying the data sets and in producing the findings. Analysis of frequencies formed the basis in describing the sample and respondents—their gender, ethnicity, and university careers—but also in reporting their professional and LEAP activities and their gains from the LEAP program. The analyses of diversity and climate indicators were based both on frequencies and descriptive statistics. Both parametric (T-test, ANOVA) and non-parametric (Chi-square) statistical tests were used to explore differences along with the respondents' gender, academic field, job type, and participation in the LEAP program. The differences between various groups of respondents and also between the 2003 and 2007 data are illustrated in many figures and tables in the report.

3. Climate Survey Subjects

3.1. Respondents and Ethnicity

The respondents' race/ethnicity was asked by an open question in the 2003 survey, but the 2007 survey asked this question as a multiple choice question with the following categories:

American Indian or Alaskan Native, Asian, Black or African American, Latino/a, Native Hawaiian or other Pacific Islander, White, Multiracial.

The number of minority respondents was too small to distinguish by these racial and ethnic groups, but we did conduct analyses comparing white and minority faculty, in which the latter group consisted of all categories other than "White". Table 3.1.1 shows the numbers of men and women respondents in each job category according to their race (white or minority).

Table 3.1.1: Gender, ethnicity, and job title of respondents

	Female 2003		Male 2003		Female 2007		Male 2007	
	n	%	n	%	n	%	n	%
Minority faculty								
assistant professor	9	26	5	12	6	30	8	25
associate professor	8	23	7	16	7	35	4	13
full professor	3	9	12	28	3	15	10	31
research assistant	4	11	8	19	1	5	3	9
research associate	10	29	9	21			6	19
research professor								
instructor			1	2	2	10	1	3
director	1	3	1	2				
other					1	5		
Subtotal	35	100%	43	100%	20	100%	32	100%
White faculty								
assistant professor	19	10	13	8	23	10	20	8
associate professor	24	12	25	16	30	13	44	17
full professor	48	24	28	18	24	11	77	30
research assistant	50	25	39	5	57	25	46	18
research associate	34	17	31	20	28	12	41	16
research professor	2	1	3	2	4	2	4	2
instructor	17	9	13	8	53	24	23	9
director	2	1	1	1				
other	3	2	4	3	6	3	2	1.9
Subtotal	199	100%	157	100%	225	100%	260	100%
Total	234		200		245		292	

In 2003, more women (234) than men (200) responded to the survey even though 50% of the sample was women, indicating that women's response rate was higher than men's. The opposite was true in 2007 with 245 women and 292 men respondents. Minority faculty made up 18% (78)

of the respondents in 2003 but only 9.7% (52) in 2007. The number of 2003 minority respondents exceeds their representation in the faculty population, indicating either a disproportionate representation in the sample (we did not sample for race/ethnicity) or a disproportionately high response rate among minority faculty. Also, the gender composition of minority respondents differs from white respondents in 2003. There are more males among minority respondents (43 men vs. 35 women), whereas there are more females among white respondents (157 men vs. 199 women). This was true also for minority faculty in 2007, with 20 women and 32 men respondents.

3.2. Respondents and Job Characteristics

3.2.1 Gender and Job Titles

We may look at the samples in more detail by considering how the job categories distribute along with respondents' gender and their scientific field. Figures 3.2.1a and 3.2.1b illustrate the variation across job titles for women and men, separately in 2003 and 2007.

Job Titles in the 2003 Sample

In all, 234 women and 200 men reported their title in 2003. Figure 3.2.1a shows that each job category included both women and men and the proportional gender differences in each job category were not large, as expected from the sampling. The proportion of full professors among women (21.0%) exceeded slightly that for men (19.9%). A similar, minor gender difference applied to assistant professors (women: 11.9%, men: 9.0%) and instructors (women: 7.2%, men: 7.0%), but the opposite was true for associate professors: 15.9% of men and 13.6% of women were associate professors in 2003. The proportions of research faculty were slightly bigger among men than among women respondents but again these differences were very small.

Figure 3.2.1a: Job title by gender in 2003 (N (women) = 234 – 100%, N (men) = 200 – 100%).

Job Title by Gender, in 2003
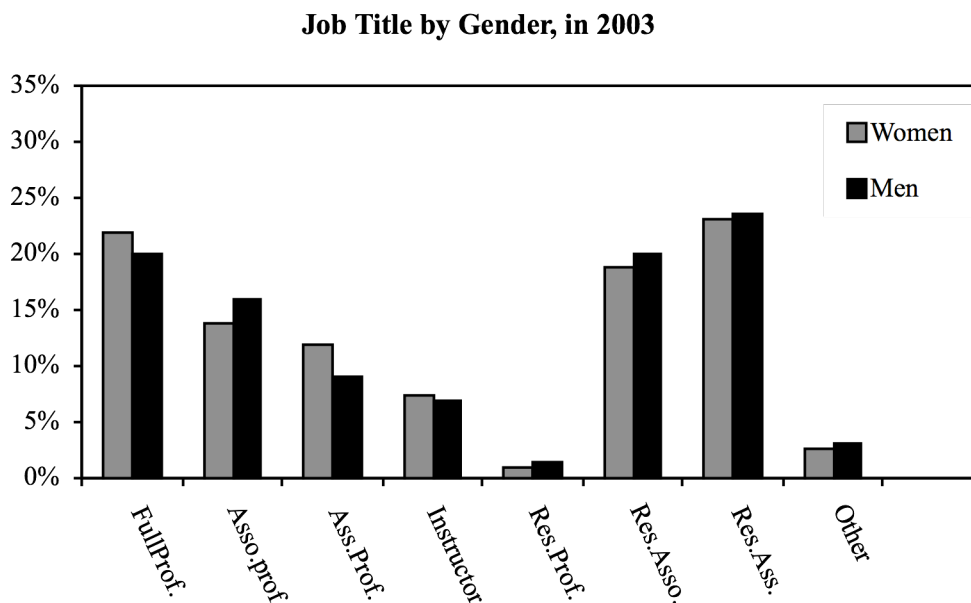
Job Titles in the 2007 Sample

Clearer gender differences applied to the 2007 sample (see Figure 3.2.1b) when we consider the frequencies of the respondents' job title among women and men separately. A clear difference in the proportions of full professors appeared in the favor of men respondents.

• The proportion of full professors among male respondents (29.5%) clearly exceeded that among women respondents (10.9%).

• The proportion of associate professors was slightly higher among men (16.2%) than among women (14.9%),

• whereas the proportion of assistant professors was slightly higher among women (11.7%) than among men (9.6%).

Moreover, the proportion of instructors is clearly higher among women (22.2%) than among men (8.6%) respondents, which reflects the general pattern in the population of CU instructors. Proportional differences appeared also between men's and women's research positions in 2007.

• The proportion of women who had a PRA position (23.8%) was higher than that among men (16.6%),

• whereas the proportion of RAs was slightly higher among men (15.9%) than among women (11.7%) respondents.

Figure 3.2.1b: Job title by gender in 2007 (N = 248 (women) – 100%, N = 300 (men) – 100%).
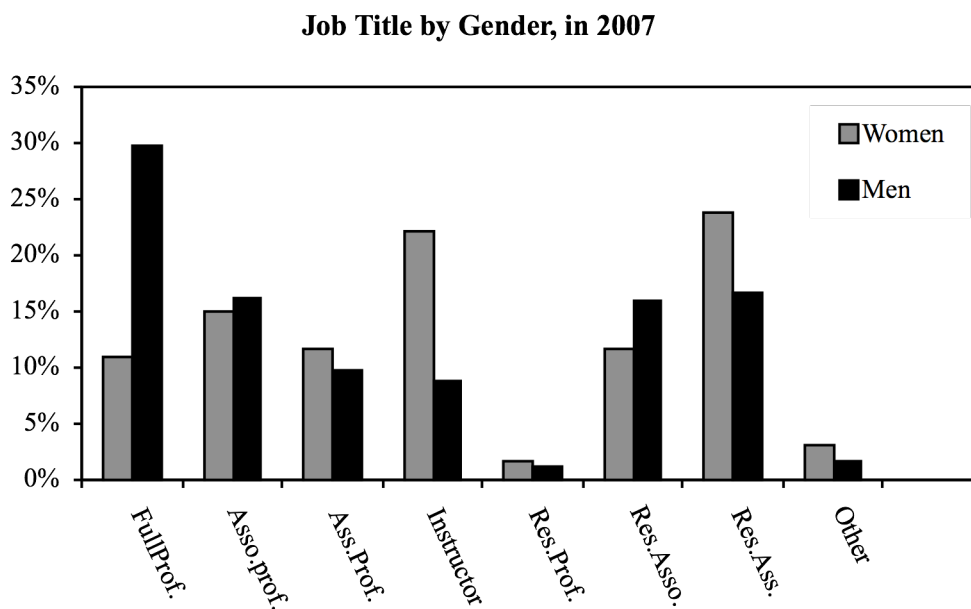
3.2.2 Academic Divisions

The respondents were asked about their primary academic division at CU in both the 2003 and 2007 survey. In 2003, they were offered twelve different categories to mark. The categories were:

Arts/Humanities, Social Sciences, Natural Sciences, Research Institute or Center, Engineering, Law, Business, Libraries, Education, Music, Journalism, Other

In 2007 survey, the categories of Law and Business were combined, for 11 different academic categories. In order to describe the academic divisions of the respondents, we organized the eleven categories into four main academic areas. These areas were:

H&S: Arts/Humanities, Social Sciences

ns: Natural Sciences

institutes: Research Institute or Center

others: Engineering, Law and Business, Libraries, Education, Music, Journalism, Other

Figure 3.2.2 describes the distributions of the respondents' academic divisions in 2003 and 2007 according to these four main academic areas. It shows that natural sciences and institutes were represented slightly less often in 2007 than in 2003. Instead, the proportion of the category of all other academic divisions was higher in 2007 than in 2003.

Figure 3.2.2: Academic divisions in 2003 (N=449 -100%) and 2007 (N=495 -100%).

Academic Divisions in 2003 and 2007
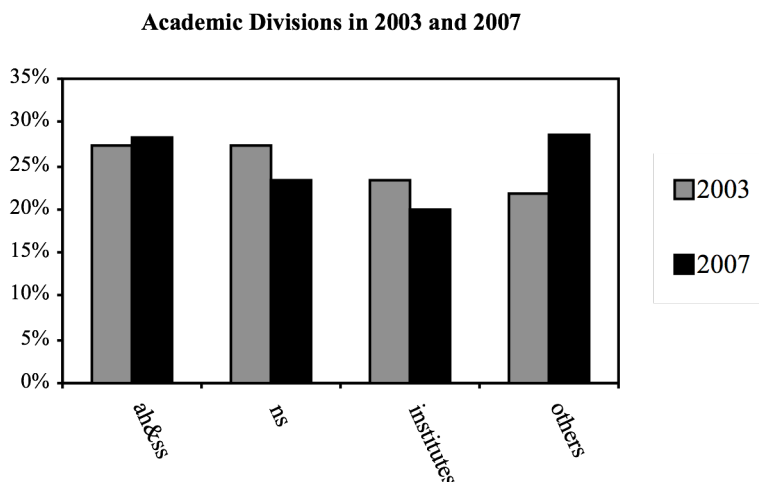
3.2.3 Academic Fields and Job Types

The respondents wrote down the name of their primary department or institute in both the 2003 and 2007 surveys. This information was used to distinguish the respondents working in science, technology, engineering and mathematics (STEM) fields and those respondents who worked in other than STEM scientific fields. These two categories were used to describe the respondents'

academic background and also to study possible differences between STEM and non-STEM faculty's views of their work climate at CU.

In 2003,

• 264 (58.8%) of the respondents reported a department or institute that was included in the STEM academic fields,

• and 180 (40.1%) had a job at a non-STEM academic field.

In the 2007 survey,

• the frequencies were 257 (39.1%) for STEM fields and 240 (36.5%) for non-STEM fields.

Accordingly, STEM faculty had a larger representation than non-STEM faculty in the 2003 data, whereas the proportions in the 2007 data were about the same level. However, nearly one quarter (24.4%) of the 2007 respondents did not report their department or academic field.

Figure 3.2.3 shows the distributions of the types of university positions among STEM and non-STEM fields in 2003 and 2007. The distributions of job types are consistent with the general faculty structures in STEM and non-STEM scientific fields at CU. The structural differences between STEM and non-STEM fields were even more apparent for the 2003 sample than for the 2007 sample. This reflects the differences in sample structure: The 50/50 sampling of women in the 2003 sample likely increases the proportion of non-STEM faculty in the tenure-track group, but increases the STEM representation on the research faculty, since most of the researchers are from STEM fields.

Figure 3.2.3: Academic fields and job types in 2003 (STEM (N) = 261 – 100%, Non-STEM (N) = 179 – 100%) and in 2007 (STEM (N) = 255 – 100%, Non-STEM (N) = 239 – 100%).
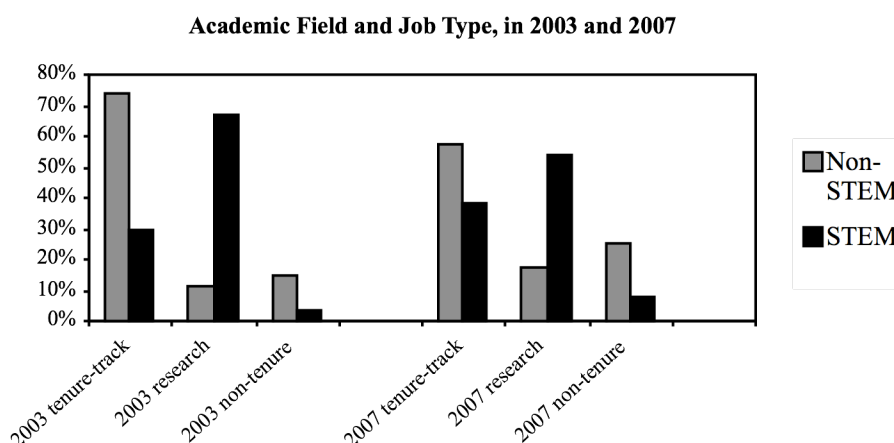
The distributions of job types among the 2003 (N = 261) and 2007 (N = 255) STEM respondents were:

• tenure-track faculty: 29.9 % (2003) and 38.0% (2007)

• research faculty: 67.0 % (2003) and 53.7 % (2007)

- teaching faculty: 3.1 % (2003) and 8.2 % (2007).

Again, the distribution of the job types among the 2003 (N = 179) and 2007 (N = 239) non-STEM respondents were:

- tenure-track faculty: 73.7 % (2003) and 57.3 % (2007)

- research faculty: 11.7 % (2003) and 17.2 % (2007)

- teaching faculty: 14.5 % (2003) and 25.5 % (2007).

Accordingly, the proportions of the tenure-track faculty among non-STEM respondents clearly exceeded those among STEM respondents. This difference in the samples applied also to each of the included tenure-track job category (full, associate, and assistant professors). Clear difference applied also to the number of instructors (non-tenure-track faculty), with the proportions of 13.4% (2003) and 23.4 % (2007) among the non-STEM respondents and only 2.7% (2003) and 5.9 % (2007) among the STEM-respondents.

In turn, the proportions of the STEM-researchers were clearly higher than those of the non-STEM researchers. Especially the proportions of the RAs (2003: 28 %, 2007: 20.4 %) and PRAs (2003: 36.4 %, 2007: 31 %) within STEM fields clearly exceeded those within non-STEM fields (2003: RAs 6.7%, PRAs 3.9%, 2007: RAs 8.4 %, PRAs 8.4 %). And, only one of the non-STEM respondents was a research professor in the 2003 and 2007 sample, whereas the number was four in 2003 and six in 2007 among the STEM-respondents. Consistently with the CU faculty population, most of the respondents of the Climate Surveys in STEM fields were researchers, whereas most of the respondents in non-STEM fields represented CU tenure-track faculty.

3.2.4 Academic Fields, Job Types, and Gender

The gender structure of the two data sets may be considered also against the respondents' academic fields. The clear general gender differences between STEM and non-STEM faculty applied to the samples in 2003 ($p< .01$) and in 2007 ($p< .001$). These differences were even more apparent among the STEM respondents in the 2007 data and more apparent among the non-STEM respondents in the 2003 data. In 2003, less that one half (47.3%) of the STEM respondents were women, but this percentage in the 2007 sample was only 32.7 %. In turn, 63.5% of the 2003 non-STEM respondents and 57 % of the 2007 non-STEM respondents were women (see Table 3.2.1). Again, the large number of missing information of the respondents' unit may cause some bias in the gender structure in 2007.

Table 3.2.1: Gender and academic field in 2003 (STEM: N=256; NON-STEM: N=178) and in 2007 (STEM: N=254; non-STEM: N=237).

Field	2003			2007		
	Women	Men	Total	Women	Men	Total
STEM	47.3 %	52.7 %	100 %	32.7 %	67.3 %	100 %
Non-STEM	63.5 %	36.5 %	100 %	57.0 %	43.0 %	100 %

As the frequencies in Section 3.2.1 also indicated, no clear gender difference applied to the respondents' job type within the 2003 sample, altogether or within the STEM or non-STEM

fields separately. The proportions of the three different job types among women and men in 2003 were:

- tenure-track : women 48.7 %,   men   46.0 %

- researcher track: women 43.2 %,   men   46.5 %

- teaching: women 8.1 %,   men 7.5 %

However, the differences in job types between women and men were clear (p< .001) for the 2007 sample. This was probably related to the differences in sampling between 2003 and 2007, to the higher number of missing responses on respondents' job type, and to the increased number of instructors in the 2007 sample as compared to the 2003 sample. In 2007, the percentages were:

- tenure-track :   women 37.5 %,   men 55.7 %

- researcher track :   women   37.1 %,   men   34.0 %

- teaching: women   25.4% ,   men   10.3%.

Similar gender differences in the respondents' job type applied further within the STEM fields (p< .001) and within the non-STEM fields (p< .01) separately. As expected, this difference was even more apparent among the STEM respondents.

Among the non-STEM respondents,

- 48.1% of the women but 68.6% of the men represented tenure-track faculty,

- whereas 31.1% of the women but 18.6% of the men had a teaching position.

- And 20.7% of the women but 12.7% of the men had a research position.

A different pattern applied to the gender differences among the STEM respondents, most of whom were researchers. Among the STEM respondents,

- 21.7% of the women but 45.9% of the men had a tenure-track position,

- whereas 63.9% of the women and 48.8% of the men were researchers.

- In turn, 14.5% of the STEM women but only 5.3% of the STEM men had an instructor position.

Overall, these proportions are in line with the common gender differences in academic job types, where men have higher-status positions. At CU, as at other institutions, larger proportions of women than men have a non-tenure-track instructor or research position, but a larger proportion of men have a tenure-track position. The structure of the 2007 sample mirrors this overall population, as men more often than women held full professor positions. Men and women are nearer parity among assistant professors, as women have become more represented in the professoriate over time. In the research track, women more often worked as PRAs, whereas men more often worked as RAs (see Section 3.2.1). This pattern was even more apparent among STEM respondents, with 44.6% of women but 24.7% of men STEM respondents working as PRAs and, in turn, 21.8% of men but 16.9% of women respondents having an RA position. This pattern reflects the higher number of research-track positions that are in the STEM fields.

3.3. Respondents and University Career

Both the 2003 and 2007 surveys asked about the number of years spent in each university rank. A distinction between years at the University of Colorado and years spent at other campuses in each rank was made only in the 2007 survey. In the 2003 survey, respondents marked the number of years in each rank by writing a number after each job title. In the 2007 survey, the respondents marked one of the offered five multiple-choice categories (0 years, 1-3 years, 4-6 years, 7-9 years, 10 or more years). The job titles in both surveys were:

> Full Professor, Associate Professor, Assistant Professor, Instructor or Lecturer, Research Professor, Research Associate (including Senior RA), Professional Research Assistant (including Senior PRA), Other

In the 2003 survey, respondents were also asked about whether or not they had held an administrative position at CU and the total number of those years. This question was not included in the 2007 survey. No other positions than the ranks listed in the surveys were reported by respondents, either in 2003 or 2007. Below we first look at the averages of the years in each rank, based on the 2003 sample and the respondents' answers. After that, we will concentrate on the 2007 sample and the number of years spent in each rank, at CU Boulder and at other campuses separately.

3.3.1 Average Time in University Ranks in 2003

Figure 3.3.1 illustrates the averages of the years spent in each of the university ranks in 2003 for STEM and non-STEM respondents separately. Full professors had the longest time in rank (6.45 years) of university positions among the 2003 respondents. In turn, research professors had then the shortest time in rank (3.17 years) of all the university positions.

Figure 3.3.1: Averages of number of years within each rank by academic field in 2003 (STEM: N = 264, non-STEM: N = 180).

Average Years in Each University Rank, in 2003
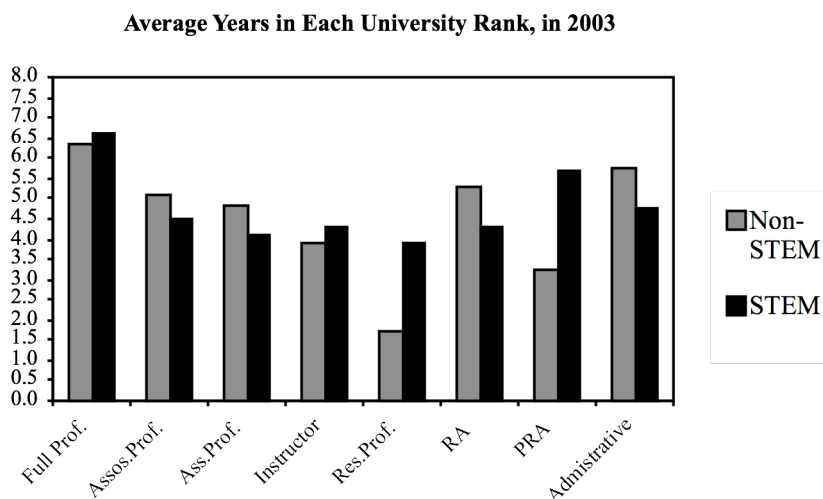
Some expected variations appeared between the STEM and the non-STEM respondents' averages in the years in the job ranks that were related to the differences in the university job structures between these academic fields.

• STEM respondents had spent clearly more years (5.66) as PRAs as compared to non-STEM respondents (3.27 years, p< .01).

• Non-STEM respondents had spent more years (4.81) as assistant professors as compared to STEM respondents (4.09 years, p< .05).

• STEM respondents had spent more years (3.88) as research professors as compared to non-STEM respondents (1.75 years), but the total number of them was small in the sample (8, 4).

Non-STEM respondents (5.74) had spent slightly more years in administrative ranks as compared to STEM respondents (4.73).

Only one statistically significant general gender difference (p< .01) applied to the average number of years within the university job ranks in 2003. On the average, women (4.90) had spent longer than men (4.11) as assistant professors. In turn, among STEM respondents, men (N=23, 7.52) had spent on average more years as full professors than women (N=15, 5.13, p< .05). And within non-STEM fields, women (N=47, 6.5) had more years than men (N=23, 4.17, p< .05) in administrative positions.

3.3.2 Average Years in University Ranks in 2007

In this section, we will illustrate the distributions of the years spent by the 2007 respondents in each of the CU's and other campuses' faculty positions. We first organized the data according to the three faculty groups: tenure-track years, non-tenure-track years, and years as researcher. Again, non-tenure-track years include the years that the respondents have had a university instructor or lecturer position. And, research years include the years in research track positions. The maximums were taken across the years spent in each of these three faculty groups, at CU and at other campuses separately. We will further describe this background information along with the respondents' gender and their academic field.

CU University Careers and Gender

We will consider here the length of different university careers in 2007 within each of the three job tracks: tenure, non-tenure-track, and researchers. Frequencies are presented for women and men separately. Figures 3.3.2a - 3.3.2d present maximums of the years spent in a position at CU and then also maximums of the years spent within each job track at CU, for women and men separately.

Figure 3.3.2a: Maximum of CU tenure-track years by gender (W: N=255, M: N=237).
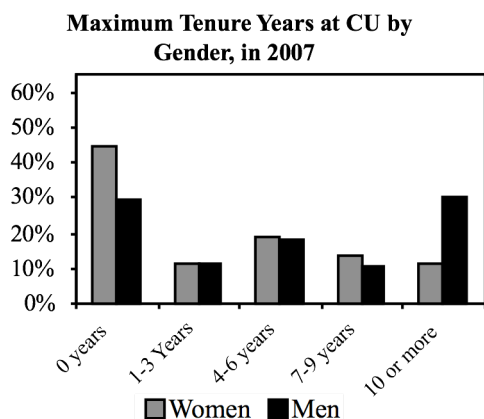
Figure 3.3.2b: Maximum of CU non-tenure-track years by gender (W: N=175, M: N=179).

Maximum Tenure Years at CU by Gender, in 2007

Maximum Non-Tenure Years at CU by Gender, in 2007
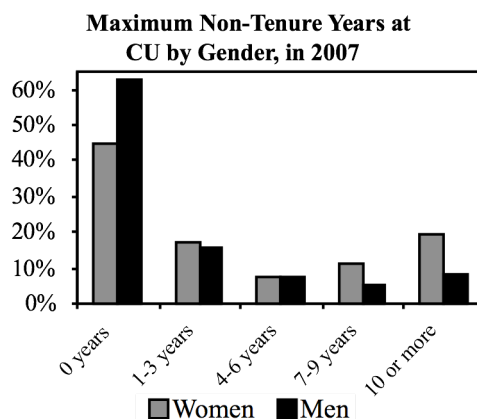
Women and men differed clearly in the maximum of years spent in tenure-track positions at CU (p< .000; see Figure 3.3.2a):

- 44.6% of women but 29.8% of men had had no tenure-track position at CU,

- 30.6% of men but only11.4% of women had had a CU tenure-track position for 10 years or more.

This gender difference applied further to the STEM (p< .01) and the non-STEM (p< .01) respondents separately. Among the non-STEM respondents:

- 43.4 % of men but only 15.3 % of women had had a tenure-track CU position for 10 years or more, and

- 50.6 % of men but 29.6 % of women had had a tenure-track CU position for at least 7 years.

Among the STEM respondents:

- most of the women (69.1 %) but 41.3 % of the men had had no CU tenure-track position,

- 33.3 % of men but 21.8 % of women had had a tenure-track CU position for at least 7 years,

- 21.7 % of men but 7.3 % of women had had a tenure-track CU position for 10 years or more.

Figure 3.3.2c: Maximum of CU researcher position years by gender (W: N=174, M: N=195).
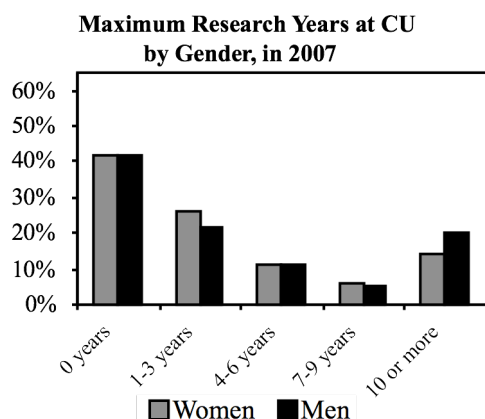
Figure 3.3.2d: Maximum of CU position years by gender (W: N=246, M: N=300).

Maximum Research Years at CU by Gender, in 2007

Maximum Years at CU by Gender, in 2007
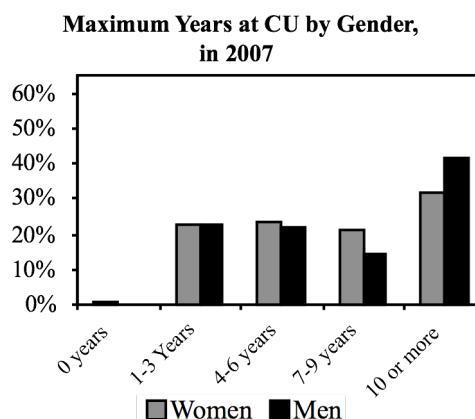
Women and men differed also in the maximum number of their years in CU non-tenure-track positions (p< .01; see Figure 3.3.2b).

- 63.1 % of men but 45.1 % of women had had no non-tenure-track CU position,

- 19.4 % of women but 8.4 % of men had been in a non-tenure-track CU position for 10 years or more.

No clear (statistically significant) gender difference in the maximum number of years in non-tenure-track teaching positions at CU was observed for STEM and non-STEM respondents separately. However, 22.6 % of non-STEM women but 15.1 % of non-STEM men had had a non-tenure-track teaching position for 10 years or more. And 22.4 % of the STEM women but only 6.9 % of the STEM men had had a non-tenure-track teaching position at CU for at least 7 years.

Women and men did not differ with respect to the maximum number of years in CU research positions, not among all the respondents nor among the STEM and the non-STEM fields separately (see Figure 3.3.2c). Most of the women (68.4 %) and men (63.6 %) had had a CU researcher position less than 4 years, and 42 % of women and 42.1 % of men respondents had not worked at CU as researchers. And, only 14.4 % of women and 20 % of men had had a CU research position for 10 years or more. But the differences between STEM and non-STEM respondents' years in CU research track again reflected the general difference in the job structures between these academic areas. STEM faculty have more research positions than non-STEM faculty.

Within STEM fields:

- 19.7 % of women and 32.6 % of men had not worked in a CU research position.,

- 23.9 % of women and 29.6 % of men had had a CU research position for at least 7 years.

Within non-STEM fields:

- 60.3 % of women and 66 % of men had not worked in a CU research position.

- 19.2 % of women and 17.0 % of men had had a CU research position for at least 7 years.

No clear distinction was perceived between the maximum number of years spent by men vs. women in all the different faculty positions at CU.

- 32.1% of women and 41.3% of men had had a position at CU for 10 years or more.

- 32.1% of women and 14.3% of men had had a CU position for 7 to 9 years.

- Nearly one half of women (46%) and a similar percentage of men (44.4%) had had a CU position for 1 to 6 years.

The percentages did not differ by respondents' academic field. In STEM fields, 43.3 % of the women and 41.9 % of the men had had a CU position for 1 to 6 years. And in non-STEM fields, these percentages were 46.0 % for women and 44.4 % for men.

Careers at Other Campuses and Gender

Here we briefly describe the data on the number of years spent by 2007 respondents in faculty positions in other university campuses. Figures 3.3.3a and 3.3.3b illustrate the maximum of the respondents' years at other university campuses along with their gender (Figure 3.3.3a) and by their academic field (Figure 3.3.3b).

No clear gender difference applied to the overall maximum of years in a position outside of the CU. Most of the respondents had been working basically only at CU, but this applied even more to women.

- 43.3 % of women and 35 % of men had not worked at other campuses,

- only 19.3 % of women and 15.9 % of men had been in a position outside of CU for at least 7 years.

A statistically significant gender difference (p< .05) applied to the maximum number of years in a tenure-track position in other campuses:

- In all, 73.6 % of women but 60.6 % of men had not worked in a non-CU tenure-track position, whereas

- 29.2 % of men but 18.6 % of women had worked in an outside tenure-track position for 1 to 6 years.

Also, men had more often than women held a research position at other campuses (p< .01):

- In all, 31 % of men but 15 % of women had worked as researchers at other campuses for 1 to 6 years, and

- 80.1 % of women but 64.5 % of men had not had a research position at other campuses.

Instead, no clear gender difference applied to the maximum of years spent in non-tenure-track positions outside CU. In all, 62.3 % of the women and 65.4 % of the men had had no non-tenure-track position outside of CU.

Figure 3.3.3a: Maximum number of years in a faculty position in other campuses by gender (W: N=233, M: N= 283).
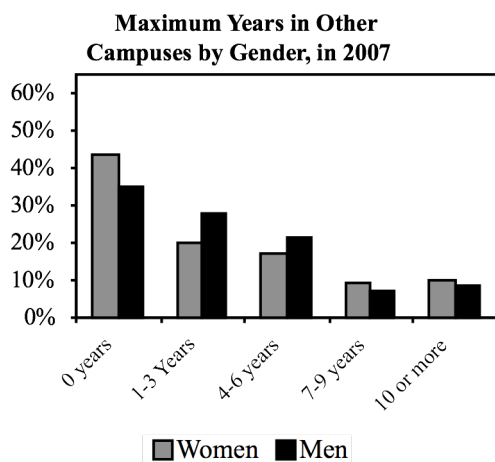
Figure 3.3.3b: Maximum number of years in a faculty position in other campuses by academic field (STEM: N=237, non-STEM: N= 229).

Maximum Years in Other Campuses by Gender, in 2007

Maximum Years in Other Campuses by Field, in 2007
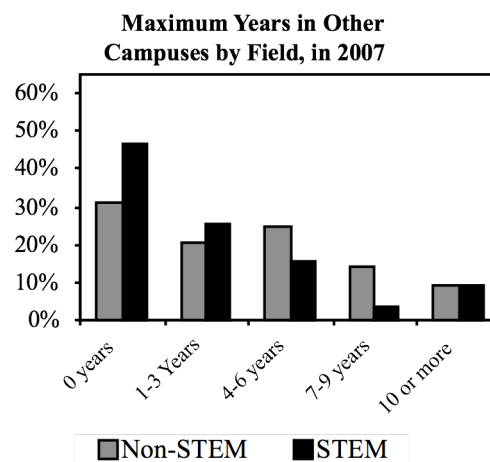
These frequencies in years at other campuses for women and men confirm the view that women more than men tend to stay at the same campus, at CU. Moreover, male faculty not only have longer careers in tenure-track positions only at CU but also at other campuses. Instead, female faculty stay longer than males in non-tenure-track teaching positions, at CU and at other campuses. Consistent with the larger number of male RAs but women PRAs, men appear to have a longer record of a research track career outside the CU campus, indicating that they have higher-status research careers.

Careers on Other Campuses and Academic Field

Some clear differences concerned the maximums of the years spent in faculty positions in other campuses, along with the respondents' academic field (p< .001; see Figure 3.3.3b):

• In all, 46.4 % of STEM but 31.4 % of non-STEM respondents had not worked outside CU,

• 23.6 % of non-STEM but 12.7 % of STEM respondents had spent more than 7 years in positions in other campuses.

Accordingly, STEM respondents had longer CU careers than non-STEM respondents, who had spent time also outside the CU. This is consistent with the large number of the STEM units and faculty at CU. Similar differences to those seen for STEM (p< .001) and non-STEM (p< .001) respondents' job types at CU were observed also for different positions in other campuses:

• 77.8 % of STEM but 53.1 % of non-STEM respondents had not worked in a tenure-track position outside CU, whereas

• 17.3 % of non-STEM but only 3 % of STEM respondents had had an outside tenure-track position at least for 7 years .

• Instead, 75.4 % of STEM but 51.2 % of non-STEM respondents had not been in a non-tenure-track teaching position outside CU,

• whereas 36.4 % of the non-STEM but 16.8 % of the STEM respondents had worked in an outside non-tenure-track teaching position for1 to 6 years.

And 84.3 % of the non-STEM but 65 % of the STEM respondents had not had a research position outside the CU, whereas 29.1 % of the STEM but only 13.3 % of the non-STEM respondents had had a research position for 1 to 6 years in other campuses (p< .01). Accordingly, STEM faculty had longer careers than non-STEM respondents at CU and these careers also more often consisted of research positions, whereas non-STEM faculty had more worked in non-tenure-track teaching or tenure-track positions outside CU.

3.4 Summary of the Subjects of the Study

3.4.1 Gender, Ethnicity and CU Unit

The 2003 Climate Survey respondents included more women than men, because of the oversampling of women. For the 2007 survey the situation was the opposite with slightly more men respondents—reflecting the population. Minority faculty were also slightly overrepresented in 2003. The gender composition of minority respondents further differed from that of the white respondents both in 2003 and in 2007, with more males among the minority respondents and more females among the white respondents. With respect to the variation between the respondents' CU units, natural sciences and institutes were represented slightly less often in the 2007 sample than in the 2003 sample. Instead, respondents from all other academic divisions formed a higher proportion of the 2007 sample than of the 2003 sample.

Females and males had typically different representations among the STEM and non-STEM respondents. Less that one half of the STEM respondents were women in 2003 and this percentage was even lower in the 2007 sample. In contrast, more than 60% in 2003 and a bit less than 50% in 2007 of the non-STEM respondents were women.

3.4.2 Job Characteristics and Gender

A look at the different job titles did not show any clear gender differences in 2003, nor among the STEM or non-STEM respondents separately. However, the 2007 survey indicated common patterns of gender differences in job types in favor of men. These differences were even more apparent among STEM respondents. Men clearly more often had tenure-track positions at CU, whereas women more often had non-tenure-track instructor positions. Furthermore, females tended to work more often than men in PRA positions within the CU research track whereas men more often than women worked as RAs. Among tenure-track faculty, men more often than women held full professor positions.

3.4.3 Academic Field and Job Characteristics

STEM faculty had a larger representation than non-STEM faculty in the 2003 data, whereas the proportions in the 2007 data were at about the same level. But nearly one quarter of the 2007 respondents did not report their department or academic field. The distributions of job types among STEM and non-STEM fields represent differences in the general faculty structures between these academic areas that were even more apparent in the 2003 sample than in the 2007 sample. Non-STEM respondents were clearly more often in a tenure-track or non-tenure-track instructor position, whereas STEM respondents included a higher proportion of researchers.

3.4.4 Respondents' University Careers

In 2003, the average number of years in CU positions revealed some differences along academic field and gender. The differences between STEM and non-STEM respondents were consistent

with the general variation in the job structures in these academic fields. STEM respondents had spent more years in research positions as compared to that of non-STEM respondents, reflecting the greater availability of university research positions in STEM fields. On the other hand, non-STEM respondents had spent more years in administrative positions and also as assistant professors. Generally, in 2003, women had spent longer than men as assistant professors. Also, men had spent more years as full professors than women among STEM respondents—reflecting the older age structure of the male full professor population due to lower rates of women's hiring in longer-ago cohorts. Women had spent more years than men in administrative positions in non-STEM fields. The 2007 data showed that STEM respondents had longer careers at CU than non-STEM respondents, including more years in research positions. In contrast, non-STEM faculty had worked more years in non-tenure-track teaching or tenure-track positions in other campuses.

In 2007, no clear gender difference applied to the maximum number of all years spent in different faculty positions at CU or in other campuses. Nearly one half of both women and men had worked at CU for 1 to 6 years. Most of the respondents had been working basically only at CU, but this was even more true for women. Instead, men and women differed clearly in the maximum number of years spent in tenure-track positions at CU. This gender difference applied among both STEM and non-STEM fields separately, and also to university careers in other campuses. In turn, women had longer careers than men in non-tenure-track teaching positions at CU. This difference did not appear clearly in non-tenure-track teaching careers in other campuses. Gender differences were not seen in the length of research track careers at CU, but men had spent more years than women in research positions outside CU. Most of the women and men had held a CU researcher position less than 4 years, and only 14.4 % of women and 20 % of men had held a CU research position for 10 years or more.

4. Subjects' Professional Activities

4.1. Course Release

In the 2003 survey, the respondents were asked questions regarding if and why they were released from teaching responsibilities during any semester of their experience at CU. These questions were presented in the 2003 survey only, because the 2007 team did not have an understanding of the research questions behind these survey items. Respondents marked the number of semesters that they had been released from teaching, and then chose from the offered five different reasons for the release. The five categories of reasons consisted of:

grant or fellowship funds, administrative work, sabbatical, leave or absence, and other.

If the first four categories did not apply, respondents were able to choose the response "other" and write down the reason. These other reasons were categorized and included in the list of possible reasons. Table 4.1.1 compares the average number of semesters of course release according to job type. After that the table shows the frequencies of each reported reason and the totals of the reasons for course release for tenure-track, non-tenure-track teaching, and research-track men and women separately.

Table 4.1.1: Average number of semesters of course release and reasons for course release by gender (women: N=235, men: N=201) and job type., in 2003.

Item	WOMEN			MEN		
	Tenure-track	Non-tenure-track	Research	Tenure-track	Non-tenure-track	Research
Average number of semesters of course release	3.21 (99)	1.27 (15)	2.67 (6)	3.24 (79)	0.33 (15)	.00 (7)
Reason for Course Release						
grant	40 (24.5%)	1	2	24 (23.3%)		1
administrative work	26 (16.0%)	4		10 (9.7%)	1	
sabbatical	61 (37.4%)	1	1	45 (43.7%)		
leave of absence	23 (14.1%)	1		14 (13.6%)	1	
course banking	4 (2.5%)			4 (3.9%)		
startup negotiation	3 (1.8%)			4 (3.9%)		
research semester	5 (3.1%)			1 (1.0%)		
course development	1 (0.6%)			1 (1.0%)		
TOTAL (Percent)	163 (100%)	7	3	103	2	1

The number of research faculty responding to this question was very small, as might be expected (few have regular teaching duties) but they are nonetheless included in the table (6 women, 7 men). Also, only 15 non-tenure-track teaching women and 15 non-tenure-track teaching men reported their course release. The total number of people reporting course releases was 163 women and 103 men. According to the averages, tenure-track men and women do not generally appear to differ in the number of semesters they have been released from teaching. However, tenure-track faculty averaged 2-3 more semesters of course release than non-tenure-track faculty. This is not surprising because tenure-track faculty have additional responsibilities that non-tenure-track teaching faculty do not have, for which they may need a course release. Tenure-track faculty are also more likely to have greater opportunity to obtain course releases for scholarly and creative work. On the other hand, non-tenure-track teaching women (1.27) seemed to have more course releases than non-tenure-track teaching men (.33). And, also research-track women who responded had course releases (2.67) whereas research men did not have that.

Men and women differed as to why they received a course release. More women (43) than men (25) received course release because they were awarded a grant. Thirty women received course release for administrative work, 63 due to sabbatical, and 24 due to a leave of absence. These numbers are higher than men among whom 11 received course release for administrative work, 45 due to sabbatical, and 15 due to a leave of absence. The numbers also show that men and women share the same reasons for course release. There is not a disproportionate number of women receiving course release due to leaves of absence, but tenure-track men (43.7%) were slightly more often released for sabbatical than tenure-track women (37.4%). Instead, tenure-track women (16%) were slightly more often than men (9.7%) released due to administrative work.

4.2 Course Load and Graduate Students

A question of the number of courses that the respondents taught per semester was asked both in the 2003 and 2007 survey. In 2003, the respondents wrote down the number of courses, whereas the numbers of courses were categorized in the 2007 survey. These categories were:

0, 1, 2, 3, 4 or more.

Answers to this question from the 2003 survey were recoded according to these five categories in order to be consistent with the 2007 survey results.

A question of the number of graduate students was also presented in 2003 and 2007 surveys. Again, the 2003 respondents wrote down the number of graduate students that they then advised or supervised. In 2007 survey, the respondents chose their answer from five different categories that were:

0, 1 - 2, 3 - 5, 6 - 9, 10 or more.

The answers from the 2003 survey were recoded into these five categories, again to be consistent with the 2007 data.

4.2.1 Job Type and Instructional Duties

Figures 4.2.1a illustrates the proportions, by category, of faculty with particular course loads for each job category in 2007. The number of responses from research and non-tenure-track teaching faculty in 2003 was very low, with only 19 answers from researchers and 30 from teaching faculty. However, the results for this question in 2007 were very similar to the situation in 2003 for tenure-track and non-tenure-track teaching faculty. Most research faculty (91.2 %) did not have any courses in 2007, whereas 57.9 % had at least 1 course per semester in 2003. For non-tenure-track teaching faculty, the typical course load was 3 courses per semester both in 2003 (43.3 %) and in 2007 (38.3 %). This job category is the primary one for faculty who are primarily responsible for teaching, but in 2007 we could identify some non-tenure-track teaching faculty who reported no courses—reflecting the variety of ways that departments use the "instructor" job title. And 13.3 % of non-tenure-track teaching faculty had only one or no courses per semester in 2003, whereas the percentage in 2007 was 28.7 %.

The typical course load for tenure-track faculty was:

- two courses in 2003 (63.2 %).

- In 2007, 52.3 % of them had two courses, and

- 39.3 % of them had only one course in 2007.

These percentages indicate a slight (statistically significant, p< .05) decrease in the numbers of courses from 2003 to 2007 among tenure-track respondents. These proportions indicate expected differences in the course load between the three job categories, both in 2003 (p< .000) and in 2007 (p< .000). Tenure-track faculty taught 1-2 courses per semester, whereas non-tenure-track teaching faculty taught 2-4 courses per semester and researchers did not typically teach.

Figure 4.2.1a. Number of courses by job type, in 2007 (tenure: N=262, non-tenure-track: N=94, research: N=193).
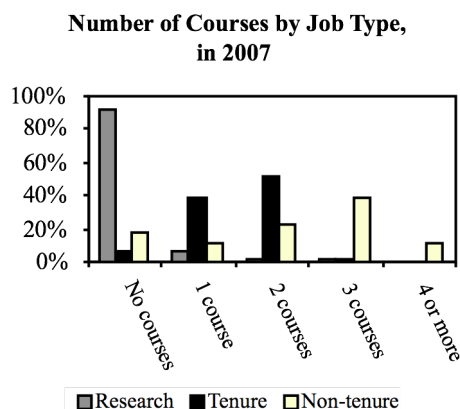
Figure 4.2.1b. Number of graduate students by job type, in 2007 (tenure: N=266, non-tenure- track: N=92, research: N=194).

Number of Courses by Job Type, in 2007

Number of Graduate Students by Job Type, in 2007
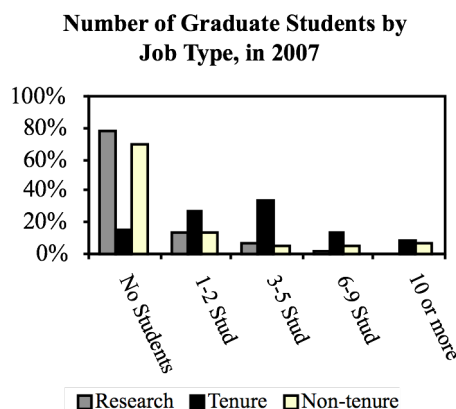
As expected, a difference (p< .000) was seen in the number of graduate students supervised by people in the three job groups, both in 2003 and 2007. Researchers typically had no graduate students (2003: 67 %, 2007: 77.3 %). Also, non-tenure-track teaching faculty did not typically have graduate students (2003: 63.3 %, 2007: 69.6 %). Instead, tenure-track teaching faculty:

- had most typically 3-5 graduate students, (35.4 %) in 2003 and (34.6 %) in 2007.

- 28.3 % of them in 2003 and 22.2 % of them in 2007 had at least 6 graduate students.

No clear changes could be detected in the numbers of graduate students supervised between 2003 and 2007, within any of the job groups.

4.2.2 Gender and Instructional Duties

Figures 4.2.2a (2003) and 4.2.2b (2007) show the distributions of course loads for women and men separately. A statistically significant general gender difference applied to the number of courses taught per semester in 2007 (p< .001) but not in 2003. In 2007,

- 40.8 % of women and 36.5 % of men had no courses.

- In turn, 28.4 % of men but 15.5 % of women had one courses,

- whereas 13.1 % of women but 3.7 % of men had three courses.

A more detailed analysis pointed to a gender difference in instructional load among tenure-track respondents (p< .05) but not among non-tenure-track teaching or research faculty. However, when we compare the frequencies between 2003 and 2007 for women and men separately, we see clear differences in the frequencies both for women (p< .000) and men (p< .000). Course loads were clearly lower in 2007 than in 2003 for both women and men. For example,

- 49.1 % of men and 58.5 % of women had two courses per semester in 2003.

- But the percentages in 2007 were 28.8 % for men and 29 % for women.

The decreases detected in course load reflect the highly varying number of the researchers who answered to this question between 2003 (N=19) and 2007 (N=193). They typically do not have a course load. Also, the number of responding non-tenure-track teaching faculty was higher in

2007 (N=94) than in 2003 (N=30), but their course load was similar between 2003 and 2007.

Figure 4.2.2a: Number of courses taught per semester by gender, in 2003 (women: N=123, men: N=108)
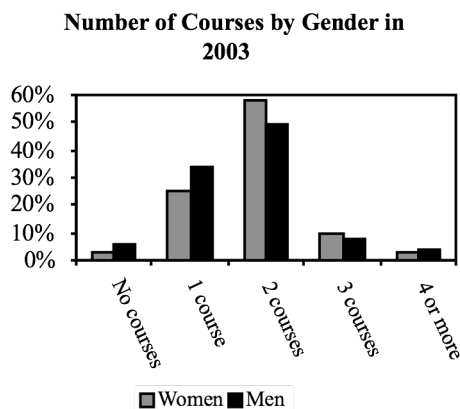
Figure 4.2.2b: Number of courses taught per semester by gender, in 2007 (women: N=245, men: N=299).

Number of Courses by Gender in 2003

Number of Courses by Gender in 2007
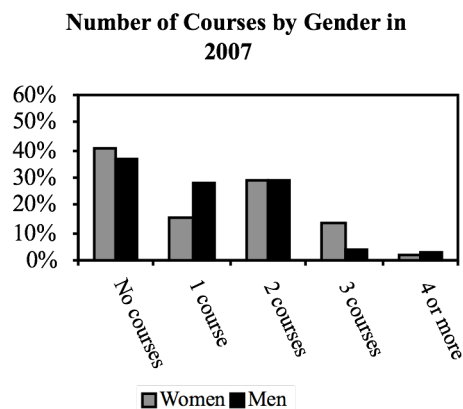
A general gender difference applied also to the number of graduate students supervised in 2007 ($p < .01$) but not in 2003. Figure 4.2.3a shows the differences in the frequencies.

- 52.4 % of women and 42.5 % men had no graduate students.

- 23.3 % of men had 1-2 students and also 23.3 % of them had 3-5 students,

- whereas the percentages were 16.7 % and 15.9 % for women respectively.

- In turn, 7.3 % of women and 3 % of men had 10 or more graduate students.

- In all, men seemed to have more often 1-5 graduate students, but women tended to have more often 10 or more graduate students.

A further analysis indicated that the gender differences applied only to tenure-track faculty ($p < .05$). Among tenure-track faculty:

- 29 % of women but 18 % of men had at least 6 graduate students.

- In turn, 20.4 % of women but 13.2 % of men had no graduate students.

Some smaller variation applied to the frequencies between 2003 and 2007 among women and among men. Both gender groups had most commonly no graduate students in 2003 (w: 42 %, m: 41.1 %) and in 2007 (w: 40.8 %, m: 36.5 %). But the proportions having either 1-2 or 3-5 graduate students slightly decreased among women from 2003 (18.3 %, 22.3 %) to 2007 (16.7 %, 15.9 %). In turn, the proportion of faculty having at least 6 graduate students was slightly lower in 2007 than in 2003 for both women (2007: 15 %, 2003: 17.4 %) and men (2007: 11 %, 2003: 13.9 %).

Figure 4.2.3a: Number of graduate students by gender, in 2003 (women: N=224, men: N=180).
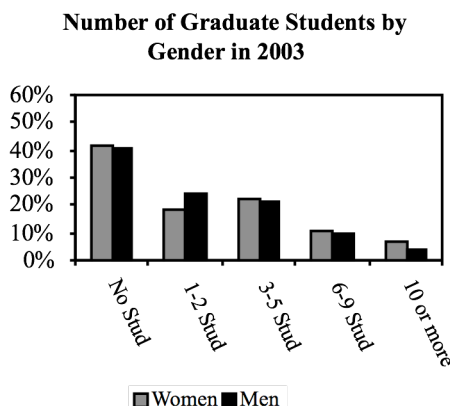
Figure 4.2.3b: Number of graduate students by gender, in 2007 (women: N=246, men: N=301).

Number of Graduate Students by Gender in 2003

Number of Graduate Students by Gender in 2007
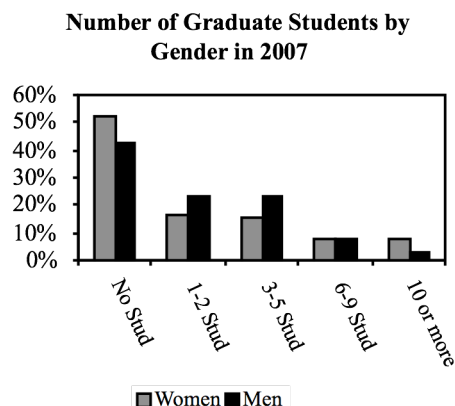
4.2.3 Academic Field and Instructional Duties

Clear differences applied to STEM and non-STEM respondents' course loads (p< .001) and to the number of graduate students supervised (p< .01) in 2007. As Figures 4.2.4a and 4.2.4b show, faculty from non-STEM fields clearly taught more courses per semester than STEM faculty. They also worked with more graduate students than STEM faculty (although what they defined as "working" with graduate students is also probably different). Similar differences also applied to the 2003 data, but the number of answers to these questions was clearly lower then than in 2007, especially for the number of courses taught (STEM: N=96, non-STEM: N=96). These differences are related to general differences in the faculty structure between STEM and non-STEM faculty in CU, with a larger proportion of STEM faculty consisting of researchers and a larger proportion of non-STEM faculty having tenure-track (professor) positions.

Some differences (p< .05) applied to the numbers of graduate students for non-STEM respondents between 2003 and 2007. In 2003, 26.8 % of them had no graduate students whereas 41% of them in 2007 had no graduate students. And differences were also observed in the number of courses between 2003 and 2007, both among STEM (p< .000) and non-STEM (p< .000) respondents.

• In 2003 only 8.3 % of STEM respondents had no courses But in 2007, 53.7 % of them had no courses.

• Also, 35.4 % of STEM respondents had two courses in 2003 but that applied only to 14.5 % of them in 2007.

• Similar trend applied to non-STEM respondents' course load, but a decrease (10.8 % - 15.6 %) could be detected in the percentage having 3 courses per semester.

Further analysis revealed that the differences between STEM and non-STEM fields in 2003 applied especially to tenure-track faculty in the number of courses (p< .001) but also slightly to research faculty in the number of graduate students (p< .05). Non-STEM tenure-track faculty had typically (71.7 %) two courses per semester, whereas STEM tenure-track faculty had typically (51.4 %) one course per semester. And, research faculty in non-STEM fields had more often graduate students than in STEM areas, but the number of non-STEM research respondents was

then only 19 (STEM researchers: N=159).

Figure 4.2.4a: Number of courses per semester for STEM (N=255) and non-STEM (N=237), separately, in 2007.
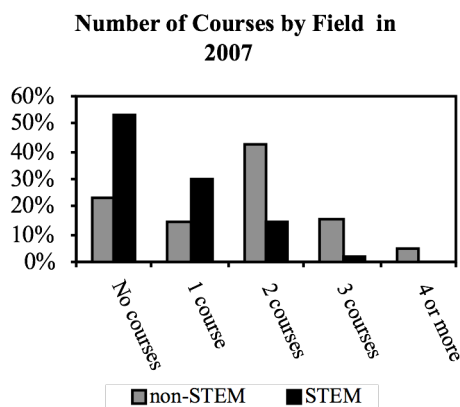
Figure 4.2.4b: Number of graduate students for STEM (N=255) and non-STEM (N=239) separately, 2007.

Number of Courses by Field in 2007

Number of Graduate Students by Field in 2007
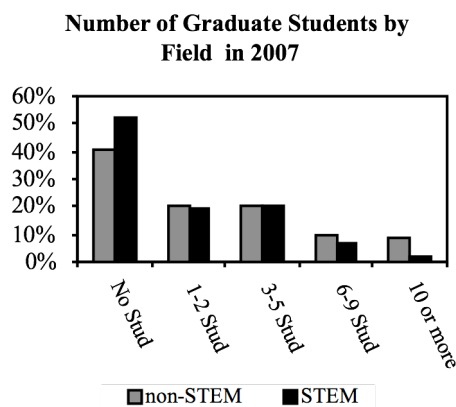
Further analyses for the 2007 data indicated differences between STEM and non-STEM fields among each job category, both in the number of graduate students (p< .05) and in the number of courses (p< .001). Among tenure-track faculty:

- STEM respondents had typically (69.1 %) only one course per semester,

- whereas, non-STEM respondents had typically (67.9 %) two courses per semester.

- In turn, unlike in STEM fields, non-STEM tenure-track faculty might have 10 or more courses per semester.

A clear difference in the number of courses between STEM and non-STEM fields applied also to non-tenure-track faculty (p< .001). Non-STEM non-tenure-track teaching faculty:

- had typically (54.1 %) 3 courses per semester whereas non-tenure-track faculty in STEM fields had typically (52.4 %) 2 courses per semester.

- Also, unlike in STEM fields, non-STEM non-tenure-track faculty might have 4 or more courses (14.8 %).

Furthermore, a slight difference in the number of courses appeared between STEM and non-STEM fields among research faculty (p< .05). Unlike researcher in STEM fields, other researchers (non-STEM) might have 3 courses per semester.

4.3 Negotiation of Offers

Both in 2003 and 2007 survey we asked about whether or not respondents had negotiated their job offers for benefits such as salary, workload, and space, at the time they were hired in a position at CU. If they had negotiated for their job offer, they were further asked whether they had received what they negotiated for. And if they had not negotiated for offers, they were asked whether or not they knew that they could negotiate. Here we consider respondents' answers

along with their gender, scientific field and job type, with respect to their negotiation of offers, reception of offers, and awareness of negotiation.

4.3.1 Gender and Negotiation

Negotiation

No general gender difference was found in respondents' reports of negotiating offers at the time of hire in 2003 or in 2007 (see Figure 4.3.1).

- Only 30.7 % (71) women and 35.9 % (71) men negotiated offers in 2003.

- Comparable percentages reporting negotiation in 2007 were 35.5 % (88) and 30.4 % (91).

Accordingly, slightly more men than women negotiated offers in 2003 but the opposite applied to the 2007 data. And the negotiation of offers slightly increased from 2003 to 2007 among women (30.7 % to 35.5 %) but slightly decreased among men (35.9 % to 30.4 %).

Figure 4.3.1: The proportion of the women and men (separately) who negotiated offers for in 2003 (Women: N=81-231; Men: N=85-198) and in 2007 (Women: N=88-248; Men: N=102-299).
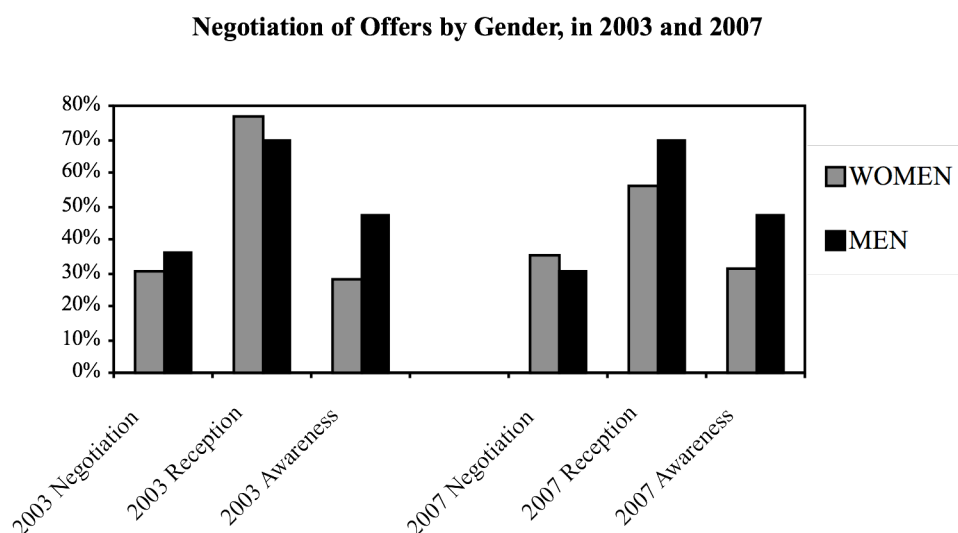
Success in Negotiation

No general gender difference appeared in whether respondents had received what they had negotiated for in 2003, but a slight statistically significant difference (p< .05) applied to this variable in 2007.

- In 2003, 76.5 % (62) of women and 69.4 % (59) of men reported that they received what they negotiated for.

- The percentages in 2007 were 55.7 % for women (49) and 69.6 % for men (71).

Thus, a slightly higher percentage of women than men received what they asked for in their negotiations in 2003 but this was not the case in 2007. In turn, the reception of negotiated benefits decreased (p< .01) among women from 2003 to 2007 (76.5 % to 55.7 %) but stayed at

the same level among men (69.4 % to 69.6 %). These percentages reflect the fact the negotiations were slightly more often beneficial for men than for women in 2007. Women were slightly better at it in 2003 or at least more satisfied with the results of their negotiations.

Knowledge of Negotiation

A clearer difference applied to respondents' awareness of the opportunity to negotiate offers both in 2003 ($p < .01$) and in 2007 ($p < .01$). Men were clearly more often aware of this possibility than women.

- In 2003, the percentages reporting awareness were 28.0 % for women and 47.3 % for men,

- And, in 2007, the percentage were 31.1 % for women and 47.5 % for men.

Awareness of the possibility of negotiation slightly increased from 2003 to 2007 among women (28% to 31.1%) but not among men (47.3% to47.5%). Overall, it appears that while men in 2003 and in 2007 were more aware that they could negotiate, about the same number of women and men did negotiate offers.

4.3.2 Academic Field and Negotiation

As Figure 4.3.2 shows, no difference was found in the success of negotiations upon hiring between STEM and non-STEM respondents in 2003 or in 2007. However, clear differences did appear between these groups of respondents in their tendency to negotiate both in 2003 and 2007.

Figure 4.3.2: The proportion of STEM and non-STEM respondents (separately) who negotiated offers for 2003 (STEM: N=89-260; Non-STEM: N=81-176) and 2007 (STEM: N=74-253; Non-STEM: N=94-240).

Negotiation by Academic Field, in 2003 and 2007
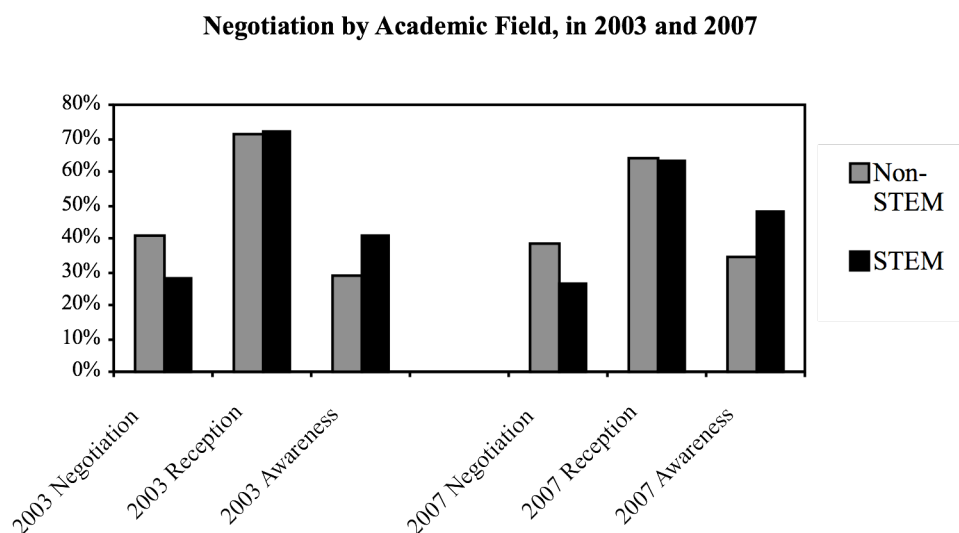
- In all, 28.1 % (73) of STEM respondents but 40.9 % (72) of non-STEM faculty reported of taking these negotiations in 2003 ($p < .01$).

- The equivalent percentages in 2007 were 26.1 % for STEM and 38.3% for non-STEM respondents ($p < .01$).

Accordingly, STEM respondents seemed to negotiate offers less often than non-STEM faculty. However, the difference found between STEM and non-STEM faculty's awareness of the negotiation was just the opposite. STEM faculty were slightly more aware of this possibility (40.8 %) than non-STEM faculty (29.2 %) both in 2003 and in 2007 (STEM: 48 %; non-STEM: 34.8 %), but the difference was statistically significant only for the 2007 data (p< .05). Overall, no clear differences could be found in the negotiation-related items between 2003 and 2007.

Gender Differences in Negotiation by Academic Field

Analyses of the negotiation items within STEM and non-STEM fields separately indicated statistically significant gender differences in awareness of negotiation in 2003 but not in 2007. In 2003,

- men (50.6 %) were more often aware of this opportunity than were women (33.3 %) in STEM fields (p< .05).

- This applied also to men (41.5 %) and women (20.3 %) in non-STEM fields (p< .05).

Moreover, a (statistically significant) gender difference was found within STEM fields in the percentages who had negotiated offers in 2003 (p< .01). STEM men (36.1 %) negotiated more often than STEM women (19 %) in 2003.

No (statistically significant) gender difference was found in the proportions reporting negotiation within STEM or non-STEM fields in 2007. But for the 2007 data, a difference appeared between men's and women's negotiation success for those in non-STEM fields (p< .05). Non-STEM men more often (78.9 %) had received the negotiated benefits than had non-STEM women (52.7 %).

4.3.3 Job Type and Negotiation

Differences in respondents' negotiation of job offers were studied also with respect to their CU job type. Table 4.3.1 shows the percentages reporting affirmative answers to these items within each of the three job groups, in 2003 and 2007 separately.

Tenure-track faculty:

- more often negotiated offers at the time of their hire than did non-tenure-track teaching and research faculty, both in 2003 (p< .01) and in 2007 (p< .001).

- Tenure-track faculty also more often received what they negotiated for (p< .05) in 2003, but this was not the case in 2007.

The number of non-tenure-track teaching faculty was low in 2003 (7-34 responding to the items), but they

- negotiated and received offers the least often in 2003, among all job types.

- In 2007, they seemed to have the least awareness of this option (p< .01).

- The proportions reporting both negotiation activity and success were better for non-tenure-track teaching faculty in 2007 than in 2003.

A clear increase in the proportion reporting awareness of negotiation from 2003 (28.7 %) to 2007 (48.3 %) applied to tenure-track faculty (p< .01). However, their success in negotiating these offers decreased from 2003 (77.1 %) to 2007 (63.7 %, p< .05). The changes among non-tenure-track teaching faculty were not statistically significant, again mainly due to the varying number of respondents.

No changes between 2003 and 2007 applied to the negotiation items among the research faculty. Researchers did not negotiate very often, but when they did they also tended to receive what they negotiated for (this may reflect the success of a small proportion of high-status research faculty). Similar to the other two job groups,

- more than one half of negotiating research faculty (2003: 66.7 %, 2007: 66.7 %) received what they negotiated for.

- But they clearly negotiated less often than tenure-track faculty (2003: 21.8 %, 2007: 19.2 %).

- However, researchers were quite well aware of the negotiation possibility (2003: 42.5 %, 2007: 41.8 %).

Table 4.3.1: Percentages reporting success on negotiation items by job group, in 2003 and 2007.

	2003				2007			
Negotiation	Tenure	Non-tenure	Research	Sig. level	Tenure	Non-tenure	Research	Sig. level
negotiated at time of hire	47.8%	11.8%	21.8%	***	45.5%	25.5%	19.2%	***
received what negotiated for	77.1%	28.6%	66.7%	*	63.7%	57.7%	66.7%	
aware of negotiation	28.7%	29.6%	42.5%		48.3%	19.4%	41.8%	**

* p<.05; **p<.01, ***p<.001

Negotiation of Offers in Job Groups by Gender

The same differences that applied to whole job groups were valid also separately among women and men.

- Tenure-track women more often (p< .001) than other women negotiated for offers in 2003 (46 %) and in 2007 (55.9 %).

- Also, tenure-track men more often than other men negotiated for offers in 2003 (p< .01, 50 %) and in 2007 (p< .001, 50.9 %).

No clear (statistically significant) difference was found between the three job groups in the awareness of negotiation as an option among women in 2003 or 2007. Most women in each job category did not have knowledge of that option (2003: 65.9 % to 85.7 %; 2007: 65.2 % to 82.9 %, for the three groups). Nor was a (statistically significant) difference in this awareness between the three job categories found among male respondents in 2003 or 2007. The percentages who did not have negotiation knowledge among male respondents varied between 46.4 % (researchers) and 60.9 % (tenure-track) in 2003 and between 47 % (tenure-track) and 76.2 % (non-tenure-track) in 2007.

No clear difference in the success of negotiation was found between the three job groups among men in 2007 or among women in 2003 and 2007. But a slight difference (p< .05) applied to the

job groups among men in 2003. Non-tenure-track men received the least often (20 %) what was negotiated for; however, the number of non-tenure-track respondents was very low in 2003.

4.4 Mentoring

The climate surveys in 2003 and 2007 asked respondents whether they had a CU campus mentor and then asked them to describe their mentors in more detail. They reported how many mentors they did have, the gender of their primary mentor, and whether their mentor was in the same primary CU unit. The first question was stated in the form:

> "Is there anyone whom you currently regard as a mentor—someone who gives advice and counsel on career issues and/or sponsors or advocates for you?"

After this, the respondents were able to mark the number of their mentors, the gender of their primary mentor, and whether or not she/he was in the same primary unit. Rrespondents were separately asked about the number of faculty/researchers that they mentored at CU. This did not include (graduate) students. In the 2003 survey, they wrote in the number of mentored faculty, but in the 2007 survey they were offered four different categories to answer. These categories were:

> 0, 1 - 2, 3 - 4, 5 or more.

The 2003 survey responses to this question were categorized by these four categories, to be consistent with the 2007 answers.

4.4.1 Job Group and Mentors

The number of mentors

In 2003, around one half of faculty in each job category had at least one mentor at the CU campus (see table 4.4.1). The proportions in 2007 were slightly lower than this. The difference was statistically significant (p< .01) among all respondents, and the decrease (p< .01) applied further to researchers separately.

Among research faculty,

- 52.8 % of them had a mentor in 2003, whereas only 39.3 % of them had a mentor in 2007.

- The number of the mentors varied between 1 and 6 mentors in 2003 and between 1 and 3 mentors in 2007.

- Researchers had most often (55.1 %) only one mentor in 2003 and also in 2007 (63.2 %). In this respect, researchers differed from the other two faculty groups.

Tenure-track faculty:

- typically had 1 (31.9 %) or 2 (30.9 %) mentors in 2003,

- although one respondent reported 10 mentors and another respondent reported 27 mentors.

- Likewise, the typical number of mentors for tenure-track faculty in 2007 was 1 (47 %) or 2 (34.2 %).

In addition, non-tenure-track faculty:

- had most often 1 (35.7 %) or 2 (35.7 %) mentors in 2003.

- This applied also to the 2007 data, with the percentages 34.3 % and 48.6 % respectively.

Two tenure-track respondents and four researchers reported in 2003 that they had no mentor in the campus.

Table 4.4.1: Percentages reporting positive responses to mentoring items by job group, in 2003 and in 2007.

	2003				2007			
Mentoring	Tenure-track	Teaching	Research	Sig. level	Tenure-track	Teaching	Research	Sig. level
had a mentor	49%	47.1%	52.8%		45.4%	39.8%	39.3%	
mentor was male	64.3%	71.4%	75.2%		58.5%	38.2%	75%	**
mentor was in same unit	69.9%	64.7%	79.2%		77.1%	74.3%	85.5%	

* p<.05; **p<.01, ***p<.001

Gender and Unit of the Primary Mentor

As Table 4.4.1 indicates, most respondents had a primary mentor who was male in 2003, within each job group (range 64.3 % to 75.2 %). However, less than one half (38.2 %) of non-tenure-track teaching faculty had a male mentor in 2007. The difference between 2003 and 2007 data in the gender of primary mentor was statistically significant (p< .05) among all the respondents. Respondents in 2003 more often had male mentors than in 2007. The percentage of male mentors was a bit lower (58.5 %) in 2007 than in 2003 (64.3%) also for tenure-track faculty separately. However, researchers' primary mentor was most often male, both in 2003 and 2007.

The mentors reported were most often faculty from the same unit, both in 2003 (64.7 % to 79.2 %) and in 2007 (74.3 % to 85.5 %), among each of the three job groups.

4.4.2 Gender and Mentors

Some statistically significant differences were found between women and men in the mentoring items. Figure 4.4.1 describes the proportions for the three mentoring items among women and men separately, in 2003 and in 2007.

- A slight gender difference (p< .05) appeared in the proportion who had a mentor in 2003.

- More than one half of women (55.4 %) and less than one half of men (45.3 %) had a campus mentor in 2003.

- This difference was not statistically significant in the 2007 data.

Figure 4.4.1: Mentoring items by gender, in 2003 and in 2007.

Mentors by Gender in 2003 and 2007
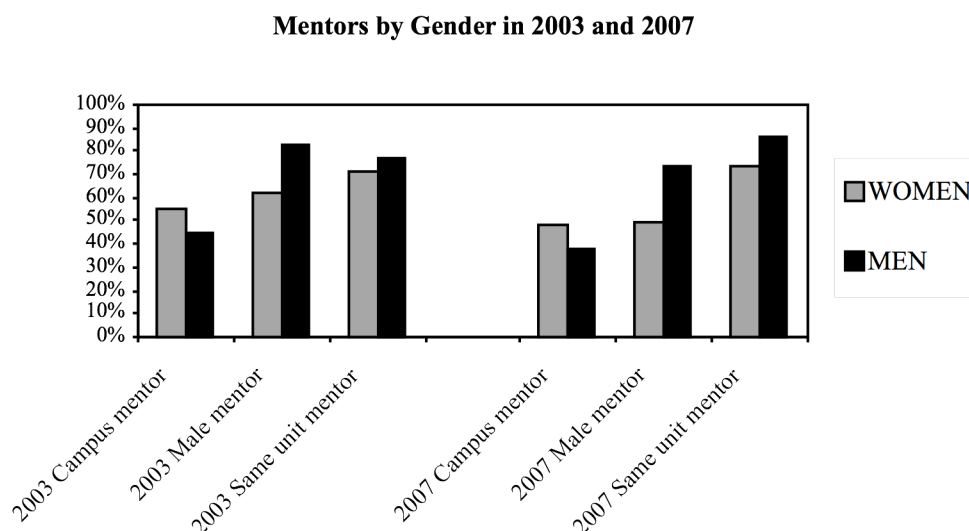
Less than one half of both women (48.4 %) and of men (37.9 %) had a campus mentor in 2007. A clearer gender difference was seen in the gender of primary mentor, both in 2003 (p< .01) and in 2007 (p< .001). Men tended to more often have a male mentor.

- 82.2% of men but 61.5% of women had a male mentor in 2003.

- These percentages in 2007 were 73.0 % for men and 49.6 % for women, thus indicating a still more distinct gender difference in this item.

Male respondents' mentors (85.7 %) seemed to be slightly more often (p< .05) faculty from the same unit than for women (73.5 %), in 2007. This difference did not apply to the 2003 data. No clear gender difference could be found in the number of mentors in 2003 or in 2007.

- Both men (2003; 46.6 %, 2007: 26.2 %) and women (2003: 40.7 %, 2007: 30.5 %) typically reported having one or two mentors in 2003.

- Similarly, 47.0 % of women and 55.0 % of men had one mentor, and 38.5 % of women and 26.1 % of men had two mentors in 2007.

- The differences in these percentages between 2003 and 2007 were not statistically significant in either year.

4.4.3 Academic Field and Mentors

In considering the mentoring items for STEM and non-STEM respondents separately, differences were found in the gender of the primary mentor (p< .01) and in the unit of the primary mentor (p<.05), both for 2003 and 2007 data (see Figure 4.4.2).

Figure 4.4.2: Mentoring items in 2003 and 2007 by academic field.

Mentors by Field, in 2003 and 2007
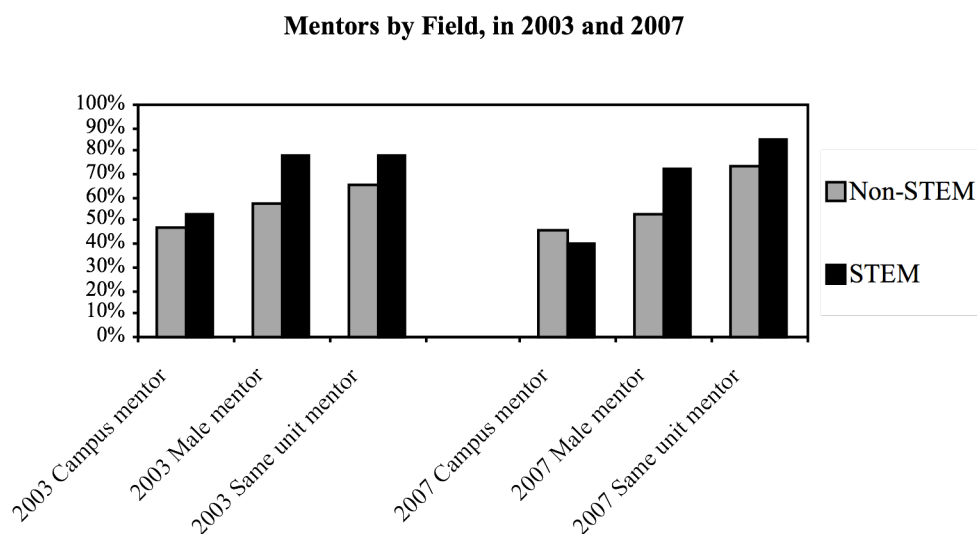
STEM faculty

- had a male mentor more often (2003: 77.6 %; 2007: 72.3 %) than non-STEM respondents (2003: 57.5 %; 2007: 52.3 %).

- Their mentor also more often worked at the same unit, both in 2003 (78.7 %) and in 2007 (85.3 %), as compared to the mentors of the non-STEM respondents (2003: 65.1 %; 2007: 73.4%).

- In 2003, a bit more than one half of the STEM respondents (52.7 %) had a mentor.

- This proportion was lower (p< .01) in 2007, at 40.3 %, for STEM respondents.

Both STEM and non-STEM respondents' primary mentor was male slightly more often in 2003 than in 2007. In turn, both groups of respondents had a mentor from the same unit slightly more regularly in 2007 than in 2003. The total number of mentors in 2003 for STEM respondents varied between 0 and 27, with most having 1 (45.7 %) or 2 (32.3 %) mentors. One of the STEM respondents reported 10 mentors and another even 27 mentors. For non-STEM respondents, the total number of mentors in 2003 varied between 0 and five. Of these, 38.8 % of them had one mentor, 23.8 % of them had 2 mentors, and 21.2 % of them reported 3 mentors.

Overall, for non-STEM respondents, the number of mentors exceeded that of the STEM respondents in 2003. Also in 2007 they seemed to more often have two instead of one mentor as compared to STEM respondents. In 2007, the number of mentors reported by respondents in STEM fields varied between 1 and 3 with most (53.9 %) having one mentor. For non-STEM respondents, the total number of mentors in 2007 varied also between 1 and 3, with 45.4 % of them having 1 mentor and 37.0 % of them having 2 mentors.

4.4.4 Number of Mentees

Respondents also reported the number of faculty or researchers they were mentoring at that time, in 2003 and in 2007. No difference applied to the number of faculty they mentored between 2003 and 2007 data (see Table 4.4.2). More than one half of respondents (2003: 59.0 %, 2007: 57.2 %)

did not have any mentees. A quarter of respondents had one to two faculty members to be mentored, and only 6.4 % in 2003 and 7.2 % in 2007 had 5 or more members of faculty that they mentored at that time. No gender difference applied to the number of mentees in 2003 nor in 2007.

Table 4.4.2: Percentages reporting a given number of faculty being mentored, in 2003 and in 2007.

	Mentored faculty				
Year	0	1 - 2	3 - 4	5 or more	Total
2003	232 (59.0%)	101 (25.7%)	35 (8.9%)	25 (6.4%)	393 (100%)
2007	310 (57.2%)	149 (27.5%)	44 (8.1%)	39 (7.2%)	542 (100%)
Total	542 (58.0%)	250 (26.7%)	79 (8.4%)	64 (6.8%)	935 (100%)

As expected, clear (p< .001) differences appeared in the numbers of faculty being mentored along with the respondents' job type. Tenure-track respondents reported mentoring the most faculty, whereas researchers (2003: 77.6 %, 2007: 72.4 %) and non-tenure-track teaching faculty (2003: 64.5 %, 2007: 71.7 %) did not typically mentor other faculty members. Tenure-track respondents either had no faculty who they mentored (2003: 41.3 %, 2007: 40.4 %) or had 1 – 2 faculty mentees (2003: 36.0 %, 2007: 38.1 %).

A difference applied to the number of faculty or researches being mentored between the academic fields in the 2003 data (p< .01), but not in the 2007 data. STEM respondents did less mentoring as compared to non-STEM respondents.

In 2003,

- most STEM respondents (65.7 %) reported no faculty being mentored,

- whereas 49.1 % of non-STEM respondents had no faculty being mentored,

- but 30.8 % of them reported 1-2 and 13.8 % of them reported 3-4 faculty members being mentored.

- These percentages for STEM respondents in 2003 were 22.3 % and 5.6 % respectively.

In the 2007 survey,

- 58 % of STEM respondents and 55.3 % of non-STEM respondents reported no faculty being mentored.

- Again, 30.2 % of non-STEM and 25.1 % of STEM respondents had 1-2 faculty members being mentored.

- No clear differences applied to the number of faculty being mentored between 2003 and 2007.

These differences may be explained mainly by the titles or jobs of the responding faculty. Unlike non-STEM respondents, most of the STEM respondents were on a research track as professional research assistants or research associates, especially in the 2003 data. They thus had fewer formal mentoring duties, and especially for PRAs, may be less likely to have colleagues whom they supervise or otherwise feel they can mentor.

4.5. Summary of Subjects' Professional Activities

4.5.1 Courses and Students

The 2003 survey asked about the reasons and amount of course release. Tenure-track faculty had more semesters of course release than did non-tenure-track teaching faculty. And non-tenure-track women had more course release than non-tenure-track men. Also, unlike men in the research track, women in this track did sometimes report a course release. Men and women generally shared the same reasons for course release. Women received course releases due to award of a grant, administrative work, sabbatical, and a leave of absence, and men received course releases for administrative work, sabbatical, or a leave of absence. Tenure-track men were slightly more often released for sabbatical than were tenure-track women (this may reflect a higher proportion of more senior men in the sample). Instead, tenure-track women were slightly more often than men released for administrative work.

Both the 2003 and 2007 climate surveys gathered information on the number of courses taught by respondents. These results were expected, with differences in the course load between the three job categories. Tenure-track faculty typically taught 1-2 courses per semester, whereas non-tenure-track teaching faculty taught 2-4 courses per semester and researchers did not typically teach. The results showed a slight decrease in the numbers of courses from 2003 to 2007 among tenure-track respondents. Likewise, the number of graduate students between the three job groups differed as expected. Researchers and non-tenure-track faculty (instructors) typically had no graduate students, while tenure-track faculty had typically 3-5 graduate students. No clear changes appeared in this between 2003 and 2007.

Slight gender differences applied to the number of courses taught per semester and to the number of graduate students among tenure-track faculty in 2007 but not in 2003. Tenure-track women more often than men had either no course or three courses, whereas tenure-track men had slightly more often only one course per semester. In turn, those tenure-track women who had graduate students tended to have them in a larger number than men. Generally, course loads were higher in 2007 than in 2003 both for women and men, but a slight decrease applied to the number of graduate students from 2003 to 2007.

The differences between STEM and non-STEM respondents indicated the general difference in job structures between these academic fields. As STEM respondents were more often researchers, non-STEM faculty had clearly more courses and graduate studentss compared to STEM faculty. However, especially in 2007, tenure-track faculty among non-STEM fields had typically more courses and graduate students than those in STEM fields. Non-STEM research faculty more often had graduate students than did those in STEM areas, and non-tenure-track teaching faculty had more courses in non-STEM fields than in STEM fields (perhaps related to typical disciplinary patterns in class sizes). Some decreases from 2003 to 2007 applied to the number of courses and graduate students.

4.5.2 Negotiation of Offers

Respondents were asked about their negotiation of offers at the time of hiring both in the 2003 and 2007 survey. No clear general gender difference appeared in the frequencies of negotiation, and only about 30% of both men and women negotiated offers. But among STEM faculty, men negotiated more often than women in 2003. Men succeeded in general slightly better than women in obtaining negotiated benefits in 2007. This difference appeared more clearly among non-STEM respondents. In 2003, about three quarters of both women and men received what they negotiated for. But men were clearly aware more often than women of the possibility to negotiate, both in 2003 and 2007. A slight increase appeared in this knowledge between 2003 and 2007 among women but not among men.

The success of negotiation did not differ between STEM and non-STEM respondents, but non-STEM respondents clearly more often negotiated their offers as compared to STEM respondents, both in 2003 and 2007. However, STEM faculty seemed to be slightly more aware of this possibility than non-STEM faculty in 2007. But no changes appeared in the negotiation items between 2003 and 2007 among either group.

Clear differences in the likelihood and success of negotiation of job offers appeared in terms of respondents' job type. Tenure-track faculty more often negotiated offers at the time of their hire than did non-tenure-track teaching and research faculty, both in 2003 and 2007. This was also the case separately among women and men. Tenure-track faculty most often received what they negotiated for in 2003. In 2007, non-tenure-track teaching faculty were the least often aware of the possibility to negotiate offers, whereas research faculty was clearly aware of this possibility, both in 2003 and 2007. No clear job-related differences in the frequency or success of negotiation were perceived among women or men separately.

4.5.3 Mentoring

Both the 2003 and 2007 surveys asked the number, gender and unit of the respondents' primary mentors. In 2003, about one half of faculty in each job category had at least one mentor at the CU campus, but the proportions were slightly lower in 2007. This applied especially to research faculty. Researchers had most often only one mentor, whereas tenure-track and non-tenure-track teaching faculty had typically 1-2 mentors.

Most of the respondents in each job category reported a male mentor in 2003 and 2007, but this was more apparent in 2003 than in 2007. Researchers' primary mentor was most often male in both 2003 and 2007, whereas non-tenure-track faculty's mentors were least often male in 2007. The mentors most often came from the same unit in 2003 and 2007.

In 2003, slightly more women than men had a campus mentor, but this did not apply in 2007. Men more often than women had a male mentor, both in 2003 and 2007. Men's mentors more often were from the same unit than for women in 2007 but not in 2003. No clear gender difference applied to the number of mentors reported in 2003 or 2007. Both men and women had typically 1-2 mentors. No difference between 2003 and 2007 appeared in the number of mentors among men or women separately.

STEM faculty had a male mentor more often than did non-STEM faculty. Their primary mentors also more often worked at the same unit, both in 2003 and 2007. In turn, non-STEM respondents more often had 1-2 mentors, whereas STEM respondents had most typically only one mentor. This applied both in 2003 and 2007.

The respondents were also asked about the number of faculty they mentored. More than one half of respondents did not have any faculty or researchers to mentor in 2003 or 2007, and a quarter had one or two faculty members to be mentored. No clear differences applied to these percentages between the 2003 and 2007 data, nor between male and female respondents. As expected, tenure-track faculty mentored the most faculty, whereas researchers and non-tenure-track teaching faculty did not typically have mentees. Tenure-track respondents mentored either no or 1-2 faculty members. Also, as more of the STEM respondents were on a research track, they mentored fewer faculty than did non-STEM respondents. No clear differences applied to the numbers of faculty mentored between 2003 and 2007 among either of the two academic groups.

5. *LEAP Program*

Both the 2003 and 2007 climate surveys asked about respondents' knowledge of the Leadership Education for Advancement and Promotion (LEAP) program. In the 2003 survey, the respondents were asked to indicate whether they had heard of LEAP or not, and if they had participated in a LEAP activity. Another question asked how (or from whom) they learned about the program. This information was not gathered in 2007, because the program was then well established and more detailed information was required. Instead, in the 2007 post-survey, respondents were asked to specify in which, if any, LEAP activities they had participated, from 12 different categories. In addition, 2007 respondents reported what gains they had made as a result of participating in LEAP activities. Again, they could choose from a list of 14 different categories of gains, which were based on the gains reported in a series of interviews with participants in workshop, coaching, and other activities sponsored by LEAP (Laursen et al., 2005).[1]

Here we first report respondents' awareness of the LEAP program and their sources of LEAP information in 2003. After this, we describe the participants of the LEAP program in 2003 and 2007, and their reported gains from the LEAP program in 2007. Giving the difficulties of both generating impacts on climate campus-wide in a short (five year) program, and of detecting such impacts reliably, the comparison presented between LEAP participants and non-participants may be the best measure of LEAP impact from these surveys. Moreover, unlike general climate measures that may be impacted by any number of campus and external influences, these items can be directly attributed to LEAP, from items such as those asking participants to directly indicate professional and personal gains from to their participation in LEAP activities.

5.1. Knowledge of LEAP

The 2003 climate survey asked respondents whether they knew about the Leadership Education for Advancement and Promotion (LEAP) program. Respondents chose between three options: "Never heard of LEAP", "I heard about LEAP", and "I participated in a LEAP activity". In the 2007 survey, they were asked whether or not they had heard of LEAP. We consider first respondents' awareness of the program.

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[1] Laursen, S., Rocque, B., DeWelde, K., Seymour, E., Pedersen-Gallegos, L. (2005). Outcomes of Faculty Development Initiatives of LEAP, Leadership Education for Advancement and Promotion, an NSF ADVANCE Project at the University of Colorado at Boulder: Mid-Course Evaluation Report. (Report to the National Science Foundation.) Boulder, CO: University of Colorado, Boulder, Ethnography & Evaluation Research.

In 2003,

- 34.7% (156) of the respondents (449) had heard about LEAP,

- while 55.7% (250) of them reported no knowledge of the program.

In 2007,

- 64.4 % (423) of the respondents had heard of the Leadership Education for Advancement and Promotion (LEAP) program.

- Only 21.0% (138) reported no knowledge of LEAP.

Table 5.1.1 presents the numbers of participants reporting different degrees and sources of LEAP knowledge in 2003 for men and women separately, in the three job groups (since the same level of detail was not asked in 2007, we do not present details for 2007). Women in each job group were more likely than men to have heard of LEAP. Overall, 41.3% of women and 28.4% of men had then heard of LEAP, whereas 47.2% of women and 67.2% of men reported in 2003 that they had never heard about LEAP. Thus by 2003 LEAP had already achieved good campus visibility.

However, in 2007, most women (78.6%) but also most men (73.1%) had heard of LEAP. In this sense, the LEAP program had become visible for both women and men by 2007. This was valid also among STEM and non-STEM faculty separately. Both STEM (79.6%) and non-STEM respondents (72.2%) had heard of the LEAP program in 2007. Thus LEAP had achieved a high level of visibility, campus-wide, by 2007.

Table 5.1.1: Number of responses to LEAP visibility items, in 2003

	Men			Women		
Item	Tenure	Teaching	Research	Tenure	Teaching	Research
I heard about LEAP	38	5	12	57	10	26
I have never heard about LEAP	45	8	77	36	5	67
Learned about LEAP from…						
LEAP committee member	7	1	4	11	2	2
LEAP graduate student				3		1
brochure	6	1		3		1
invitation	3		2	11		4
newsletter	2		2	2	1	3
website	3		1	3		2
email	3	2	2	4	1	4
survey			1	1	1	3
LEAP activity	2					2
colleague	8	1	1	22	4	1
cannot remember	1		1		2	3
several of the above	4		1	11	1	5

Table 5.1.1 also shows that tenure-track faculty (46.7%) and non-tenure-track teaching faculty (47.1%) were more aware of LEAP than were research faculty (19.8%). However, the number

of teaching respondents was very low (34) in 2003. Likewise, in 2007 tenure-track faculty were clearly more aware of the LEAP program. In all, 90.6% of the tenure-track faculty had heard of LEAP, whereas 74.5% (70) of teaching and 55.2% (107) of research faculty had heard of LEAP (p< .000). These results were expected, since LEAP efforts focused primarily upon tenure-track faculty. The greater awareness of teaching faculty than research faculty is likely due to the fact that most of them work on the main campus, where events were held, and in departments where other colleagues were attending LEAP events, as opposed to institutes where most other colleagues were also researchers.

In 2003, we asked the respondents to indicate how they heard about LEAP, in order to evaluate LEAP's recruitment and publicity efforts. The categories offered were:

> colleague, LEAP committee member, LEAP-funded grad student, brochure, invitation, newspaper, website, other.

The other reported sources included e-mail, survey, and multiple sources, and some respondents could not remember the source of their LEAP information. The results are included in Table 5.1.1. The frequencies show that individuals who were aware of LEAP in 2003 were most likely to learn about the program from LEAP committee members, colleagues, an invitation to join an activity, or by some sort of combination of contacts. Thus word-of-mouth appeared to be the best means to maintain and improve LEAP visibility on campus.

5.2. **Participation in LEAP**

Participation in the LEAP program was queried both in the 2003 and 2007 climate surveys. In 2003, only 7.1% (32) of the respondents reported any participation in a LEAP program. In 2007 the percentage was 20.4% (134) of all respondents. In all, 64.1% (421) reported that they had not participated in a LEAP-sponsored program. The participation was thus much better in 2007 than in 2003 but still relatively infrequent across the campus as a whole.

Of all respondents who did *not* participate in the LEAP activities, 171 (40.6%) reported that they worked in a non-STEM unit, whereas 201 of them (47.7%) were members of a STEM unit. In turn, 66 (49.3%) of participating respondents represented a non-STEM academic field whereas 53 of them (39.6%) reported a job that was in a STEM unit. Thus, STEM faculty members were a bit less active than non-STEM faculty in participating in LEAP activities. These figures are impacted by the lower participation of researchers, who are mostly in STEM fields.

5.2.1 Participation and Job Type

For the 2007 data, we can compare the distributions of job titles among those who participated and those who did not participate in LEAP programs. As Figure 5.2.1 indicates, a clear difference (p< .000) applied to LEAP participation by job type (tenure 38.3%, non-tenure-track teaching 22.3%, research track 6.2%). Tenure-track faculty were the most active in participating, whereas researchers tended not to take part in LEAP activities.

Figure 5.2.1: Job title by participation in LEAP, in 2007 (N (No LEAP participation) = 416 – 100%, N (LEAP participation) = 133 – 100%).

Job Type by LEAP Participation, in 2007
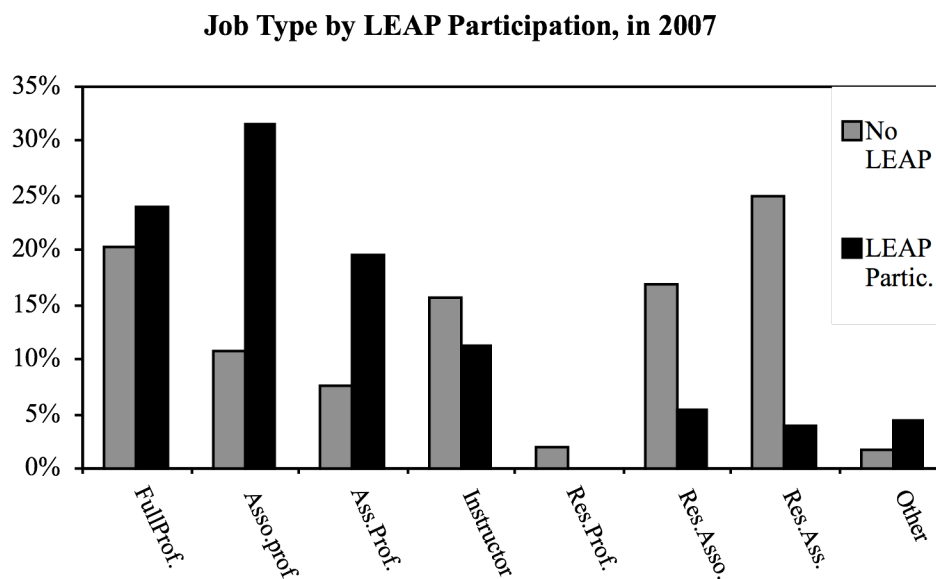
The largest proportion of actively participating faculty was represented by associate professors (31.6%), with additional 24.1% of full professors and 19.5% of assistant professors. The numbers of non-tenure-track participants were low: only 5.3% of participating respondents were RAs and 3.8% PRAs, 11.3% were instructors, and no research professors (a small group).

5.2.2 Gender, Ethnicity, and Participation

In 2003, only small numbers of both women (24/10.2%) and men (6/3.0%) who responded to the survey reported any participation in the LEAP program. In 2007, a difference (p< .000) applied to the gender of respondents who had participated in LEAP activities. In 2007, 77 women (31.0% of women) and 54 men (17.9% of men) reported participating. But in all, 168 women (67.7%) and 245 men (81.1%) did not participate in the LEAP activities. The LEAP program was open to both men and women, but was intended to address women's participation in academic leadership, thus was likely perceived as "for" women. These numbers show that women more actively than men attended LEAP program activities. However, the percentages of their participation could have been higher.

No difference could be found in the ethnicities of respondents as related to their participation in the LEAP project. The proportion of non-white subjects was about the same among those who participated (10.7%) in the project and among those who did not participate (9.2%). Moreover, these percentages were consistent with the number of all non-white respondents in the 2007 sample (9.6%).

5.2.3 CU Unit and Participation

We can also distinguish participants by academic units, here grouped into arts and social sciences departments, natural sciences departments, separate institutions, and other academic units including, for instance, faculty in engineering. In 2003, the distribution across these four categories among all respondents included:

H&SS 27.4%, NS 27.4%, institutes 23.4%, other units 21.8%.

In the 2007 survey, the percentages among all the respondents were:

H&SS 28.3%, NS 23.2%, institutes 20.0%, others 28.5%.

Figure 5.2.2 illustrates the proportions of these academic units among those who participated and those who did not participate in the LEAP activities, in 2007.

Figure 5.2.2: Proportions of the CU academic units among LEAP participating (N=119 - 100%) and non-participating (N=370 – 100%) respondents, in 2007.

LEAP Participation and Academic Unit, in 2007
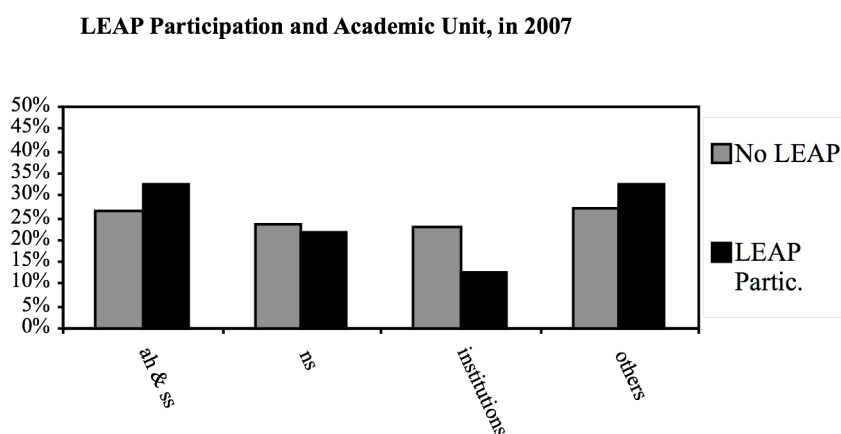
Institute faculty were the smallest group of participants (12.6%), and lower than among all the respondents in 2007 (20.0%)—again reflecting the larger number of research faculty in the institutes. By comparison, 21.8% of respondents who had participated in LEAP activities worked in the natural sciences. Humanities and social sciences departments had a slightly higher participation rate (32.8%) as compared to their overall representation (28.3%) in the 2007 data; likewise participants in "other" units participated at higher (32.8%) rates than their overall representation (28.5%) in the 2007 data.

5.3. LEAP Activities

In the 2007 survey, we asked about the particular LEAP activities in which the respondents had participated throughout the length of the project. The questionnaire offered 12 different choices::

None, multi-day leadership workshop, short leadership workshop, course development workshop, coaching program and/or coach training, seminar or talk, book group, service on board or as advisor to LEAP, personal grant, work with own department to implement a departmental grant, leadership fellowship, and other.

5.3.1 All Respondents' LEAP Activities

Figure 5.3.1 illustrates the total frequencies for all categories of LEAP activities in the 2007 survey. These frequencies indicated that 131 (19.9%) respondents had participated in some of the listed activities. Most of them had participated in one (45.8%) or two (35.9%) different activities, and one respondent had been involved in six different LEAP activities.

Figure 5.3.1: Total number of reported participations in different LEAP activities, in 2007.

Participation in LEAP Activities
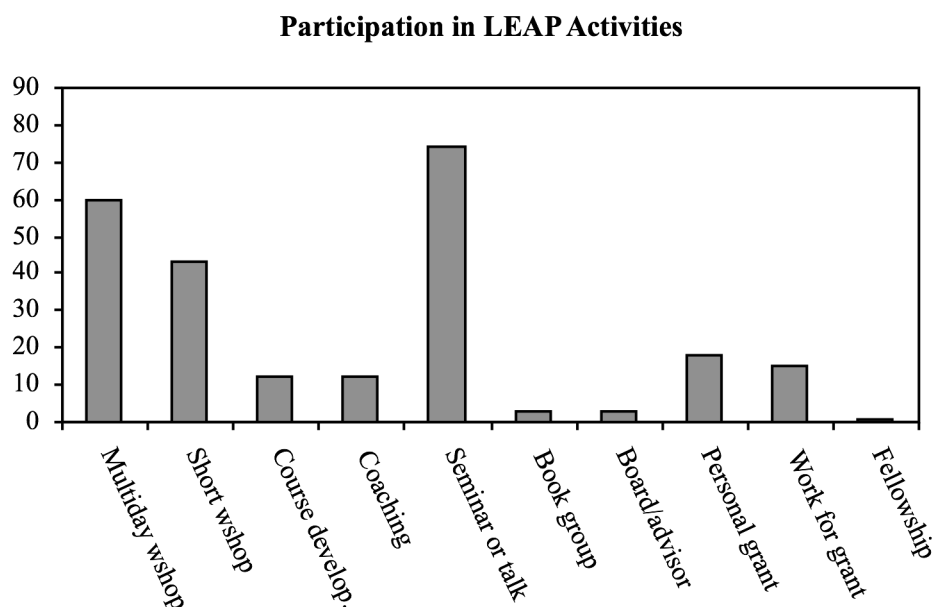
Clearly the most popular LEAP activities were:

- attending a seminar or talk (74),

- attending a multi-day leadership workshop (60)

- attending a short leadership workshop (43).

While the popularity of less time-demanding activities is not surprising, the number attending LEAP's longer workshops is substantial. The numbers involved in personal or departmental grants is also significant, given the later start of these activities in the project's life span. Infrequent LEAP activities were those that were necessarily limited to small numbers of participants, such as the book groups, advisory board positions, or leadership fellowships.

For each respondent, we summed the number of different LEAP activities they had undertaken. After this, we took averages of these numbers of activities across various groups among the 2007 respondents and made comparisons of the averages between various faculty groups.

5.3.2 Gender and LEAP Activities

No gender difference could be found in the average numbers of all reported LEAP activities. The average number of LEAP activities for women was 1.80 and for men 1.85. But

- 29.8% (74) of women reported one or more LEAP activities, whereas only 17.9% (54) of men reported multiple LEAP activities.

- And 36.7% (91) of women (N=248) but 52.0% (157) of men (N=302) reported that they had participated in *no* LEAP activities.

Of those who did participate, most women reported one (43.2%) or two (37.8%) LEAP activities. This was valid also for men, at 50.0% and 33.3% respectively.

18.1% (45) of all women attended a seminar or talk and 14.5% (36) of them attended a multi-day leadership workshop. These were clearly the most popular LEAP activities for women. Also men

attended most frequently seminar or talk (8.9%, N=27) and multi-day (7.3%, N=22) or short leadership workshop (7%, N=21). And one woman had participated in *each* of the listed 11 different LEAP activities. No men had participated in a book group or held a leadership fellowship, as these activities were offered only to women.

5.3.3 Academic Field and LEAP Activities

No difference appeared in the average number of LEAP activities for STEM vs. non-STEM respondents. Participating STEM respondents reported, on average, 1.78 LEAP activities and non-STEM reported 1.90. Non-STEM respondents were also somewhat more likely to participate at all. In all,

- 24.6% of non-STEM and 21.4% of STEM respondents participated at least in one LEAP activity.

- In contrast, 40.0% (96) of non-STEM (N=240) but 50.6% (130) of STEM (N=257) respondents reported that they had not participated in LEAP activities.

Participants from both academic groups reported most often just one LEAP activity (STEM: 40.0%, non-STEM: 47.5%), but STEM participants (47.3%) more often than non-STEM participants (30.5%) reported two LEAP activities. The most common LEAP activity was, again, attending a talk for both STEM (32, 12.5%) and non-STEM (31, 12.9%) participants. STEM respondents also attended multi-day (24) or short (21) leadership workshops. Likewise, non-STEM respondents attended multi-day (29) and short (18) leadership workshops.

5.3.4 Job Type and LEAP Activities

LEAP was targeted to tenure-track faculty and they were the ones who most actively took part in the widest array of activities. As expected, tenure-track faculty reported on average more LEAP activities (1.97, p< .05) than non-tenure-track teaching (1.35) or research (1.73) faculty. In all,

- 94 (35.3%) of tenure-track respondents (N=266) reported one or more LEAP activities.

- But for non-tenure-track teaching respondents this figure was only 20 (21.3% of 94).

- And only 15 (7.7%) researchers (N=195) reported some LEAP activities.

Tenure-track respondents reported typically one (39.4%) to three (13.8%) different LEAP activities, whereas 70.0% of non-tenure-track respondents reported only one activity. 53.3% of the researchers reported one LEAP activity and 40.0% of them reported two activities, but the total number of researchers who participated was very small (15, 7.7%).

Tenure-track respondents most often attended multi-day leadership workshops (53, 19.9%) and a seminar or talk (49, 18.4%), but they also attended short leadership workshops (34, 12.8%). The most frequent LEAP activity among non-tenure-track respondents (13, 13.8%) was also a seminar or talk, which was available to them as to all campus participants, unlike invitational activities such as coaching, book group, fellowships and advisory positions. Likewise, researchers most often attended a seminar or talk (11, 5.6%).

5.4. Gains from the LEAP Program

In the 2007 climate survey, we also asked about the possible gains that the respondents experienced as a result of participating in LEAP activities (see Appendix D). The survey listed 14 different gains to choose from. The categories of gains were taken from qualitative study of

LEAP program outcomes (Laursen et al., 2005) and included some variations of types of gains within several broader categories:

- skills: developed new skills; used skills or concepts in particular situations,

- problem-solving: gathered ideas or solved problems with others,

- networking: networked with peers in a similar career stage; networked with colleagues in other career stages,

- understanding: learned about leadership; learned about how the campus works; learned about women in science; learned about diversity issues,

- affective and personal gains: reflected on own career interests and aptitudes; gained confidence in ability to succeed professionally; took action to make changes in own career,

- "no" gains; "other" gains.

5.4.1 All Respondents' Gains

Figure 5.4.1 describes the frequencies for each of the listed gains perceived as results of participating in LEAP activities by all 2007 respondents. In all,

- 123 respondents reported gains as a result of participating in LEAP activities

- and 107 respondents reported that they made no gains.

Only nine respondents who reported no gains had, in fact, participated in the LEAP-sponsored program. On the other hand, three respondents who reported that they had *not* participated in the LEAP activities, however, reported some gains. About half of the respondents who reported gains marked 1-4 different gains, but a few (N=15) marked 9-12 different gains as a result of their participation in the LEAP activities. The total number of all gains reported was 601.

Figure 5.4.1: Number of reported gains (N=601) for each category as result of LEAP participation, by all respondents in 2007.
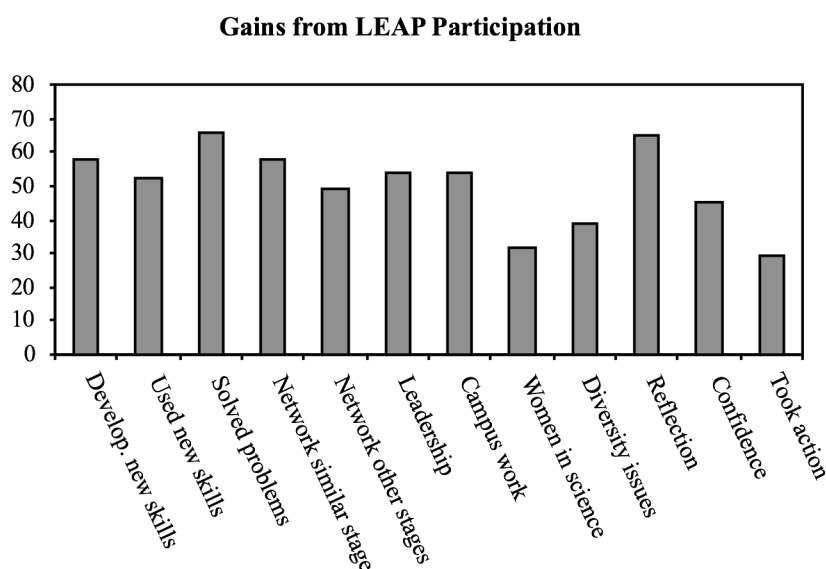
The distribution of the reported gains is rather constant between the different gains, with the frequencies varying between 29 and 66 notes for the listed gains. More than 50 respondents (40.6% of those reporting gains) reported gains in each of the following areas:

- developing new skills,

- using new skills or concepts in particular situations,

- gathering ideas or solving problems with others,

- networking with peers in a similar career stage,

- learning about leadership,

- learning about how the campus works,

- and reflecting on their own career interests and aptitudes.

The most frequent gains were in gathering ideas or solving problems with others (N=66), and also in reflecting on one's own career interests and aptitudes (N=65). Less often had respondents taken action to make changes in their career (N=29)—a larger step. Learning about women in science was noted by 32 respondents. No other gains were reported in addition to the ones offered in the survey, validating the range and types of gains reported in the interview data.

To further distinguish between the listed gains, we categorized some gains into three different groups. We separated between the respondents' gains in skills, their gains in networking, and their gains in learning. In all, 71 respondents reported gains in use or development of skills, 74 respondents reported gains in networking and 85 reported gains in learning about various issues related to the campus, leadership or diversity.

5.4.2 Job Type and Gains

Tenure-track faculty were clearly more active in participating in LEAP activities, and they also reported most of the gains. In all, 97 (36.5%) tenure-track respondents reported gains due to the program. For non-tenure-track respondents the number was 16 (17.0%) and for the researchers only 9 (4.6%)—reflecting the fact that they were not invited to all types of activities. On average, tenure-track respondents reported 5.24 different gains from their LEAP activities, whereas non-tenure-track respondents reported 3.25 and research faculty 4.11 different gains (p< .05)—thus gains were numerous for those who did report them, but more extensive for those who participated more extensively. Tenure-track respondents also more often reported gains in networking (p< .002). Tenure-track faculty typically reported 1 or 2 different gains, but 22 (22.7%) of them reported 5-6 different gains and twelve (12.4%) reported as many as 8 different gains. In contrast, teaching faculty reported 1-4 different gains, but one person reported even 10 different gains as result of participating in LEAP activities, and researchers reported 1-8 different gains.

We also compared the number of respondents who reported gains to the number of all participating faculty within each of the three job groups. Among tenure-track respondents, 97 of 100 reported gains (97%); among non-tenure-track teaching respondents, 16 of 21 (76%); and among researchers, 9 of 15 (60%). Again, overall, respondents who participated in LEAP activities made gains from the program, but participation was not equal across all job groups.

Among the types of gains reported, tenure-track respondents (97) most commonly reported often gains in:

- reflecting on their own career interests and aptitudes (56, 21%),

- networking with peers in a similar career stage (52, 20%),

- gathering ideas or solving problems with others (51, 19%), and

- learning about leadership (51, 19%).

Non-tenure-track respondents (16) reported in all 11 different gains of the listed 12 gains, of which they most often pointed to:

- gathering ideas or solving problems with others (10, 11%),

- developing new skills (7, 7%),

- using new skills or concepts in particular situations (7, 7%), and

- learning about diversity issues (6, 6%).

The nine researchers reported 11 different gains from the LEAP program, most often: gains in using new skills or concepts in particular situations (5/ 3%), reflection on their own career interests and aptitudes (5/ 3%), and developing new skills (4/ 2%).

These results indicate that non-tenure-track research and teaching faculty who participated in the LEAP activities also made multiple gains from the program. Developing and using new skills represented important gains for these respondents. For tenure-track respondents, the most important gains included reflection on career interests, networking with others, and learning about leadership. It is interesting to consider whether the emphasis of non-tenure-track participants on skills reflects that they less often have opportunities to develop new professional skills.

5.4.3 Gender and Gains

While LEAP's goals focused on the advancement of female faculty, the programs were also offered to men. No clear difference could be found in the average number of all reported gains for women (5.35) vs. men (4.29). Both men and women who made any gains reported on average between four and five different gains. Moreover, the distributions across the broader categories of skills (women: 1.63, men: 1.46 average gains reported), networking (women: 1.48, men: 1.42), and learning (women: 2.06, men: 2.19) were about the same for women and men who reported any gains. However, for each of the 12 gains listed in the survey the proportion of women was clearly bigger than that of men. In all,

- 72 women (29% of all women) reported at least some of the listed gains,

- whereas the total number of men reporting gains was 49 (16% of all men).

When we compare the numbers reporting gains to those reporting LEAP participation within women and men separately, we get the ratio of 72 of 77 (94%) for women and the proportion of 49 of 54 (90%) for men. This indicates that both participating women and men made gains from the LEAP program, but the number of participating women (31%) clearly exceeded that of men (18%). Of participating women,

- 43 (56%) reported gains in skills,

- 48 (62%) reported gains in networking, and

- 53 (69%) of them reported gains in learning.

The numbers of men in the same three gain categories were 26 (8.6%), 24 (7.9%), and 32 (10.6%) respectively. The gains most frequently by for women included:

- reflecting on their own career interests (43, 17.3%),

- gathering ideas or solving problems with other (41, 16.5%), and

- networking with peers in a similar career stage (37, 14.9%).

Men gained the most in solving problems with others (24, 7.9%), developing new skills (21, 7%), learning about leadership (21, 7%), and reflecting on their own career interests and aptitudes (21, 7%). Only six men reported having taken actions to make changes in their career, whereas that number for women was 23.

5.4.4 Academic Field and Gains

We also considered the gains with respect to respondents' academic field. No clear difference was found between STEM and non-STEM respondents in the average numbers of reported gains. Both STEM (4.52) and non-STEM (5.37) respondents reported on average 4 to 5 different gains. The average numbers of gains in skills (STEM: 1.57; non-STEM: 1.55), networking (STEM: 1.48; non-STEM: 1.45), and learning (STEM: 2.06; non-STEM: 2.14) due to LEAP activities were also very similar. However, the total number of non-STEM respondents (62/25.8%) reporting gains exceeded the number of STEM respondents (48/18.7%). In addition, the number of the non-STEM respondents reporting specific gains, including skills (38/15.8%), networking (40/16.7%), and learning (43/17.9%) exceeded the number of STEM respondents (28/10.9%; 27/10.5%; 35/13.6% respectively).

The ratio of those reporting gains vs. reporting LEAP participation was 62 of 66 (94%) non-STEM and 48 of 53 (91%) STEM respondents. Overall, the results indicate that STEM and non-STEM respondents both made gains from participating in the LEAP program, but non-STEM faculty participated more often in LEAP activities (as before, this is influenced by the higher proportions of non-tenure-track faculty among the STEM group). In all,

- 63 (24.5%) STEM respondents reported no gains as a result of participating in LEAP activities,

- whereas the number of non-STEM respondents reporting no gains was 35 (14.6%).

Among non-STEM respondents gains were most often achieved in:

- reflecting on their own career interests and aptitude (41, 17.1%),

- gathering ideas and solving problems with others (38, 15.8%), and

- learning about how the campus works (34, 14.2%).

For STEM respondents, most gains were achieved in:

- developing new skills (23, 8.9%),

- networking with peers in a similar career stage (22, 8.6%),

- using new skills or concepts in particular situations (21, 8.2%),

- learning about leadership (21, 8.2%), and

- learning about diversity issues (21, 8.2%).

5.5 Summary of the LEAP Program

5.5.1 Knowledge and Participation

By 2007 the LEAP program had become visible across campus, to both women and men, STEM and non-STEM faculty. Tenure-track faculty were clearly more aware of the LEAP program than non-tenure-track teaching and research faculty. The overall percentage who had heard of LEAP climbed from 34.7% to 64.4% between 2003 and 2007.

Individuals who were aware of LEAP in 2003 were most likely to have learned about the program from LEAP committee members, colleagues, an invitation to join an activity, or by some sort of combination of contacts. Thus word-of-mouth was the best way to maintain and improve LEAP visibility on campus.

Across all faculty groups, the overall level of participation in LEAP program was modest. It increased from 7.1% (2003) to 20.4% of all respondents in 2007, while 64.1% of them reported in 2007 that they had not participated in the LEAP program (the remainder did not respond). Respondents from STEM fields were less likely to participate than non-STEM respondents, which is likely explained by the related fact that tenure-track faculty were most active in participating in the program, whereas researchers tended not to take part in LEAP activities. The largest proportions of actively participating faculty were represented by associate professors (31.6%), with 24.1% of full professors and 19.5% of assistant professors.

No difference applied to participation according to respondents' ethnicity. The fact that LEAP was directed toward women's advancement was reflected in women's more active participation as compared to men. By 2007, 67.7% of women and 81.1% of men had not participated in the LEAP activities. Faculty at institutes were least active in participating in the LEAP program, whereas faculty from humanities and social sciences, and other units including the professional schools, participated more actively in the program. This is consistent with the results that researchers and STEM faculty were the least active in the program.

5.5.2 LEAP Activities

In 2007 survey, respondents noted particular types of LEAP activities in which they had participated. Most respondents had participated in one or two different activities. The most popular LEAP activities were also the ones on which most project effort was expended, the short seminars and talks, and the multi-day leadership workshops.

Women participated in the LEAP program clearly more often than men. Most of the participating women and men reported one or two LEAP activities, although some had participated in large numbers of activities. Non-STEM respondents were somewhat more active than STEM respondents in participating, but STEM participants more often reported two different LEAP activities.

As expected, tenure-track faculty reported on average more LEAP activities than non-tenure-track teaching or research faculty. In all, 35.3% of tenure-track respondents reported one or more LEAP activities. They most typically reported 1 to 3 different LEAP activities. Unlike the two other faculty groups, tenure-track faculty participated in some particular programs to which they had greater access: coaching or coach training, a book group, a leadership fellowship, or service on the board or as an advisor to LEAP.

5.5.3 Gains from LEAP Activities

The 2007 climate survey gathered information on the possible gains that respondents experienced as a result of participating in LEAP activities. In all, 123 respondents reported gains as a result of their participation. Those reporting gains are not identical to those participating, which indicates some confusion about the intent of the questions. Nine respondents who reported no gains had participated in a LEAP-sponsored program; these responses indicate no gain from their program, but more confusing are the three who reported that they had not participated in LEAP but nonetheless reported some gains. The total number of all reported gains was 601. Most participants reported between one and four different gains, but some reported as many as nine to twelve distinct gains as a result of their participation in LEAP activities.

All the gains itemized in the question were reported by participants, with the frequencies varying between 29 and 66 reports of each of the listed gains. The most commonly reported gains were in gathering ideas or solving problems with others and in reflecting on one's career interests and aptitudes. Least often reported was the concrete step of taking action to make changes in one's career. Learning about women in science was reported by only by 32 respondents; this may be a positive signal that LEAP was not seen as focused on STEM women to the exclusion of others. Other gains included developing or using new skills, networking, and learning about campus issues.

5.5.4 Group Differences in Gains

Tenure-track faculty were clearly more active in participating in LEAP activities and also reported most of the gains. Tenure-track respondents reported on average 5.24 different gains from LEAP activities, whereas non-tenure-track teaching respondents reported 3.25 and researchers 4.11 different gains. The most frequent gains reported by tenure-track respondents were reflecting on career interests, networking with others, and learning about leadership. They typically reported 1 to 2 different gains, but 22.7% of them reported 5-6 different gains, and 12.4% reported as many as 8 different gains from the program. The results indicate that all members of the three faculty groups who participated in LEAP activities made gains.

Although women were the focus of the LEAP program, men who participated in LEAP activities reported as many gains as women. No clear gender difference applied to the average number of all reported gains per respondent, as both gender groups reported 4-5 different gains on average. Women made the most gains in reflecting their own career interests, gathering ideas or solving problems with others, and networking with peers at a similar career stage. In turn, men gained the most in solving problems with others, developing new skills, learning about leadership, and as well as in reflecting on their own career interests and aptitudes. The nature of these gains reiterates the qualitative findings (Laursen et al., 2005) that collegial problem-solving, brainstorming, and sharing were among the most-valued activities in the workshops.

Non-STEM respondents were slightly more active in participating in LEAP activities and they also more often reported gains due to the LEAP activities. However, no clear difference applied to the average numbers of reported gains reported by members of these two academic groups, among those who reported gains—again, typically 4-5 different gains. Thus, both STEM and non-STEM respondents who participated in the LEAP program made gains. Some differences appeared between the types of gains achieved by the two groups. Non-STEM respondents reported the most gains in reflecting on their own career interests and aptitude, gathering ideas and solving problems with others, and in learning about how the campus works. STEM

respondents more commonly reported gains in developing new skills, networking with peers in a similar career stage, using new skills or concepts in particular situations, learning about leadership, and also in learning about diversity issues.

6. Results of the Diversity Indicators

Diversity issues were studied using four types of questions (see Appendices C & D). The same questions were used in both the 2003 and 2007 surveys. First, respondents were asked to rate the probability that they would encourage members of various groups to work in their primary unit on a four-point scale: Yes, Probably, Probably not, and No. The four different groups included in the question consisted of:

> Racial/ethnic minority males, racial/ethnic minority females, white males, and white females.

This question thus seeks to measure the welcoming or unwelcoming nature of the working environment, and whether that welcome is equally extended to women and minorities.   In two other questions, respondents rated the importance of increasing the number of females and of racial/ethnic minority persons in their primary unit, on a scale of "very important", "important", or "not important". The next two questions asked respondents' commitment to increasing either gender diversity or racial/ethnic diversity in their primary unit, on a scale of "not at all committed", "somewhat committed", or "very committed". The last two diversity indicators asked how often respondents discussed gender and racial equity at work and in their personal life, on a six-point time scale varying between "daily" and "never" (see Appendices C&D). This is presumably intended to measure comfort with or openness to discussing equity issues.

6.1. Diversity Indicators for All Respondents

Table 6.1.1 shows averages and standard deviations for the first three sets of items, for all respondents in 2003 and 2007 separately. The range (3 or 4 point scale) is also listed.

Table 6.1.1: Average scores and standard deviations for diversity variables, for all respondents, in 2003 and 2007.

	2003		2007		Min.	Max.
	Mean	S.D.	Mean	S.D.		
Encouragement of						
Minority males	3.54	0.75	3.54	0.77	1	4
Minority females	3.48	0.82	3.52	0.80	1	4
White males	3.69	0.62	3.65	0.67	1	4
White females	3.61	0.67	3.59	0.72	1	4
Importance of increasing the number of						
Females	1.76	0.73	1.73	0.75	1	3
Racial/ethnic minorities	2.03	0.77	2.11	0.77	1	3
Commitment to						
Gender diversity	2.07	0.75	2.12	0.73	1	3
Racial/ethnic diversity	2.13	0.74	2.21	0.77	1	3

* 2003: N= 419-441; 2007: N=564-584

### 6.1.1 Encouragement and Commitment

On average, respondents were very willing to encourage their friends from all four different groups of people to apply for jobs in their unit, both in 2003 and 2007. No clear difference in the level of encouragement appeared between the four possible groups. This indicates that respondents perceive their work units as equally welcoming to all groups.

Their view of the importance of increasing the number of females (1.76) or racial/ethnic minorities (2.03) was however not as intense. And no clear difference in this appeared between the 2003 and 2007 data. Respondents' reported commitment to increasing gender diversity as well as racial/ethnic diversity was slightly stronger than the general importance they placed on this issue, but still less strong than their willingness to encourage members of these groups to apply for jobs in their unit. Only a slight increase in this average commitment appeared between 2003 and 2007. In all, respondents seemed to be slightly more committed to and willing to increase the number of racial/ethnic minorities than that of females—perhaps because they perceive racial and ethnic diversity to be a greater challenge to CU, given the higher numbers of women already on the faculty. However, on average they did not tend to encourage friends from minorities over their white friends to work in their primary unit.

6.1.2 Discussing Diversity Issues

The next two questions addressed the frequency of diversity discussions at work and in respondents' personal lives. Figure 6.1.1 shows that the distributions do not differ much between the years 2003 and 2007, and no statistically significant difference was found between these two distributions.

Figure 6.1.1: Frequencies for discussing race/gender at work for all respondents, in 2003 and 2007. (2003: N=441 - 100%; 2007: N=573 - 100%).
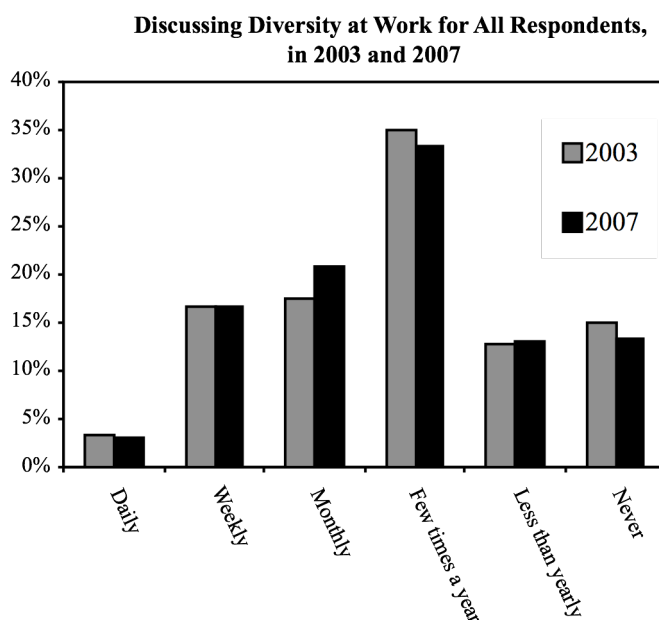

- The largest group of respondents (2003: 35.1%; 2007: 33.2%) discussed diversity issues at work only a few times a year.

- 34.1% of respondents in 2003 and 37.6% of respondents in 2007 discussed these issues more often, weekly or monthly,

- No more than 3.2% in 2003 and 3.0% in 2007 of them discussed these issues at work daily,

- 12.7% in 2003 and 13.1% in 2007 discussed diversity issue at work less than yearly,

- and 15.0% in 2003 and 13.3% in 2007 of them never discussed diversity issues at work.

These percentages indicate that respondents in 2007 discussed diversity issues at work slightly more frequently than in 2003. The numbers of missing answers to this diversity question were 8 in 2003 and 84 in 2007.

Figure 6.1.2 illustrates the frequencies of discussing diversity issues in respondents' personal life in 2003 and 2007. Again, no clear differences could be detected between the 2003 and 2007 data, but the respondents discussed diversity issues clearly more often in their personal life than at work, both in 2003 and in 2007.

Figure 6.1.2: Frequencies for discussing race/gender in personal life for all respondents, in 2003 and 2007. (2003: N=439 - 100%; 2007: N=572 - 100%).
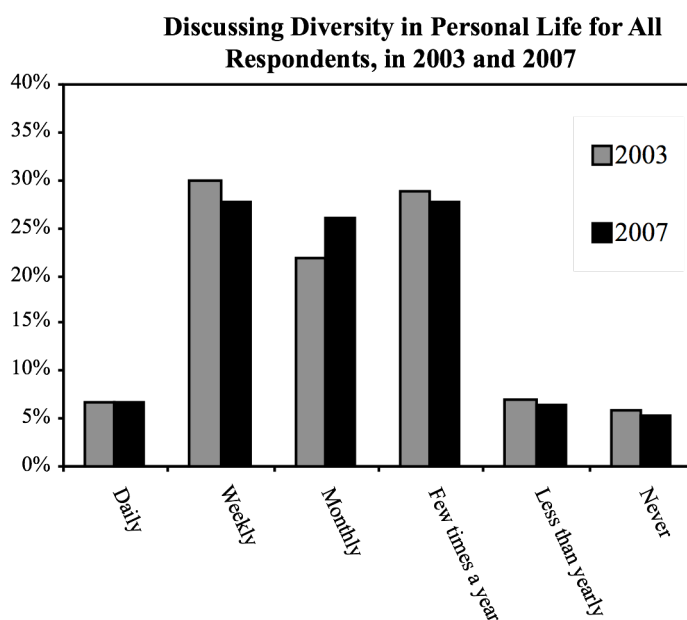
- In all, 36.4% of respondents in 2003 and 34.6% of respondents in 2007 discussed diversity issue in personal life at least weekly.

- In 2003, 21.9% of them and, in 2007, 25.9% of them discussed these issues in personal life monthly.

- 13% of the respondents in 2003 and 11.7% in 2007 discussed diversity issue in personal life never or less than yearly.

These percentages show again a slight increase in the frequency of discussing diversity issues between 2003 and 2007. The number of missing answers to this question was 10 in 2003 and 85 in 2007.

6.2. Diversity and LEAP Participation

An interesting question concerned the possible differences between those respondents who participated in LEAP activities and those who did not participate in the program. The number of LEAP participants was clearly smaller than that of the non-participating respondents, but we can still compare the results of the diversity questions between these two groups of respondents.

6.2.1 Encouragement and Commitment

First, Table 6.2.1 shows the averages for each of the continuous diversity variables separately for the 2007 respondents who participated in the LEAP program and for those who did not participate in the program. The results from T-test analyses to determine the statistical significance of differences are included in the table.

Table 6.2.1: Average scores and T-test results for diversity variables, by LEAP participation.

Scales	Mean		Test score	Sig.
	LEAP	**No LEAP**		
Encouragement of				
Minority males	3.41	3.58	2.095	.037*
Minority females	3.34	3.58	2.753	.006**
White males	3.65	3.64	- 0.125	.900
White females	3.49	3.61	1.737	.083
Importance of increasing the number of				
Females	1.96	1.66	- 4.167	.000***
Racial/ethnic minorities	2.50	2.00	- 6.813	.000***
Commitment to				
Gender diversity	2.46	2.01	- 6.367	.000***
Racial/ethnic diversity	2.53	2.10	- 6.357	.000***

* LEAP participation (2007): N=133-134; No LEAP participation: N=415-420

Table 6.2.1 shows clear differences between the LEAP participants' and non-participants' willingness to increase the number of both females and racial/ethnic minority as well as in these two groups' commitment to the related diversity issues in 2007.

LEAP participants scored clearly higher (p< .001) than non-participants in how they ranked the importance of increasing the number of females and racial/ethnic minority in their primary unit. Similarly, their commitment to diversity clearly (p< .001) exceeded that of the other respondents. These differences were valid also separately among women and men, but the difference in the importance attached to increasing the number of females was slightly lighter among women (p<.05). Less clear differences could be detected in respondents' reported encouragement activities. In fact, the LEAP-participating respondents (3.34,3.31) were slightly less favorable (p< .05, p< .01) than other respondents (3.58) in encouraging minority males or females to work in their primary unit. Further analysis indicated that these differences were more valid among women, especially with respect to encouraging minority females (p< .01). No statistically

significant difference applied to participating and non-participating groups' encouragement of white females or males to work in their primary unit. However, further analysis again revealed that the LEAP-participating women would encourage slightly less than non-participating women (p< .05) white females to work in their primary unit. Thus, overall, LEAP participants are more likely to perceive differences in the extent to which their work unit welcomes non-majority members. We cannot determine whether this sensitivity is a result of LEAP participation, or a prior interest and awareness that led these people to participate in LEAP.

6.2.2 Discussing Diversity Issues

A cross-table with a Chi-2 test showed a statistically highly significant (p < .001) difference in the 2007 data for the frequencies of discussing gender and racial equity at work between those who participated in LEAP and those respondents who reported no participation. Figure 6.2.1 illustrates the distribution of frequencies within the two groups separately. The LEAP participants discussed clearly more often these issues than non-participating respondents.

Figure 6.2.1: Frequencies of discussing race/gender issues at work by LEAP participation, in 2007 (LEAP: N=133 (100%); No LEAP participation: N=417 (100%)).
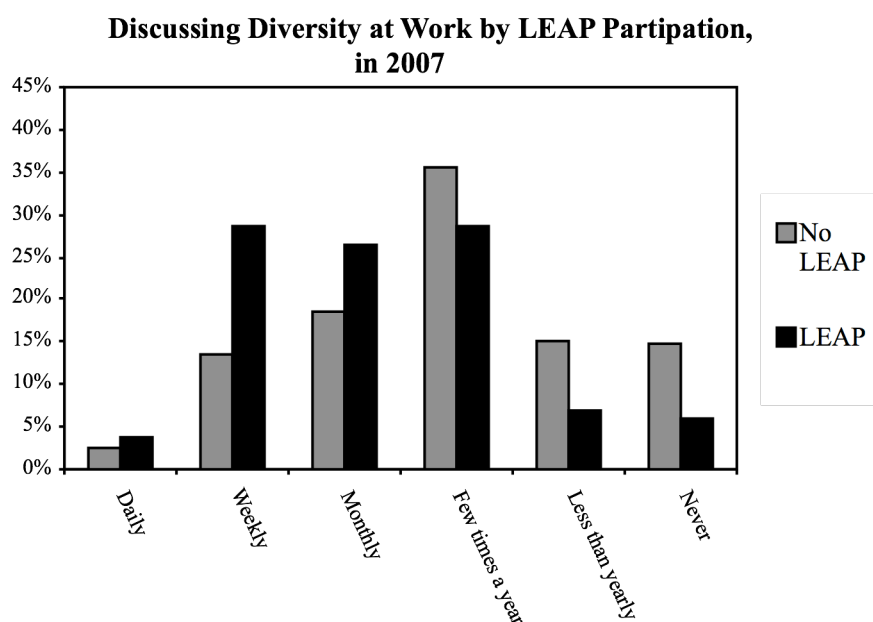
- In all, 32.4% of LEAP-participating respondents and only 16.0% of non-participants discussed diversity issues at work daily or weekly.

- Also, 26.3% of the LEAP participants but 18.5% of non-participants discussed these issues at work monthly.

- And 30.0% of those who did not participate in the program discussed diversity issues at work never or less than yearly, whereas the percentage for LEAP participants was 12.8%.

A statistically highly significant difference could be found also in the distributions of discussing gender and racial equity in personal life, between those who participated in LEAP and those respondents reported no participation (p < .001). LEAP participants more often discussed

diversity issues in personal life as compared to non-participating respondents, but both participants and non-participants more often discussed diversity issues in personal life than at work.

• Nearly one half (48.5%) of the LEAP participants discussed these issues in personal life at least weekly,

• whereas the percentage for non-participants was 30.2%.

• And 31.6% of the non-participants discussed diversity issues in personal life a few times a year and 6.2% of them never discussed these issues in personal life.

• In contrast, only 1.5% of LEAP participants never discussed diversity issues in personal life and 16.7% of them discussed these issues in personal life a few times a year.

Again, we cannot determine whether participants' interest in diversity issues is a result of LEAP or a pre-disposing factor to their participation.

Figure 6.2.2: Frequencies for discussing race/gender issues in personal life by LEAP participation, in 2007 (LEAP: N=132 (100%); No LEAP participation: N=418 (100%)).
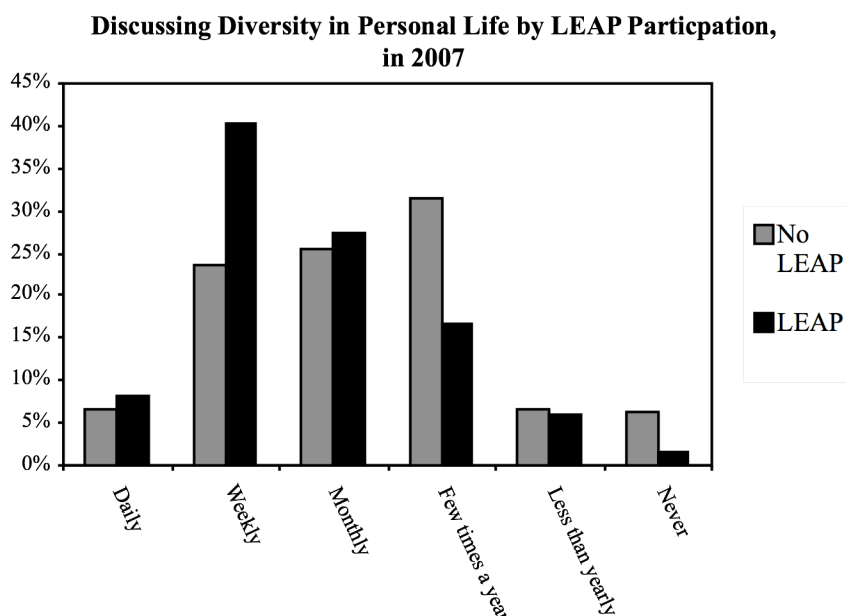
6.3. Diversity Issues and Job Type

We also examined diversity issues against respondents' job type. The number of non-tenure-track teaching faculty respondents was low in 2003, but we included this group in our analyses in order to clarify the possible changes between 2003 and 2007 within all the job groups.

6.3.1 Encouragement and Commitment

Table 6.3.1 shows the results of the One-way ANOVA analyses for all the three job groups, both in 2003 and 2007. (In addition, non-parametric Chi2-tests were used to confirm the results on

group differences.) As the results show, only minor differences appear between the three groups' willingness to encourage white people or minorities to work in their primary unit. All respondents are very willing to encourage all these groups both in 2003 and in 2007 (range: 1-4). Researchers were slightly more willing as compared to tenure-track and teaching faculty. These differences were statistically significant for females and minority males in 2003 but only for minority males in 2007. Of the four groups to encourage, tenure-track faculty were most willing to encourage white males, both in 2003 and 2007. However, no clear difference between the four groups to encourage was valid among researchers or non-tenure-track teaching faculty, in 2003 nor in 2007. No clear increase applied to the encouragement variables between 2003 and 2007 within any of the three job groups.

Table 6.3.1: Average scores for diversity variables for each job type, in 2003 and 2007.

	2003			Test	2007			Test
	Mean				**Mean**			
	Tenure	Non-tenure-track teaching	Research	Sig.	Tenure	Non-tenure-track teaching	Research	Sig.
Encouragement of								
Minority males	3.43	3.50	3.68	**	3.46	3.52	3.65	*
Minority females	3.34	3.47	3.63	**	3.44	3.54	3.62	No sig.
White males	3.68	3.50	3.73	No sig.	3.64	3.57	3.69	No sig.
White females	3.55	3.47	3.70	*	3.59	3.52	3.62	No sig.
Importance of increasing the number of								
Females	1.91	1.65	1.62	***	1.89	1.49	1.64	***
Racial/ethnic minorities	2.30	2.03	1.73	***	2.32	2.19	1.81	***
Commitment to								
Gender diversity	2.35	2.00	1.79	***	2.36	2.03	1.84	***
Racial/ethnic diversity	2.46	2.12	1.78	***	2.43	2.30	1.86	***

* Tenure: N(2003)=204-209, N(2007)= 263-266; non-tenure-track: N(2003)= 34; N(2007)=93-94; researchers: N(2003)=191-194, N(2007)=190-195.

Clearer differences between the three job types could be detected in respondents' views of the importance of increasing the number of minority faculty. These differences applied both to the 2003 and the 2007 data. The greatest differences appeared between tenure-track respondents' and researchers' views.

- Tenure-track faculty (2003: 1.91, 2.30; 2007: 1.89, 2.32) considered increasing the number of both females and racial/ethnic minority persons in their primary unit more important than did researchers in 2003 and 2007.

- However, non-tenure-track teaching respondents (1.49) considered increasing the number of women the least important in 2007. (this may reflect the greater number of women in this job rank—thus they do not perceive women as under-represented).

All of the three job groups considered increasing the number of racial/ethnic minorities more important than that of females, both in 2003 and 2007. No clear increase applied to the averages within the job groups in these two diversity variables from 2003 to 2007. However, statistically significant differences appeared between the three job groups' commitment to diversity.

- Tenure-track respondents (2.35, 2.46) outscored the two other job groups in their commitment to increasing both gender and racial/ethnic diversity in their primary unit in 2003.

- But in 2007, this difference in commitment to racial/ethnic diversity could be detected only between tenure-track (2.43) and research (1.86) faculty.

Tenure-track and non-tenure-track faculty were slightly more committed to increasing racial/ethnic diversity than gender diversity in their primary unit, but this did not apply to researchers. A slight increase could be perceived in the researchers' commitment to diversity issues from 2003 to 2007. This applied also to non-tenure-track respondents' commitment to racial/ethnic diversity, but again the number of non-tenure-track respondents was small in 2003.
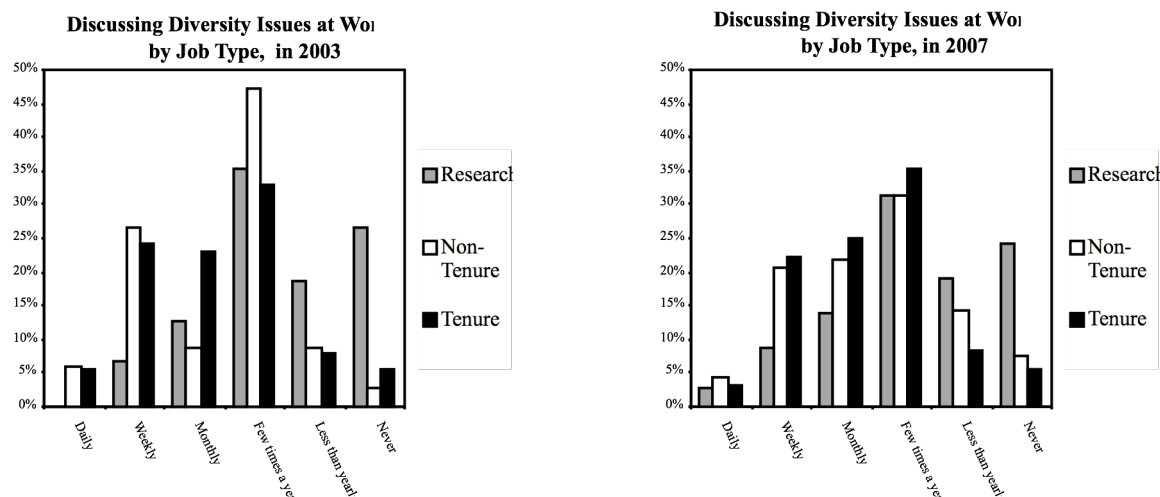
6.3.2 Discussing Diversity Issues

Figures 6.3.1a and 6.3.1b illustrate respondents' frequency of discussing diversity issues at work for each job groups separately, in 2003 (Figure 6.3.1a) and in 2007 (Figure 6.3.1b). A statistically highly significant difference applied to the frequencies with which members of the three job groups in discussing racial and gender issues at work in 2003 ($p < .000$) and also in 2007 ($p < .001$).

- Respondents in the research track discussed clearly these topics less often than the tenure-track and non-tenure-track teaching faculty.

- Also tenure-track faculty discussed in 2007 a bit more frequently these issues at work as compared to the non-tenure-track teaching respondents.

In 2007, the differences in the frequencies between tenure-track and non-tenure-track teaching respondents were rather small. No overall change could be detected in the frequencies in discussing diversity issues at work in 2003 vs. in 2007, among either of the three job groups. It seems plausible that faculty who teach are more aware of diversity issues in a classroom or student-focused context, and thus discuss them more often in relation to their teaching work, as well as in other workplace contexts, than are research faculty whose locus for discussing diversity is only the workplace itself.

Figures 6.3.1a-6.3.1b: Frequencies for discussing race/gender at work by job type, in 2003 and 2007 (Tenure: N(2003)=209/N(2007)=263 - 100%; Non-tenure-track: N(2003)=34/N(2007)=92 - 100%; Research: N(2003)=195/N(2007)=194 – 100%).

A statistically significant difference between the three job groups applied also to the item on discussing diversity issues in personal life, both in 2003 (p< .00) and in 2007 (p< .01). The frequencies (see Figures 6.3.2a and 6.3.2b) showed again that research faculty discussed clearly less often racial and gender issues in personal life than the two other faculty groups. But all faculty groups discussed these issues more often in their personal life than at work.

Figure 6.3.2a-6.3.2b: Frequencies for discussing race/gender in personal life by job type, in 2003 and 2007 (Tenure: N(2003)=208/N(2007)=265 - 100%; Non-tenure: N(2003)=34/N(2007)=91 - 100%; Research: N(2003)=194/N(2007)=193 – 100%).
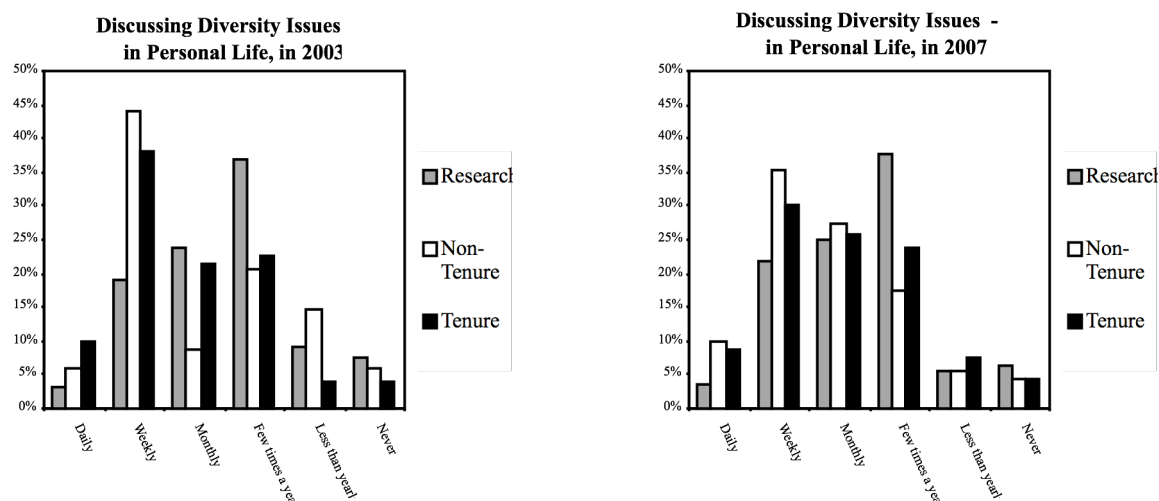
In 2003,

• 22.2% of the researchers but 48.1% of the tenure-track respondents (and 50% of the instructors) discussed diversity issues in personal life at least weekly.

• On the other hand, 7.6% of the tenure-track respondents but 17.0% of the researchers discussed these issues in personal life less than yearly or never.

The differences between the three job groups were milder in 2007. At that time:

• 50.3% of the researchers, 72.6% of the instructors, and 64.6% of the tenure-track respondents discussed diversity issues in personal life at least monthly.

• And 11.9% of researchers, 9.9% of instructors, and 11.7% of tenure-track faculty discussed these issues less than yearly or never.

Some increases could be detected in the frequencies at which faculty discussed diversity in personal life from 2003 to 2007, but these were not statistically significant. The proportion of researchers who discussed diversity issues in personal life at least monthly in 2007 (50.3%) exceeded that proportion 2003 (45.9%). This was not true for the tenure-track faculty (2003: 69.7%; 2007: 64.6%). In turn, 17.0% of the researchers in 2003 but 11.9% of them in 2007 discussed diversity issues in personal life less than yearly or never. These percentages for tenure-track respondents were 7.6% in 2003 and 11.7% in 2007. These differences indicate that discussing race and gender issues in personal life was more common for researchers (and non-tenure-track teaching faculty) in 2007 than in 2003. In contrast, no clear general increase in discussing diversity issues in personal life could be perceived among tenure-track faculty.

6.4. Diversity Issues and Academic Field

We also considered the variation of discussion of diversity issues by the respondents' academic domain in 2003 and in 2007 separately. A difference was again seen between members of STEM and non-STEM units.

6.4.1 Encouragement and Commitment

Table 6.4.1 gathers the averages and the results of the T-tests for the continuous diversity variables for STEM and non-STEM respondents. Statistically significant differences appeared between the two groups in their level of encouragement of friends from minority groups to work in their primary unit. STEM respondents were more encouraging, both in 2003 (p< .001) and in 2007 (p< .01, p< .05). In addition, STEM respondents were slightly more likely than non-STEM respondents to encourage white females to work in their primary unit in 2003. STEM respondents (1.91) also considered increasing the number of females in their primary unit more important than non-STEM respondents (1.57) in 2007 (p< .001). And they were more committed than non-STEM respondents to increasing gender diversity in their primary unit in 2003.

In contrast, non-STEM respondents (2.25) considered increasing the number of racial and ethnic minority persons more important than did STEM respondents (1.88, 2.04), both in 2003 (p< .001) and in 2007 (p< .01). Also, non-STEM respondents (2.40, 2.36) were more personally committed than STEM respondents (1.95, 2.06) to increasing racial and ethnic diversity in their primary unit both in 2003 (p< .001) and in 2007 (p< .001). Their (2.22) commitment to increasing gender diversity was in turn slightly higher than among STEM respondents (1.97) in

2003 (p< .01). Overall, the differences in respondents' views from the two fields were more apparent in 2003 than in 2007.

Table 6.4.1: Average scores and T-test results for diversity variables for STEM and non-STEM respondents, in 2003 and 2007.

	2003			**2007**		
Scales	Mean		Test score	Mean		Test score
	STEM	**Non-STEM**		**STEM**	**Non-STEM**	
Encouragement of						
Minority males	3.69	3.36	-4.364***	3.65	3.46	-2.803**
Minority females	3.62	3.30	-3.875***	3.63	3.45	-2.598*
White males	3.71	3.66	-0.933	3.70	3.65	-0.816
White females	3.67	3.53	-2.062*	3.64	3.59	-0.884
Importance of increasing the number of						
Females	1.79	1.72	-1.017	1.91	1.57	-5.291***
Racial/ethnic minorities	1.88	2.25	5.171***	2.04	2.25	2.968**
Commitment to						
Gender diversity	1.97	2.22	3.50**	2.08	2.16	1.301
Racial/ethnic diversity	1.95	2.40	6.552***	2.06	2.36	4.895***

2003: STEM (N=252-258), non-STEM (N= 176-180); 2007: STEM (N=252-256), non-STEM (N=237-240) ** (p<.001 ***; p<.01 **; p<.05 *)

Slight increases could be detected between 2003 and 2007 in these diversity variables among STEM respondents, such as in the importance of increasing the number of females and minority persons and in their commitment to the related increases. For the importance views, the increase was statistically significant (p< .05) only for increasing the number of racial minorities. Slight increases between 2003 and 2007 applied also to the non-STEM respondents' encouragement of minorities. Instead, their averages in the importance of increasing the number of females as well as in commitment to increasing gender or racial/ethnic diversity were slightly lower in 2007 than in 2003. The former decrease was also statistically significant (p< .05).

In all, the results indicate that non-STEM faculty placed more importance than did STEM faculty on increasing racial and ethnic diversity in their primary unit, whereas STEM respondents considered increasing the number of females more important than non-STEM respondents. They also would encourage minority friends to work in their primary unit more often than would non-STEM respondents. These differences may reflect differences in the perception of STEM and non-STEM faculty of the diversity problems in their field—women are underrepresented in the STEM fields, and STEM faculty's awareness of this may be growing.
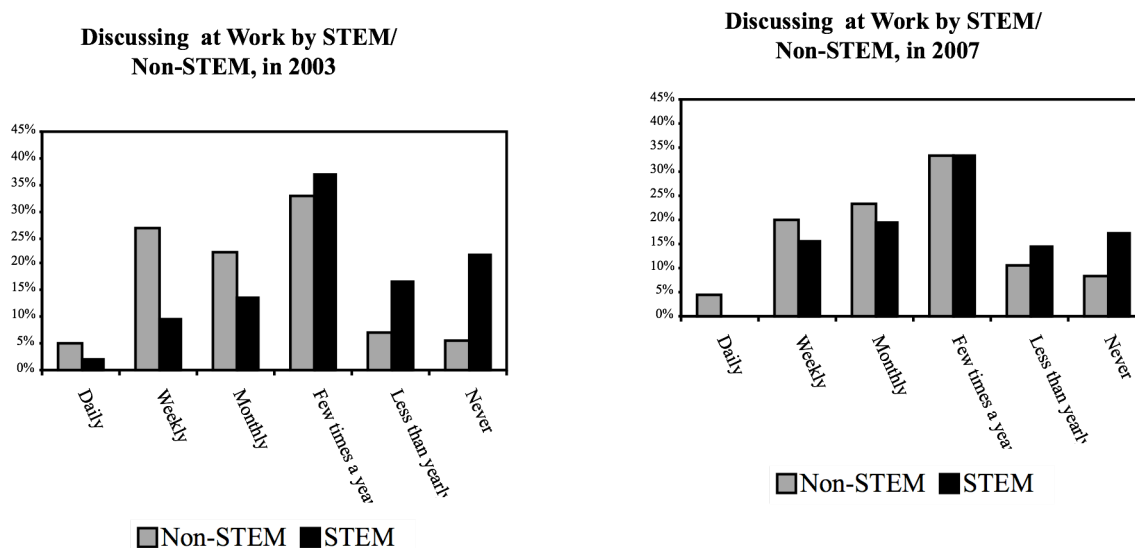
6.4.2 Discussing Diversity Issues

Figures 6.4.1a and 6.4.1b illustrate the frequency of discussing diversity issues at work for STEM and non-STEM respondents separately, in 2003 and in 2007. A statistically highly significant difference was found between STEM and non-STEM respondents' frequencies in discussing racial and gender issues at work both in 2003 ($p < .001$) and in 2007 ($p < .001$). The STEM respondents clearly discussed these topics less often at work than the faculty in other areas. This difference was even more apparent in 2003.

In 2003,

- in all, 54.1% of the non-STEM respondents discussed diversity issues at work at least monthly,

- whereas the percentage for STEM respondents was 25.3%.

- In turn, 12.9% of non-STEM faculty but 34.8% of STEM faculty discussed these issues at work less than yearly or never.

Figure 6.4.1a-6.4.1b: Frequencies for discussing race/gender at work by STEM and non-STEM respondents, in 2003 and 2007 (2003: STEM: N=261 - 100%; non-STEM: N=179 – 100%; 2007: STEM: N=253 - 100%; non-STEM: N=239 – 100%).
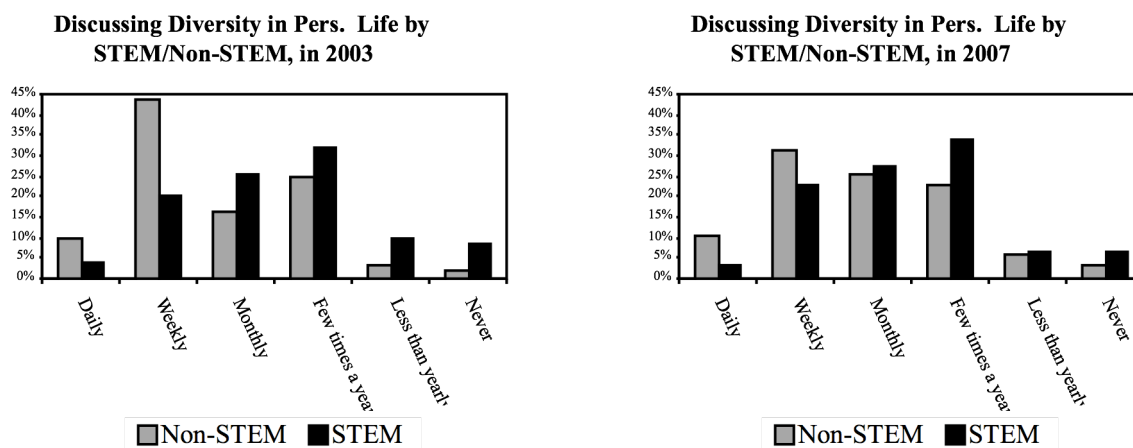

STEM respondents discussed diversity issues less frequently than non-STEM respondents also in 2007, but the differences were milder as compared to the 2003 data. In 2007,

- 34.8% of the STEM respondents discussed diversity issues at work at least monthly,

- whereas the percentage among non-STEM respondents was 48.1%.

These percentages also indicate that an increase applied to the frequencies of discussion between 2003 and 2007 among STEM respondents, and this increase was statistically significant ($p < .05$). In 2003, 38.0% of the STEM respondents discussed diversity issues at work less than yearly or

never, but this percentage was 31.6% in 2007. No clear difference between 2003 and 2007 appeared in this diversity indicator among non-STEM respondents. In fact, the trend was the opposite: 12.9% of the non-STEM respondents in 2003 discussed diversity issues at work less than yearly or never, but this proportion was higher in 2007, at 18.9%.

Figure 6.4.2a-6.4.2b: Frequencies for discussing race/gender in personal life by STEM and non-STEM respondents in 2003 and 2007 (2003: STEM: N=259 - 100%; non-STEM: N=179 – 100%; 2007: STEM: N=254 - 100%; non-STEM: N=237 – 100%).

Figures 6.4.2a and 6.4.2b illustrate the frequency of discussing diversity issues in personal life for STEM and non-STEM respondents, in 2003 and in 2007 separately. Similar to the results for these discussions at work, a statistically highly significant difference appeared in 2003 (p< .001) between STEM and non-STEM respondents in discussing racial and gender issues in personal life. Again, STEM respondents clearly discussed these topics less often also in personal life than did faculty in other academic areas.

In 2003,

• in all, 53.7% of the non-STEM respondents discussed diversity issues in personal life at least weekly, whereas this percentage for STEM respondents was 24.7%.

• Also, 30.2% of the non-STEM respondents discussed these issues in personal life few times a year or less often, whereas this percentage for STEM respondents in 2003 was 49.9%.

The observed differences in 2007 were not as clear as in 2003 (p< .01). In 2007,

• 42.1% of the non-STEM respondents but 25.9% of the STEM respondents discussed diversity issues in personal life at least weekly.

• And 32.1% of non-STEM respondents but 46.9% of STEM respondents discussed theses issues few times a year or less .

No clear differences could be detected in the frequencies of discussing diversity issues in personal life between 2003 and 2007. Among non-STEM respondents, 53.7% in 2003 and 42.1% in 2007 discussed these issues at least weekly. For STEM respondents these percentages were 24.7% and 25.9% respectively. In comparison, 30.2% in 2003 and 32.1% in 2007 of the

non-STEM respondents discussed diversity issues in personal life few times a year or less, and for the STEM respondents the percentages were 49.9% and 46.9% respectively. These differences may reflect differing degrees to which diversity is perceived as directly relevant to faculty scholarly and teaching work, and likely also reflects the greater number of researchers among the STEM group, since the researchers also discussed diversity less often.

6.5. Diversity Issues and Gender

Consideration of diversity issues against the respondents' gender was also interesting.

6.5.1 Encouragement and Commitment

Table 6.5.1 describes the averages and test results for the continuous diversity variables for men and women.

Table 6.5.1: Average scores and T-test results for diversity variables by gender, in 2003 and 2007.

	2003			2007		
Scales	Mean		Test score	Mean		Test score
	WOMEN	**MEN**		**WOMEN**	**MEN**	
Encouragement of						
Minority males	3.48	3.62	-1.952	3.49	3.57	-1.301
Minority females	3.41	3.57	-1.989*	3.46	3.57	-1.717
White males	3.68	3.69	-0.101	3.71	3.58	2.249*
White females	3.56	3.67	-1.780	3.58	3.59	-0.081
Importance of increasing the number of						
Females	1.80	1.73	1.002	1.65	1.81	-2.440*
Racial/ethnic minority	2.15	1.90	3.438**	2.29	2.01	4.274***
Commitment to						
Gender diversity	2.20	1.95	3.465**	2.13	2.12	0.118
Racial/ethnic diversity	2.25	2.02	3.298**	2.27	2.16	1.672

* 2003: Women (N=230-233), Men (N= 195-199); 2007: Women (N=244-248), Men (N=298-301)

** ($p<.001$ ***; $p<.01$ **; $p<.05$ *)

Both women and men were rather willing to encourage their friends from all the various groups to join their unit, the averages varying between 3.41 and 3.71 for women and between 3.57 and 3.69 for men (range 1-4). But women were slightly less willing to encourage people other than white males to work in their primary unit, both in 2003 and 2007, thus suggesting that they perceived their unit as less welcoming to women and minority members. This was true also

among men in 2003, but no difference appeared in 2007 between the groups that men would encourage to work in their primary unit. A statistically significant difference appeared in the men's and women's encouragement of minorities. Men would slightly more often (p< .05) than women encourage minority females to work in their primary unit in 2003, whereas women would slightly more often than men (p< .05) encourage white men to work in their primary unit in 2007.

The importance of increasing the number of racial/ethnic minority faculty was stressed more than that of increasing the number of females, both by women and men. This tendency applied even more to the 2007 data than in 2003. Likewise, both women's and men's commitment to increasing racial/ethnic diversity was slightly higher than their commitment to increasing gender diversity in both 2003 and 2007. These differences were even more apparent among women than among men. Both in 2003 and in 2007, women (2.15, 2.29) considered increasing the number of racial and ethnic minority colleagues in their primary unit more important (p< .01, p< .001) than did men (1.90, 2.01). Instead, in 2007, men considered increasing the number of females in their unit more important than did women (p< .05). On the other hand, in 2003, women were more (p< .01) personally committed to increasing both gender (2.20) and racial/ethnic (2.25) diversity in their unit as compared to men (1.95, 2.02). But no gender difference applied either to the respondents' commitment to increasing gender or racial and ethnic diversity in their primary unit in 2007.

No clear changes could be found between 2003 and 2007 among women or men in their encouragement of different groups of people to work at their unit. For men, increasing the number of both racial/ethnic minorities and women was slightly more important in 2007 than in 2003. For women, only increasing racial/ethnic diversity was slightly more important in 2007 than in 2003. In fact, women considered increasing gender diversity slightly less important in 2007 than in 2003, and this difference was statistically significant (p< .01). A slight decrease applied also to women's commitment to gender diversity from 2003 to 2007. However, a statistically significant (p< .05) increase applied to men's commitment to gender diversity, but the slight increase in their commitment to racial/ethnic diversity was not statistically significant.

6.5.2 Discussing Diversity Issues

Figures 6.5.1a-6.5.1b and 6.5.2a-6.5.2b show the frequencies of discussing gender and racial equity issues at work and in personal life according to gender, in 2003 and 2007 separately. Overall, women discussed these issues both at work and in personal life slightly more often than did men, but no statistically significant gender difference could be found in these items in 2007. The only statistically significant gender difference appeared in discussing diversity issues at work in 2003. Differences in the frequencies for women vs. men generally diminished from 2003 to 2007. Both gender groups tended to discuss diversity issues more often in personal life than at work.

Figure 6.5.1a-6.5.1b: Frequencies for discussing race/gender at work by gender, in 2003 and 2007 (2003: Women: N=229 - 100%, Men: N=201 – 100%; 2007: Women: N=245 - 100%, Men: N=299 – 100%).
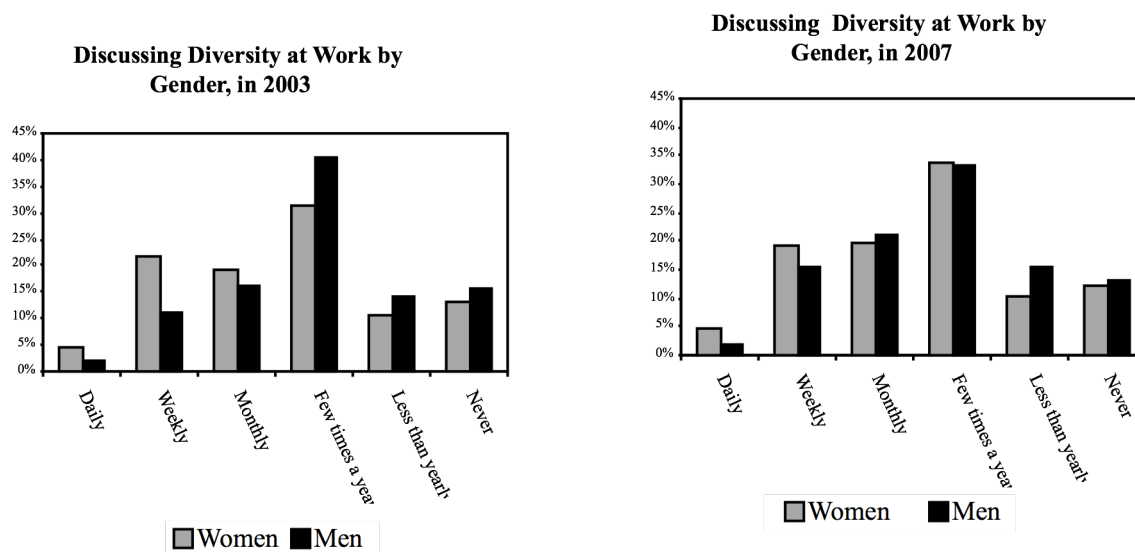
In 2003, women discussed issues of gender and racial equity at work slightly more often than men (p< .05).

• 44.9% of women but 29.3% of men discussed issues of gender and racial equity at work at least monthly.

• While 31.5% of women but 40.3% of men discussed these issues at work a few times a year,

• and 23.7% of women but 30.3% of men discussed these issues at work less often than yearly or never.

In 2007, in all 43.7% of women and 38.2% of men discussed diversity issues at work at least monthly. In turn, 22.4% of women and 28.7% of men discussed these issues at work less than yearly or never.

Figures 6.5.2a and b illustrate the frequency distribution for discussing diversity issues in one's personal life, for 2003 and 2007 separately. No clear gender differences applied to discussing diversity issues in personal life in 2003 or 2007.

In 2003,

• 42% of women and 30.3% of men then discussed diversity issues in personal life at least weekly.

• In turn, 23.6% of women but 35.4% of men discussed diversity issues in personal life only few times a year.

• And, 12% of women and 12.7% of men discussed then these issues in personal life less than yearly or never.

Figure 6.5.2a-6.5.2b: Frequencies for discussing race/gender in personal life by gender, in 2003 and 2007 (2003: Women: N=231 - 100%; Men: N=195 – 100%; 2007: Women: N=244 - 100%; Men: N=300 – 100%).
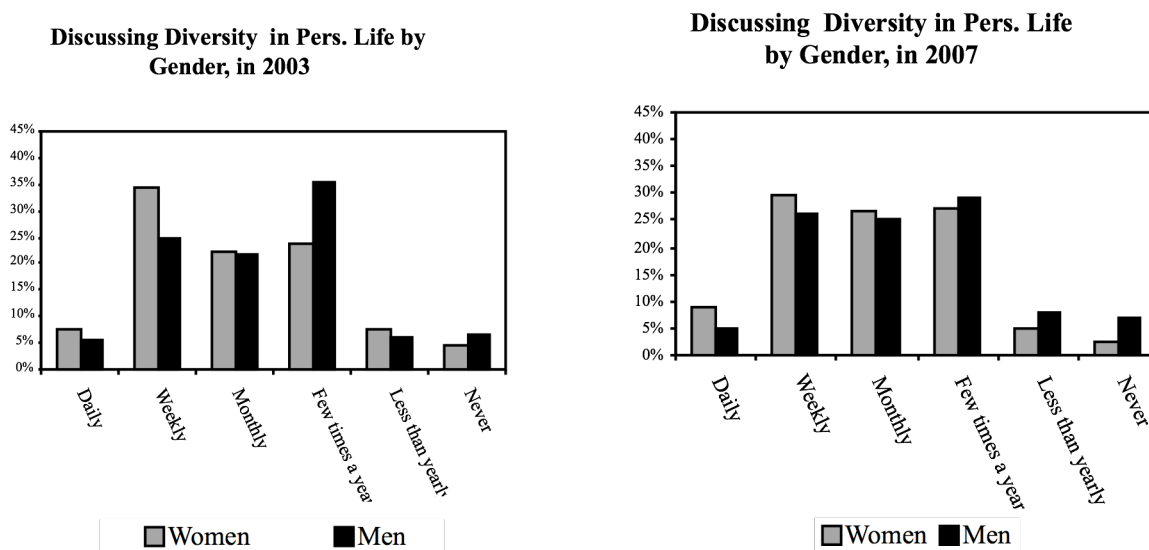
Again, the gender differences in the frequencies of discussing diversity issues in personal life were even slighter in 2007. In 2007,

• 38.9% of women and 31.3% of men discussed issues of gender and racial equity at least weekly.

• In comparison, 27.0% of women and 29.0% of men discussed these issues in personal life in 2007 only a few times a year,

• and 7.4% of women but 14.4% of men discussed diversity issues less than yearly or never.

The increases in the frequencies from 2003 to 2007 were more apparent among men than among women. In 2007, men discussed diversity issues at work more often than in 2003 (at least monthly: 29.3% - 38.2%). And, fewer men in 2007 (33.1%) than in 2003 (40.3%) discussed diversity issues at work only few times a year. Instead, 31.5% of women in 2003 and 33.9% of them in 2007 discussed diversity issues at work only few times a year. Also, 25.9% of women in 2003 and 24.1% of them in 2007 discussed these issues at work at least weekly.

The increase in the frequencies of discussing diversity issues in personal life from 2003 to 2007 was also higher among men than among women. In all, 35.4% of men in 2003 but 29.0% of them in 2007 discussed issues of gender and race only few times a year. Also, 52.0% of men in 2003 but 56.6% of them in 2007 discussed these issues at least monthly. For women these latter percentages were 64.3% in 2003 and 65.5% in 2007. And 23.6% of women in 2003 and 27% of them in 2007 discussed diversity issues in personal life only few times a year. Collectively, these indicators suggest that conversation about diversity was becoming more common.

6.6 Summary of the Diversity Indicators

6.6.1 All Respondents

Firstly, we considered the diversity indicators by reporting results from the four different scales measuring the respondents' encouragement and commitment related to white and minority groups. On average, in both 2003 and 2007, respondents were very willing to encourage both white male and female friends as well as minority males and females to work in their primary unit. They also reported stronger personal encouragement and general commitment to gender and racial/ethnic diversity than they placed importance on increasing the numbers from these groups. And they attached slightly more commitment and importance to increasing the number of racial/ethnic minority than females. No clear difference could be perceived in the encouragement or importance items between 2003 and 2007. A slight increase from 2003 to 2007 applied to respondents' commitment to increasing gender and racial/ethnic diversity in their primary unit.

The frequencies of discussing diversity issues at work or in personal life indicated only slight increases from 2003 to 2007. The largest group of respondents discussed these issues at work a few times a year, but a nearly as high proportion discussed these issues at work monthly or weekly. Rspondents discussed diversity issues clearly more often in personal life than at work, both in 2003 and in 2007. Around 35% of all respondents discussed diversity issues in their personal life at least weekly.

6.6.2 LEAP Participation

In 2007, clear differences applied to the items on importance of and commitment to diversity issues between respondents who participated in the LEAP program and those who did not participate in the program. LEAP participants scored higher in the importance and commitment they attached to increasing the number of females or racial/ethnic minority persons in their primary unit. However, those who did not participate in the program were slightly more willing than LEAP participants to encourage minority males and females to work in their primary unit, suggesting that they perceived fewer problems with working environments for diverse faculty.

In 2007, the LEAP participants also discussed clearly diversity issues more often, both at work and in their personal life, as compared to the non-participating respondents. For example, 32.4% of LEAP-participating respondents and only 16.0% of the non-participants discussed diversity issues at work daily or weekly. And nearly one half (48.5%) of the LEAP participants but 30.2% of the non-participants discussed diversity issues in personal life weekly. Non-participating people more often discussed diversity issues in personal life than at work.

6.6.3 Job Type

Examination of the differences with respect to respondents' job type showed slight differences in the encouragement items. Researchers were slightly more willing than the two other job groups to encourage friends from non-majority categories (not white males) to work in their primary unit, especially in 2003. But no clear increase applied to the encouragement variables between 2003 and 2007 within any of the three job groups. Tenure-track faculty were most willing to encourage white males than non-majority faculty, both in 2003 and 2007. However, no clear difference in the level of encouragement of the four groups applied to researchers or non-tenure-track faculty, in 2003 or 2007.

All of the three job groups considered increasing the number of racial/ethnic minorities more important than increasing the number of females, both in 2003 and 2007. Moreover, tenure-track faculty differed clearly in these two items as compared to the two other job groups (especially vs. researchers). They regarded increasing both the number of females and racial/ethnic minorities as more important than did the other groups, both in 2003 and 2007. No clear increase applied to the averages within the job groups in these two diversity variables from 2003 to 2007. Tenure-track faculty were also more committed than the other two job groups to increasing gender and racial/ethnic diversity in their primary unit, both in 2003 and 2007. A slight increase applied to researchers' commitment to diversity issues from 2003 to 2007.

In the frequencies of discussing diversity issues, researchers discussed these issues at work and in personal life clearly less often than the two other job groups, in 2003 and 2007. In 2007, the differences between tenure-track and non-tenure-track teaching respondents were rather small. No increase from 2003 to 2007 applied to the frequencies in discussing diversity issues at work among any of the three job groups. Some increases could be detected in the frequencies of discussing diversity in personal life from 2003 to 2007 but these were not statistically significant. All faculty groups discussed diversity issues more often in personal life than at work.

6.6.4 Academic Field

Some interesting findings emerged from the study of differences in the diversity indicators with respect to respondents' academic field. Overall, the differences between the diversity indicators of STEM and non-STEM respondents were more apparent in 2003 than in 2007. STEM respondents were more willing than non-STEM respondents to encourage friends from minority groups (2003 and 2007) and also slightly more likely to encourage white females to work in their primary unit in 2003. Further, in 2007, they considered increasing the number of females in their primary unit more important than did non-STEM respondents. In comparison, non-STEM respondents were more committed to increasing especially racial/ethnic diversity in their primary unit, both in 2003 and 2007. And they considered increasing the number of racial and ethnic minority more important than did STEM respondents in both 2003 and 2007.

Slight increases between 2003 and 2007 applied to these diversity variables among STEM respondents and also a few among non-STEM respondents. However, the importance of increasing the number of females and commitment to increasing gender or racial/ethnic diversity were rated slightly lower in 2007 than in 2003 among non-STEM respondents. In all, the results indicate that non-STEM faculty placed greater priority than STEM faculty on increasing racial and ethnic diversity in their primary unit, whereas STEM respondents considered increasing the number of females more important than non-STEM respondents. STEM respondents also would encourage minority friends to work in their primary unit more strongly than wouldnon-STEM respondents. These results probably reflect the differences in the number of women and men between STEM and non-STEM fields. The latter units have more women faculty and that may explain their lower concern for increasing the number of females in their primary unit. On the other hand, the reason for non-STEM faculty's higher focus on racial/ethnic diversity is not clear, but may reflect greater personal involvement with diversity issues through their teaching and scholarly work.

STEM respondents clearly less often discussed diversity issues at work and in personal life as compared to faculty in other areas. These differences were even more apparent in 2003. On the other hand, an increase applied among STEM respondents to the frequencies in discussing

diversity issues at work from 2003 to 2007. But no clear differences could be detected between 2003 and 2007 in discussing diversity issues in personal life among STEM or non-STEM respondents.

6.6.5 Gender

Generally, both women and men were willing to encourage different groups to work in their primary unit. Men were slightly more willing than women to encourage racial/ethnic minorities, whereas women were (2007) more willing than males to encourage white males (2007) and less willing to encourage minority females (2003) to work in their primary unit. Thus, women more often perceived differences in the welcome that non-majority faculty would receive in their unit. Moreover, these results applied even more strongly to those women who participated in the LEAP program.

Both gender groups considered increasing the number of racial/ethnic minority more important than that of females. This difference was more apparent among women than men, both in 2003 and 2007. But both LEAP-participating women and men rated the importance of a diverse faculty higher compared to non-participating women and men. A similar difference due to LEAP participation applied also to their commitment to diversity issues, both among women and men. In 2003, women in general were clearly more committed than men to increasing both gender and racial/ethnic diversity in their primary unit.

No clear changes were perceived between 2003 and 2007 among women or among men in their encouragement of different groups of persons to work at their unit. Increasing the number of both racial/ethnic and gender diversity was seen by men as slightly more important in 2007 than in 2003. For women, only increasing racial/ethnic diversity was slightly more important in 2007 than in 2003; women considered increasing gender diversity less important in 2007 than in 2003. This difference somewhat applied also to their commitment to gender diversity. The opposite was true among men whose commitment to gender diversity as well as to racial/ethnic diversity slightly increased from 2003 to 2007.

With respect to discussing diversity issues, women discussed these issues at work slightly more often than men in 2003. No gender difference applied to the frequencies in discussing diversity issues in personal life in 2003 or in 2007, and both gender groups discussed diversity issues more often in personal life than at work. Overall, the gender differences in these diversity indicators decreased from 2003 to 2007. The increases in the frequencies from 2003 to 2007 were more apparent among men than among women.

These results indicate that even though women might discuss diversity issues slightly more often than men, they see gender diversity issues as less significant than ethnic and racial diversity at the university. Greater flexibility appeared among men in this perspective. Both gender groups had an understanding of the importance and commitment to racial/ethnic diversity. Both women and men in the LEAP program were distinctive in placing high importance on increasing the number of females and racial/ethnic minorities as well as highly committed to diversity.

7. Results of the Climate Indicators

7.1 Results for All Respondents

The climate indicators for the 2003 and 2007 surveys consisted of five different Likert-type groups of items (see Appendices C & D). The first of the scales asked respondents' agreement on various descriptions of their work environment. The second scale consisted of items that indicated the collegiality of their work environment. In the third group of items, respondents were asked to rate the quality of institutional support offered by their primary unit, for their university activities and duties. Respondents' opinion about the leadership (chair or director) in their primary unit was asked in the next scale. Finally, the last of the climate indicators dealt with respondents' views of the level of mentoring they received from their primary mentor.

We first present the results from the reliability measured for the five constructed scales. After this, results are presented for each of the scales including all respondents, in 2003 and in 2007 separately. To illustrate possible differences, we report these results also by the respondents' job type; academic field; and participation in the LEAP program. General gender differences in these climate indicators were few and we report those differences in this first section.

7.1.1 Scales and Reliability

The five scales consisted of average responses to groupings of items on the surveys. The sections below report which items were used to construct each scale and the average scores according to respondents' job group for the 2003 and 2007 data separately. Each scale was tested for reliability by computing Cronbach's Alpha (Table 7.1.1). In 2003, the highest reliability applied to the Chair (0.96) and Mentoring (0.96) scales, whereas the Institutional scale had the lowest reliability (0.77). However, all of the scales had a reliability score clearly above 0.60, which indicates acceptable reliability. The reliabilities were at the same level for the five scales in the 2007 data.

Table 7.1.1: Scale reliability

Scale	Number of Items	Alpha 2003	Alpha 2007	Min	Max
Climate	9	0.88	0.88	1	5
Collegiality	14	0.80	0.82	1	5
Chair	15	0.96	0.96	1	5
Institutional support	10	0.77	0.79	1	5
Mentoring	10	0.96	0.96	1	4

7.2 Results for All Respondents

7.2.1 General Climate Indicator

Construction of the Scale

In the 2003 survey, the first 11 questions on the survey asked respondents to rate their work environment on a 1-6 continuum, with high scores indicating "positive" dimensions and low scores indicating opposite dimensions (see Appendix C). The adjectives offered were:

friendly, non-racist, heterogeneous, respectful, collegial, non-sexist, collaborative (vs. individualistic), cooperative (vs. competitive), non-homophobic, supportive, and civil.

In the 2007 survey, the items of heterogeneous (vs. homogenous) and cooperative (vs. competitive) were left out, because the meaning of these terms was unclear. Also, the questions had to be presented in a different format rating, because the original, customized online survey interface was no longer available and the "spectrum"-style question format was unavailable. The question was rephrased using a 5-point scale between strongly agree and strongly disagree with only positive words used as expressions of the quality of environment (see Appendix D). The 2003 general climate scale and items were adjusted to match the 2007 scale so that the final scale consisted of 9 items and the range between 1 (highly negative view) and 5 (highly positive view). A new average score variable for general working climate was computed by adding individuals' responses to these 9 items and dividing the sum by 9. Therefore, the new variable "Climate" represents respondents' average score on these 9 items.

All Respondents

The average score on the general climate scale was 3.87 in 2003 with a standard deviation of 0.79 among 444 respondents. In 2007, the overall average of the climate scale was 4.03 with the standard deviation of 0.81 among 655 respondents. These scores reflect a rather strong positive view of the general work climate and also an overall increase between 2003 and 2007. This increase was statistically significant at the level of $p < .01$.

The distribution of the average climate scale was skewed with 51.6% (N=338) of the respondents' average climate rating being 4.5 or more in 2007. Only 7.8% (N=51) of respondents reflected a negative view of their work climate. In 2003, 26.1% (N=117) of the respondents scored 4.5 or above in this average scale, but 5% (N=22) of them found the general climate negative. This indicates that in overall the respondents regarded their work climate as positive, but this positive view was even more apparent at the end of the LEAP program period.

Figure 7.2.1: Average scores in general climate scale by job type, separately in 2003 and 2007 (tenure (2003: N=210, 2007: N=266), non-tenure-track (2003: N=34, 2007: N=94), researchers (2003: N:196, 2007: N=195).

Averages for General Climate Scale, by Job Type in 2003 and 2007
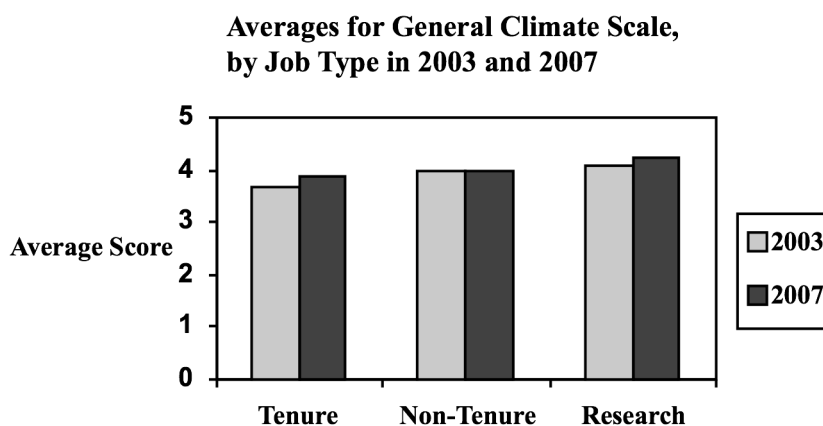
Averages and Job Type

In 2003, tenure-track faculty averaged 3.65, with less positive assessments (p< .000) of the climate than non-tenure-track teaching respondents (4.00) and researchers (4.08). Similar tendency applied to the 2007 data with the averages of 3.90, 3.97 and 4.23 respectively, but at this time researchers' views of their general work climate clearly exceeded (p< .000) the averages of the two other job groups. A slight increase in the average scores appeared between 2003 and 2007 within tenure-track faculty and researchers. However, neither of these increases was statistically significant.

Averages and Gender

The overall gender difference for this general climate indicator was not statistically significant either in 2003 or in 2007. In 2003, the average score in this scale for women was 3.82 and for men 3.90; in 2007, the averages were 4.00 and 4.07 respectively. A slight but not statistically significant increase from 2003 to 2007 was then valid for both gender groups.

No statistical gender difference in this general climate indicator applied within any of the three job groups in 2003. In 2007, a slight statistically significant (p< .05) gender difference in this scale appeared among tenure-track faculty. Men (3.99) perceived their work climate slightly more positive than women (3.74). Also the increases from 2003 to 2007 within both women's and men's views of their general working climate, were the largest among tenure-track faculty. The increase was statistically significant (p< .05) among tenure-track men (3.76 to 3.99).

7.2.2 Collegiality Indicator

Construction of the Scale

Collegiality scale consisted of 14 items both in the 2003 and 2007 surveys (see Appendices C & D). The collegiality scale included aspects such as:

> 'My colleagues value my work,'

> 'I feel pressure to change my work interests in order to gain colleagues' respect,'

> 'I constantly feel under scrutiny by my colleagues,' and

> 'I have to work harder than my colleagues do in order to be perceived as a legitimate scholar.'

The 5-point rating continuum in the collegiality scale was adjusted so that the possible responses ranged from a low of 1 (strongly disagree) to a high of 5 (strongly agree) for both the 2003 and 2007 data. In addition, individual items were recorded such that high scores in each questions always indicated positive ratings, whether the statement was positive or negatively framed. After this, a new variable "Collegiality" was constructed to indicate each respondents' average score in this group of items.
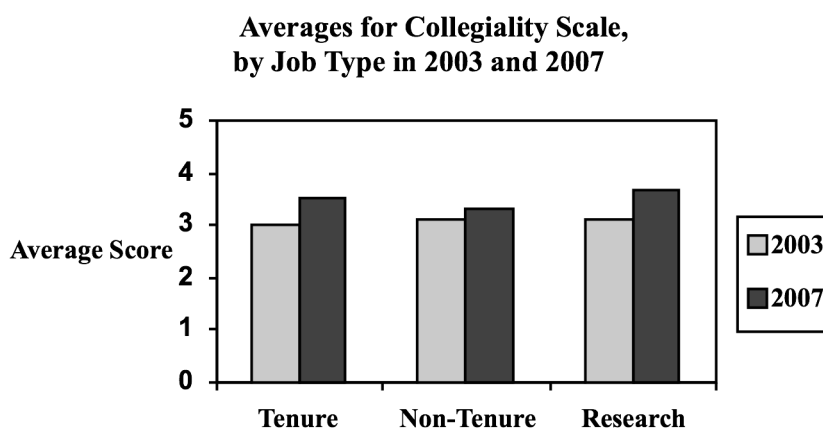
All Respondents

In 2003, the average score was 3.07 and the standard deviation was 0.40 among 442 respondents. In 2007, the overall average score for this scale was 3.55 and the standard deviation was 0.70 among 615 respondents. As a whole, the average scores were lower than the general climate averages, but the standard deviation was the lowest of all the five climate indicators, both in

2003 and 2007. A general increase could be found also in this collegiality scale from 2003 to 2007, with a statistically significant difference at the level of p< .000.

The distribution of the averages on this collegiality scale was closer to the normal distribution in 2007. 17.8% of respondents' average views scored 4.5 or above and 9.9% of them reflected negative views. Overall, 66.5% of these scores indicated a positive view of the environment influenced by colleagues. In 2003, the distribution of this scale was also more like a normal distribution, but the variation in this scale was clearly smaller in 2003 than for the 2007 data. No respondent scored 4.5 or above and no respondent had an average score below 1.9 in 2003.

Figure 7.2.2: Average scores in collegiality scale by job type, separately in 2003 and 2007 (tenure (2003: N=210, 2007: N=266), non-tenure-track (2003: N=34, 2007: N=94), researchers (2003: N=194, 2007: N=195).

Averages for Collegiality Scale, by Job Type in 2003 and 2007

Collegiality and Job Type

In 2003, the average collegiality scores for the three job groups were 3.02 for tenure-track faculty, 3.11 for non-tenure-track respondents, and 3.11 for research-track respondents. No statistically significant difference applied to the averages between these three job groups. However, in 2007, non-tenure-track teaching respondents' views of collegiality (3.31) were less positive (p< .000) than those of tenure-track (3.54) and research (3.66) faculty. Research faculty showed the biggest increase in this scale from 2003 to 2007 (p< .000). The increase in tenure-track faculty's collegiality score was also statistically highly significant (p< .000). The increase in non-tenure-track teaching respondents' collegiality views was also statistically significant (p< .01), but with a small number of respondents in 2003.

Collegiality and Gender

No general gender difference in the collegiality scale was found in 2003 or in 2007. Women's average score in this scale was 3.05 in 2003 and 3.50 in 2007. Men's average score in the scale was 3.08 in 2003 and 3.59 in 2007. Both genders' views of collegiality in their primary unit were clearly more positive in 2007 than in 2003, and this increase was statistically highly significant (p< .000) for both women and men.

No gender difference was perceived within the three job groups in 2003 or in 2007. But the increases in the collegiality averages from 2003 to 2007 were rather strong and statistically significant among tenure-track faculty and researchers, both for women (tenure: 2.99-3.45, p< .001; researchers: 3.11-3.68, p< .001) and for men (tenure: 3.05-3.61, p< .001; researchers: 3.10-3.64, p< .001). Slighter increases applied to non-tenure-track teaching women and men, and these differences were not statistically significant.

7.2.3 Chair Leadership Indicator

Construction of the Scale

The chair leadership scale consisted of the averages scores on 15 items both in the 2003 and 2007 survey (see Appendices C & D). These items included but were not limited to:

> 'chair maintains high academic standards,'

> 'chair is open to constructive criticism,

> 'chair is an effective administrator,

> 'chair handles disputes/problems effectively,' and

> 'chair creates a cooperative and supportive environment.'

The scores for the 2003 and 2007 data were again adjusted to measure variation on a 5-point scale ranging between ratings of 1 (poor) and 5 (superior). The data were recorded such that high scores in the Chair Leadership average variable indicated positive views of the primary unit chair and leadership.

All Respondents

In 2003, the average Leadership score was 3.61 for the 406 respondents, and 3.66 for the 547 respondents in 2007. The standard deviation for the leadership scale was 1.02 in 2003 and 1.09 in 2007, both indicating larger variation in respondents' views compared with the climate and collegiality scales. The average scores were higher than the average scores in the collegiality scale but lower than for the general climate scale. Also, the number of missing answers (2003: 34, 2007: 110) was higher for this scale than for the two other scales. This results in some difficulty in answering the items and in assessing the quality of unit leadership.

No clear general increase appeared in respondents' average views of unit leadership from 2003 to 2007. Also, a slight overall increase in the percentages of highly negative views of the leadership could be detected from 2003 (3.6%) to 2007 (7.3%). However, both in 2003 and 2007, the average scores indicated strongly positive perceptions of primary unit leadership. This was reflected also in the highly positively skewed distribution, especially in 2007. In 2007, 32% of respondents scored at the level of 4.5 or more, and more than one half of them (54.7%) rated their unit leadership positively. The distribution in the scale was less skewed in 2003, when 20.5% of the respondents reflected a very high view of their unit leadership, but 53.0% of them had generally positive views of their primary unit's leadership.

Figure 7.2.3: Average scores in leadership scale by job type, separately in 2003 and 2007 (tenure (2003: N=193, 2007: N=260), non-tenure-track (2003: N=33, 2007: N=93), researchers (2003: N=177, 2007: N=179).

Averages for Chair Leadership Scale, by Job Type in 2003 and 2007
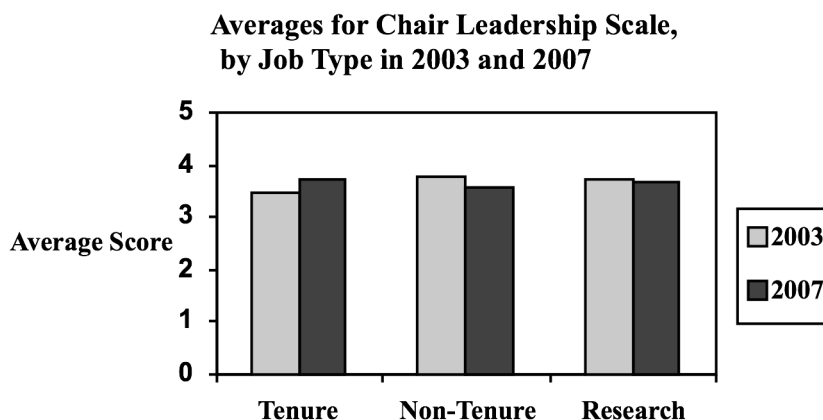
Chair Leadership and Job Type

In 2003, the averages on the leadership scale were 3.46 for tenure-track faculty, 3.78 for non-tenure-track faculty, and 3.75 for the researchers. At this time, tenure-track faculty had a bit less positive views of their unit leadership than the non-tenure-track teaching and research respondents. This difference was statistically significant at the level p< .05. No statistically significant difference appeared by respondents' job type in 2007, but instructors had slightly more negative views of their unit's leadership than tenure-faculty and researchers. The average scores for this scale in 2007 were 3.55 for non-tenure-track faculty, 3.71 for tenure-track faculty, and 3.68 for researchers.

The averages on this leadership scale decreased from 2003 to 2007 among researchers (and non-tenure-track respondents), and the decrease was statistically significant at the level of p< .01. The slight increase in the leadership scale from 2003 to 2007 was not statistically significant among tenure-track faculty.

Chair Leadership and Gender

In 2003, men's average score (3.61) was the same as women's (3.61). The average scores for this chair leadership scale were also nearly the same for men (3.69) and women (3.66) in 2007. These averages indicated again rather positive views of primary unit leadership by both gender groups. But no clear difference applied to the averages between 2003 and 2007 for men or women.

Further analyses indicated that no clear gender difference was found either in 2003 or in 2007 within any of the three job groups. Tenure-track men had slightly more positive views of their chair's leadership than did tenure-track women, both in 2003 and 2007. This slight gender difference was true also among researchers. Instead, non-tenure-track teaching women had slightly more positive views of their unit leadership than did non-tenure-track teaching men in 2003, but not in 2007. The decreases in the leadership averages from 2003 to 2007 were the strongest among non-tenure-track teaching women (3.95 to 3.57). But the numbers of the respondents in this job category were low in 2003.

7.2.4 Institutional Support Indicator

Construction of the Scale

Ten items are combined to form the institutional support scale (see Appendices C & D) Respondents were asked to rate how well their department supports each of the items, ranging from 'Poor' (1) to 'Excellent' (5). These items included but were not limited to:

> 'family leave,' 'child care,' 'partner/spousal hiring,' 'health accommodations,' 'career planning,' 'tenure clock adjustments,' and 'acquiring resources.'

Upon re-recording, the high scores in the Institutional Support scale indicated positive perceptions.

All Respondents

In 2003, the average score on the institutional support scale was 2.81 among 439 respondents and 3.31 among 584 respondents in 2007. The standard deviations were 0.98 in 2003 and 0.81 in 2007. These scores indicate slightly less positive views than for the climate, collegiality and leadership scales. Overall, an increase in the average scores in this scale applied from 2003 to 2007. This increase was statistically significant at the level of $p < .000$.

The distribution of this average scale in 2007 was closest to the normal distribution of all the five climate indicators. Among all respondents, 41.2% (N=271) found their unit support excellent or above average, and 3.3% (N=22) of them found it poor. In 2003, these percentages clearly differed from those in 2007. In all, only 28.9% (N=127) of the respondents found their unit support then excellent or above average, with 6.7% (N=30) of them considering their unit support poor. The total number of missing answers in this scale was 10 (2.2%) in 2003 and 73 (11.1%) in 2007 indicating a lower response rate than for the climate and collegiality scales but higher response rate than for the leadership scale.

Figure 7.2.4: Average scores in institutional support scale by job type, separately in 2003 and 2007 (tenure (2003: N=205, 2007: N=266), non-tenure-track (2003: N=34, 2007: N=91), researchers (2003: N=196, 2007: N=193).

Averages for Unit Support Scale, by Job Type in 2003 and 2007
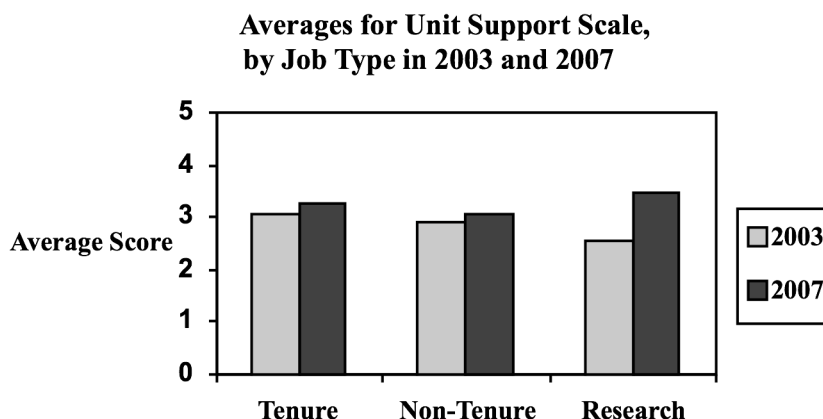
Unit Support and Job Type

A statistically significant difference applied to the average scores on the unit support scale by respondents' job type both in 2003 ($p< .000$) and in 2007 ($p< .000$). In 2003, researchers had clearly the least average score (2.53) in this scale and it differed statistically significantly from that of tenure-track faculty's average (3.07). The average score in unit support for non-tenure-track teaching faculty was 2.91. In comparison, in 2007, non-tenure-track teaching faculty had the lowest average score (3.08), whereas researchers had the highest average score on this scale (3.48). The average score for tenure-track faculty was 3.26. These differences in the averages between the three job groups were all statistically significant in 2007.

Further analyses indicated that the increase in positive views of unit support from 2003 to 2007 was clearly the highest among researchers ($p< .05$). But this increase was also statistically highly significant among tenure-track faculty ($p< .000$). No statistically significant difference applied to the increase among non-tenure-track teaching faculty.

Unit Support and Gender

Men averaged lower scores than women both in 2003 (M: 2.78, W: 2.84) and in 2007 (M: 3.27, W: 3.36), indicating that women rated their institutional support slightly higher than men did. However, these differences were not statistically significant. However, a clear increase from 2003 to 2007 in these averages applied for both women ($p< .000$) and men ($p< .000$). The averages in both gender groups indicated slightly negative views in 2003 but slightly positive views in 2007.

None of the gender differences within each of the three job groups were statistically significant in 2003. In 2003, non-tenure-track teaching women averaged slightly higher (3.02) compared to non-tenure-track teaching men (2.77). In turn, men and women in tenure and research tracks had nearly identical averages in 2003. A statistically significant gender difference applied to unit support for researchers in 2007 ($p< .05$). Women researchers (3.60) had a more positive view of their unit support than men researchers (3.37). A similar gender difference applied to non-tenure-track faculty (W: 3.13; M: 2.95), but this difference was not statistically significant.

The increase in unit support averages was the highest and statistically significant both among women (2.55-3.60, $p< .001$) and men (2.50-3.37, $p< .001$) researchers. Slighter increases applied to women's and men's views of their unit support within the two other job groups, which were not statistically significant.

7.2.5 Mentoring Indicator

Construction of the Scale

The average mentoring variable was computed for the 10 items in 2003 and in 2007 (see Appendix C.). These items included, but were not limited to:

> 'my mentor promotes my career through networking,'

> 'my mentor provides useful advice on publishing,'

> 'my mentor helps me obtain resources I need,' and

> 'my mentor provides advice on balancing work and family.'

The scoring of the items in the 2003 scale was again adjusted to match the one in the 2007 survey scale thus ranging between 1 (none) and 4 (too much). After re-recording some of the original items, a new variable was constructed measuring each respondent's average score on the scale. Again, higher scores indicated a positive average view of mentoring, but the range in this scale differed from the four other climate indicator scales.

Results from this mentoring scale had the highest reliability as reflected in the reliability score 0.96. But the percentage of missing answers at this scale was the highest of all the five climate indicators, with the number of 204 (45.4%) missing data in 2003 and 392 (59.7%) in 2007. These numbers indicate a clear difficulty in answering the items in the mentoring scale. On the other hand, large number of respondents didn't have a campus mentor and this decreases the respondents' willingness or ability to answer the mentoring items.

In 2003, 49.0% of tenure-track faculty, 47.1% of non-tenure-track teaching faculty, and 52.8% of researchers reported having a campus mentor. In 2007, the percentages were 45.4%, 39.8%, and 39.3% respectively. But most of the mentors represented the same primary unit as the respondents in 2003, in all job categories (tenure 69.9%, non-tenure-track teaching 64.7%, research 79.2%). This was even more valid in 2007 (at 77.1%, 74.3%, 85.8% respectively). Thus, this indicator reflects views of mentoring that respondents received in their primary unit.

All Respondents

In 2003, the overall average of the scores on this scale was 2.71 and standard deviation 0.57. In the 2007 data, the average was 2.80 and the standard deviation was 0.81. Accordingly, no clear general increase could be detected from 2003 to 2007 in respondents' views about the level and quality of mentoring. Instead, higher variation in the averages applied to the 2007 data as compared to the 2003 data. The distribution of the averages in this scale was the skewest of all the five climate indicators. In all, 80.0% (N=196) of the 2003 respondents and 73.6% (N=195) of the 2007 respondents who answered the items found the level of mentoring adequate. But as indicated above, nearly one half of the respondents did not answer the mentoring items. This decreases the reliability of these results but still shows clearly positive views about mentoring.

Figure 7.2.5: Average scores in mentoring scale by job type, separately in 2003 and 2007 (tenure (2003: N=109, 2007: N=127), non-tenure-track (2003: N=18, 2007: N=40), researchers (2003: N=117, 2007: N=94).
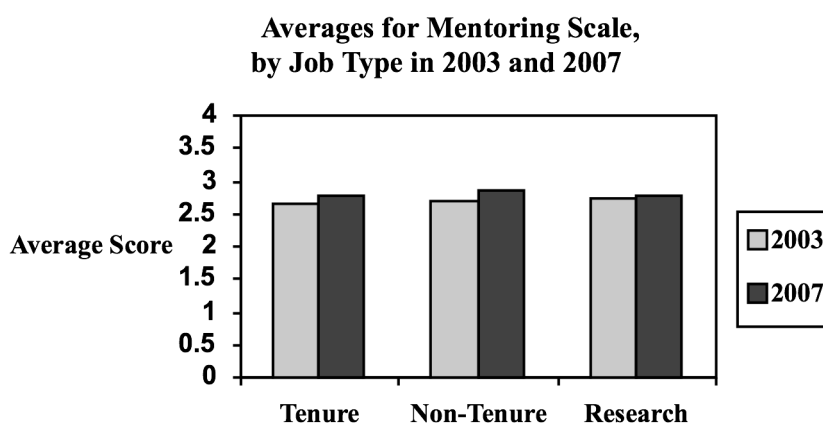
Mentoring and Job Type

No clear difference could be detected in the average scores between the three job groups in the mentoring scale, either in 2003 or in 2007. In 2003, the averages were 2.67 for tenure-track faculty, 2.70 for non-tenure-track faculty, and 2.75 for researchers. In 2007, the averages were 2.78, 2.84 and 2.78 respectively. These averages show an acceptable view of mentoring for all the three job groups and for both years. In addition, a slight increase in views of mentoring could be perceived among each job group, but these differences were not statistically significant.

Mentoring and Gender

In 2003, women's average (2.76) was slightly higher than men's (2.65) but this difference was not statistically significant. In 2007, the average score in mentoring was about the same for women (2.79) and men (2.80), but a slight increase between 2003 and 2007 could be detected among men. This increase was statistically significant at the level of $p < .01$.

In 2003, women (2.76) and men (2.74) in the researcher track showed similar averages in mentoring. However, women scored higher among tenure-track faculty (women: 2.75; men: 2.57)*,* and among non-tenure-track teaching faculty (women: 2.89; men: 2.50) with a small number of respondents (N=9) in 2003. Neither of these differences was statistically significant. In 2007, men scored only slightly higher than women among tenure-track (M: 2.80; W: 2.76) and non-tenure-track teaching respondents (men: 2.91; women: 2.80), but these differences were not statistically significant. Women (2.82) had a slightly higher average in the mentoring scale than men (2.75) among researchers. This difference was not statistically significant.

The strongest increases in the mentoring averages applied to non-tenure-track teaching men (2.50-2.91) and tenure-track men (2.57-2.80). Only the increase among tenure-track men was statistically significant ($p < .05$). No increase in the mentoring scale appeared among men researchers or women in tenure-track positions. But a slight increase could be detected in women's mentoring average in the researcher track (2.76-2.82). In comparison, a slight decrease applied to non-tenure-track women's mentoring average (2.89-2.80), with only 9 respondents in 2003. These differences were not statistically significant.

7.3 Climate Indicators and Academic Field

We considered the five climate indicators with respect to the respondents' academic field. Differences in the averages of the climate indicators were studied between STEM and non-STEM separately for the 2003 and 2007 data. Table 7.3.1 shows the means and T-test results for the five climate indicators in 2003 and 2007.

7.3.1 General Differences

Firstly, unlike the mentoring average (range 1-4), the other four scales ranged between 1 and 5 with 3 indicating a neutral average view. For the four climate indicators, the averages reflected the most positive views about the general work climate both among STEM and non-STEM respondents, in 2003 and in 2007. Among STEM respondents, the least positive views applied to unit support, both in 2003 and in 2007. This was true also among non-STEM respondents in 2007.

STEM respondents had slightly more positive views of their general work climate than non-STEM respondents both in 2003 and 2007, and this difference was statistically highly significant ($p < .001$). They also tended to score, on average, higher in their views of collegiality and unit

leadership, and also unit support in 2007. The differences in all these three indicators were statistically significant in 2007 (p< .01 and p< .05), but a statistically significant difference in 2003 applied only to chair leadership (p< .05) and unit support (p< .001). Unlike the others of these differences, the latter difference revealed that non-STEM respondents had slightly more positive views of their primary unit's support than STEM respondents in 2003. No difference between STEM and non-STEM respondents could be found in their views about mentoring.

Table 7.3.1: Average scores and T-test results for climate indicators by academic field, in 2003 and 2007.

	2003			**2007**		
Scales	**Mean**		Sig.	**Mean**		Sig.
	STEM	**Non-STEM**		**STEM**	**Non-STEM**	
Climate	4.01	3.67	***	4.18	3.92	***
Collegiality	3.09	3.04	No Sig.	3.66	3.46	**
Chair leadership	3.70	3.49	*	3.81	3.54	**
Unit support	2.63	3.09	***	3.40	3.25	*
Mentoring	2.70	2.73	No Sig.	2.82	2.75	No Sig.

 2003: STEM (N=156-262), non-STEM (N= 89-180); 2007: STEM (N=121-257), non-STEM (N=118-240)

** (p<.001 ***; p<.01 **; p<.05 *)

The differences in the climate indicators between STEM and non-STEM respondents slightly decreased from 2003 to 2007 with respect to their views about general work climate and unit support. In turn, an increase in the differences applied to their views about collegiality and leadership, with STEM respondents having more positive views than non-STEM respondents.

In general, an increase could be detected in the averages from 2003 to 2007 in the climate indicators both in STEM and non-STEM areas. The clearest increase applied to STEM respondents' views of their unit support (p< .01). This increase was true for both STEM women (2.67-3.64) and STEM men (2.60-3.30) separately.

7.3.2 Differences and Gender among STEM Respondents

A statistically significant gender difference (p< .01) applied to the unit support averages, with STEM women having not only the highest increase in this climate indicator but also a clearly higher average (3.64) than STEM men (3.30) in 2007. A strong increase in average applied also to the collegiality scale in STEM fields (p< .000). Both STEM women's (3.10-3.70) and STEM men's (3.08-3.66) views of collegiality clearly improved. No gender difference applied to this climate indicator in 2003 or 2007.

The increases in the STEM averages were minor for the general work climate scale and also for the leadership scale for both genders. But the increases in the leadership averages were higher for STEM women than for STEM men. Furthermore, STEM women (4.01) scored higher in the

leadership scale as compared to STEM men (3.71) in 2007 (p< .05). No clear gender difference could be found between STEM women and STEM men in the mentoring scale in 2003 or 2007. However, a statistically significant (p< .01) increase applied to the mentoring indicator among STEM respondents. Further analysis indicated that STEM women (2.75) had a slightly more positive views of mentoring than STEM men (2.65) in 2003, but the increase in STEM men's views of mentoring from 2003 to 2007 was slightly higher than among STEM women.

7.3.3 Differences and Gender among Non-STEM Respondents

In 2007, non-STEM respondents had the least positive views of their unit support. But this was not quite true in 2003 when they instead reported the least positive views about collegiality. On the other hand, the clearest increase among non-STEM respondents from 2003 to 2007 applied to their views of collegiality (p< .01). This clear increase could be perceived for both women (3.01-3.41) and men (3.08-3.54) separately. Additional increases could be discerned in non-STEM respondents' views of general working climate and unit support, for both women and men. Of these two climate indicators, only the latter increase was statistically significant (p< .000). Increases in the leadership and mentoring scales were minor for both non-STEM women and non-STEM men.

No clear gender difference could be detected in the five climate indicators among non-STEM respondents in 2003 or in 2007. Generally, non-STEM men scored slightly higher than non-STEM women in their views of general working climate and collegiality, both in 2003 and in 2007. This gender difference was somewhat valid also for the unit support averages in 2003 and for the leadership averages in 2007. Instead, in 2007, non-STEM women scored slightly higher than non-STEM men in the unit support scale and in the mentoring scale.

7.4 Climate Indicators and LEAP Participation

An interesting research question relates to the differences in the climate indicators in 2007 between those respondents who participated in the LEAP program and those who didn't. Table 7.4.1 shows results of the T-test analyses and the descriptive statistics for each of the five scales separately for those who did and who did not participate in the LEAP program.

Table 7.4.1 Average scores, standard deviations, and T-test results for climate indicators, by LEAP participation in 2007.

	LEAP			**No LEAP**			T-test
Scales	Mean	S. D.	N	Mean	S. D.	N	Sig. level
Climate	3.86	0.881	134	4.08	0.784	421	**
Collegiality	3.42	0.728	134	3.58	0.699	421	*
Chair leadership	3.67	1.057	129	3.66	1.103	404	No sig.
Unit support	3.25	0.800	134	3.32	0.819	416	No sig.
Mentoring	2.81	0.413	78	2.79	0.464	183	No sig.

** (p<.001 ***; p<.01 **; p<.05 *)

7.4.1 General Differences

As the results in Table 7.4.1indicate, statistically significant differences between the two groups applied only to the general climate averages and collegiality averages. But the averages show that the results differed from what was expected. Those who had participated in LEAP reflected slightly less positive views in these two scales than those who did not participate in the program.

More detailed analyses showed in which items the differences appeared and to what extent they were consistent with the differences in the overall scale averages. In the general climate scale,

• the respondents who did not participate in the program had more positive views than the LEAP participating respondents in four of the nine items.

• Non-participating faculty considered their working environment less racist, less sexist, less homophobic, and less uncivil than the LEAP-participating respondents.

In the collegiality scale, statistical differences in favor of the non-participating respondents could be detected in all seven items, with the clearest differences in items such as:

• colleagues expectations about acting as a spokesperson for the respondents' gender or ethnic group,

• feeling under scrutiny by colleagues,

• working harder than colleagues in order to be perceived as a legitimate scholar,

• and networking outside department.

Only in the networking items did the LEAP participants scored on average higher than other respondents. This difference was statistically significant (p< .01) for networking outside department or unit.

No general difference appeared between the LEAP participants and non-participants in the chair leadership indicator. The only slight (but not statistically significant) difference in the single items applied to respondents' views about the extent to which their chair articulates criteria for promotion, tenure, or advancement. LEAP participants scored a bit higher in this item.

No general difference was found either for the unit support indicator between LEAP-participating and non-participating respondents. Item analysis indicated that the only statistically significant difference (p< .05) applied to respondents' views about the extent to which the primary unit supports tenure clock adjustments. In this case, the LEAP participants (3.61) scored higher than non-participants (3.35).

One statistically significant difference appeared in the single mentoring items. LEAP participating respondents (2.88) considered more often than non-participating respondents (2.67, p< .01) that their mentor advised them about preparation for advancement.

7.4.2 Differences and Gender

Considering averages on the five climate indicators according to respondents' gender revealed some additional results. In their views of general work climate, both those women and men who did not participate in the LEAP program scored higher than the LEAP participants. This was true also for the averages on the collegiality scale, for both women and men. In their views of unit support, respondents who did not participate in the program scored higher than LEAP

participants only among women. This result applied also to women's averages on the chair leadership indicator.

In contrast, men's views of their unit support were higher among LEAP-participating respondents than among those respondents who did not participate. Also, in the mentoring scale, LEAP-participating men scored slightly higher than men who did not participate. Whether these latter results were related to the male participants' more positive views of their work climate as compared to the men that did not participate, or to a positive influence of the LEAP program on men, is not clear. Anyway, it seems that women who did not participate in the program probably had more positive views of their primary work climate than those women who did participate in the program.

Some further analyses were made with respect to respondents' gender for the 2007 data. No clear gender difference could be detected in any of the five average climate indicators among those respondents who did not participate in the LEAP program. Among these respondents, women scored only slightly higher than men in their views of unit support, leadership, and mentoring. In turn, non-participating men scored slightly higher than non-participating women in their views of collegiality.

A statistically significant ($p < .05$) gender difference appeared between the LEAP-participating women's (2.76) and men's (2.91) averages in the mentoring scale. Men considered their mentoring more positively than women. Also, LEAP-participating men's views of general working climate, collegiality, and chair leadership tended to be slightly higher than that of LEAP-participating women's, but these differences were not statistically significant. Again, these results may indicate that the LEAP program had a more positive influence on men's views of their work climate, or that the LEAP-participating men in particular entered with more positive views of their work climate than women.

7.5 Summary of the Results from Climate Indicators

7.5.1 All Respondents

Overall, respondents regarded their work climate as very good, and these positive views were even more apparent at the end of the LEAP program period. The highest general averages applied to respondents' views of the general climate in their work environment. But their averages indicated clearly positive views also of their primary unit leadership and of the atmosphere established by their colleagues. On the other hand, the former climate indicator had the highest variation and the number of missing answers was higher than for the other climate indicators, while the collegiality indicator had the lowest variation both in 2003 and 2007.

Slightly less positive views applied to respondents' perceptions of their primary unit's support, but an overall increase from 2003 to 2007 was found in this climate indicator. Only half of respondents answered the mentoring scale items, but those who did answer reported again rather positive views of the quality of the mentoring they received in their primary unit. However, no clear difference in this appeared between the 2003 and 2007 data.

7.5.2 Job Type

Some differences could be found by respondents' job type. Due to the low number of non-tenure-track teaching respondents in 2003, the reliability of these results was higher in 2007.

In 2003, tenure-track faculty considered their general work climate less positive than did researcher faculty. On the contrary, researchers found their general work climate the most positive in 2007. In 2007, non-tenure-track teaching respondents had the least positive views of the collegiality in their work atmosphere. However, in 2003, tenure-track faculty had less positive perceptions of their primary unit's leadership. On the other hand, research faculty reflected the least positive views of support from their unit in 2003. Again, in 2007, the lowest averages in unit support were found among non-tenure-track teaching faculty, whereas researchers had then the highest averages in this climate indicator. No clear difference between the three job groups applied to the mentoring indicator in 2003 or in 2007.

Some of the changes in the views between 2003 and 2007 varied by respondents' job type. Again, due to the low number of non-tenure-track teaching faculty, we concentrate here on the two other job groups. Slight increases applied to the general climate indicator both among tenure-track and research faculty. The increases were clearer for the collegiality and unit support indicators for these two groups. However, a decrease applied to researchers' views of their primary unit's leadership. These results indicate that perceptions of primary unit's work climate increased from 2003 to 2007 among tenure-track faculty, who were the main group in the LEAP program. But increases were perceived also among research faculty. This applied especially to researchers' views of their primary unit's support. Tenure-track faculty considered their primary unit's leadership and general work climate less positive (in 2003). Again, non-tenure-track teaching faculty considered their primary unit's support and collegiality the least positive (in 2007). These differences show that the three job groups emphasize or are influenced by different aspects of their work climate. Unit support seemed to have the priority among research and non-tenure-track faculty, whereas tenure-track faculty's ratings in general work climate and unit leadership differed from the two other job groups' views.

7.5.3 Gender

Overall, general gender differences in the five climate indicators were few. Also, no clear changes could be perceived in the climate indicators among women or men separately.

Among tenure-track faculty, slight differences appeared in the favor of men in perception of general work climate. But an increase from 2003 to 2007 in this indicator applied both to tenure-track men and women. Increases in the collegiality indicator applied also to both gender groups, but no general or job-related gender difference could be perceived in this indicator. No clear gender differences applied either to views of leadership, in the averages or in the increases. Perceptions of unit support were also about the same level among women and men. A statistically significant gender difference in this indicator applied only among research faculty in 2007, with women reflecting slightly more positive views of their primary unit's support as compared to men. The increase in this climate indicator was the highest for researchers both among women and men. No general gender difference was detected in the mentoring indicator either in 2003 or in 2007. The increase in this indicator from 2003 to 2007 was slightly higher among men than among women. This applied especially to tenure-track men. In turn, in 2003, women scored higher than men in this indicator among tenure-track faculty.

7.5.4 Academic Field

Rather clear differences appeared between STEM and non-STEM respondents' views of their work climate, both in 2003 and 2007. Generally, STEM faculty found their work climate more positive than did non-STEM faculty, especially in 2007. The differences were clearer in 2007

than in 2003 as related to their views of collegiality and unit leadership. And the differences decreased with respect to their views of unit support and general work climate. The largest difference applied to their views of general work climate, but STEM respondents had more positive views of their primary unit's collegiality (2007), leadership (2003/2007) and support (2007). However, non-STEM respondents considered their unit's support more positive in 2003. No difference was found in their views of mentoring.

Increases in the climate indicators could be found from 2003 to 2007 both for STEM and non-STEM faculty. The clearest increase applied to STEM respondents' views of their unit support. This increase was true for both STEM women and men. And, unlike in 2003, STEM respondents slightly outscored non-STEM respondents in this indicator in 2007. The clearest increase among non-STEM respondents applied to their views of collegiality (even though this increase was even higher among STEM respondents). No difference between STEM and non-STEM respondents could be found in their views about mentoring.

No clear gender difference applied to the five climate indicators among non-STEM respondents in 2003 or in 2007. However, STEM women had the highest increase in the unit support indicator and also a clearly higher average than STEM men in 2007. Also, STEM women scored higher on the leadership scale as compared to STEM men, and the increases in this indicator between 2003 and 2007 were higher for STEM women than for STEM men. Moreover, in 2003, STEM women had slightly more positive views of mentoring than STEM men, but the increase in STEM men's views of mentoring from 2003 to 2007 was slightly higher than among STEM women. The latter results were consistent with the findings in the general gender differences on the climate indicators, but other gender differences were not perceived among all the respondents.

7.5.5 LEAP Participation

Even though overall increases in the climate indicators were detected from 2003 to 2007, differences in these between the LEAP-participating and non-participating respondents were few. These applied only to the general climate indicator and collegiality. But these differences were not in favor of the LEAP participants. Those who did not participate in the program had slightly more positive views on average in these two scales than the LEAP participants. These results may be because those respondents who participated in the LEAP program were more critical of their work climate already before attending the program; alternatively, the program may have enhanced their sensitivity to their work climate. This was even more valid among LEAP-participating women. They found the support and leadership in their primary unit less positive than the women who did not participate in the program. In comparison, views of unit support and mentoring were more positive among LEAP-participating men than among other men.

General gender differences in the climate indicators were also few, but among LEAP participants, men experienced mentoring more positively than women. And their views of general work climate and leadership were also slightly more positive than that of LEAP-participating women. However, among other (non-participating) respondents, women scored slightly higher than men in their views of unit support, leadership, and mentoring. It seems again that men may have benefited from attending the LEAP program; alternatively, their perceptions of their work climate were already rather good before attending the program. But the opposite was somewhat true among women.

For the collegiality indicator, it seems that all LEAP participants had succeeded better in networking. They scored higher than non-participants in the items measuring respondents' networking with colleagues outside their own unit. With respect to other single items included in the three other climate indicators, LEAP participants considered slightly more often that their chair articulated clear criteria for promotion, tenure, or advancement. They also reported more often than non-participating respondents that their primary unit supports tenure clock adjustments and that their primary mentor advised them about preparation for advancement. These results indicate that LEAP participants were better informed than other respondents about their career prospects. Since LEAP workshops emphasized providing accurate career information and building collegial networks, these results may be due to their participation.

8. *Responses to Open-Ended Questions*

The participants responded to two open-ended questions both in 2003 and 2007. The first question asked:

>Which aspects of your university work environment (i.e., physical, social, cultural) need improvement?

The second question asked respondents to identify positive aspects of the work environment:

>What are some positive aspects of your university work environment?

For simplicity, we will discuss responses to these two questions as "negative" and "positive" observations on the work environment. We combined the answers to both questions into one analysis and discuss them here together. Here we report results from responses to the 2007 survey only.

8.1. Analysis of Observations

Respondents' written responses to the open-ended questions typically included one or more distinct thought, which were separately coded according to the ideas expressed. Negative and positive observations were first coded by one of the three main themes (physical, social, cultural) that were offered in the first question. Additional main categories were constructed to incorporate observations that did not fit these three themes or that introduced new, emergent themes. Accordingly,

- three themes of physical, social, and cultural aspects were selected as the main categories for analysis.

- An additional fourth main category addressed professional aspects of the environment.

- A fifth main category consisted of "other" features and expressions that were not related to the first four main categories.

- A sixth main category was used for responses that "everything" was either negative or positive in the work environment.

- The seventh main category gathered responses of "none," referring to either negative or positive aspects of work environment.

Four of the seven main categories were further broken into different subcategories, based on the content of the negative and positive observations. The same main and subcategories were applied to both negative and positive answers. Frequency counts for each category are assumed to reflect the relative weight of issues in the respondents' collective report. The main categories with subcategories, frequency counts for each category, and percentages of negative and positive observations for all respondents are listed in Appendix B.

Each respondent's answer was coded for up to three positive and negative observations, identified as the first, second or third positive or negative statement. The order of statements may communicate a level of priority for the respondents. These three first statements covered the majority of all negative and positive features mentioned by respondents.

In reporting the results, we include both qualitative analysis of the content of the observations, and quantitative comparison of the numbers of negative and positive statements. We focus on the seven main categories and differences in the frequencies of observations in these categories, and how these vary by gender, academic field, job type, and LEAP participation (as in the statistical analyses presented previously).

8.2 Aspects of the University Work Environment

8.2.1 General Results

In 2007, the total number of negative observations was 719 and at the same level as the number of positive observations which was 730. In all 433 (65.9%) respondents noted at least one negative feature and 440 (67%) of them noted at least one positive aspect in their work environment. Accordingly, the respondents reported the same amount of negative and positive features of CU university work environment.

Table 8.2.1 shows the numbers of reported negative and positive observations by all respondents. No clear difference appeared between the numbers of reported negative and positive aspects. About one third of the respondents did not find or report any negative or positive aspects of their work environment. Five respondents reported that they found no positive aspects, whereas one respondent found everything positive. In turn, 25 respondents reported no negative aspects, but none reported "everything" as good in his/her work environment.

Table 8.2.1: Frequencies per individual for numbers of negative and positive observations on work environment, in 2007.

Number of observations per person	Negative observations		Positive observations	
	N	%	N	%
0	224	34.1	217	33.0
1	233	35.5	222	33.8
2	139	21.2	152	23.1
3	61	9.3	66	10.0
Total	657	100%	657	100%

- About one third of the respondents reported one negative or positive feature,

- and one quarter of them reported two different negative or positive aspects.

- About 10% of the respondents reported 3 different negative or positive aspects of their work environment.

Further analysis of the numbers of reported observations showed a clear correlation between the number of reported negative and positive features (r = .478, p< .01). This indicated that individual respondents reported about the same number of both negative and positive observations. Likewise, most respondents (79.9%) who reported no negative aspects tended to report no positive aspects either. On the other hand, most respondents (88.5%) who noted at least 3 different negative features, did note at least one positive aspect in their work environment. This tendency applied even more clearly among men than among women.

Figure 8.2.1a illustrates the frequencies of the first negative observations and all the three negative observations for all respondents along with the seven main categories. Figure 8.2.1b again shows the frequencies of first positive observations and all the three positive observations for all the respondents. Even though the numbers of positive observations were at the same level as those of the negative observations, the reported observations on work environment differed clearly from each other. But, the distributions of the first negative and all negative observations along with the seven main categories had the same pattern. This applied also to the distributions of the first and all reported positive aspects of work environment, but social and professional aspects of work environment even strengthened when considering the all three first positive observations.

Figure 8.2.1a: Negative aspects of work environment (first observations: N=457, all observations: N=719).
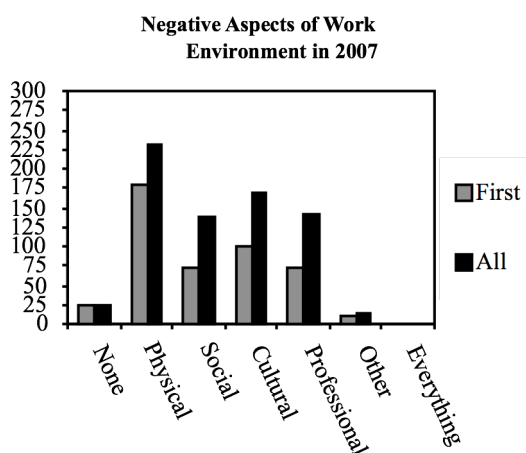
Figure 8.2.1b: Positive aspects of work environment (first observations: N=446, all observations: N=730).
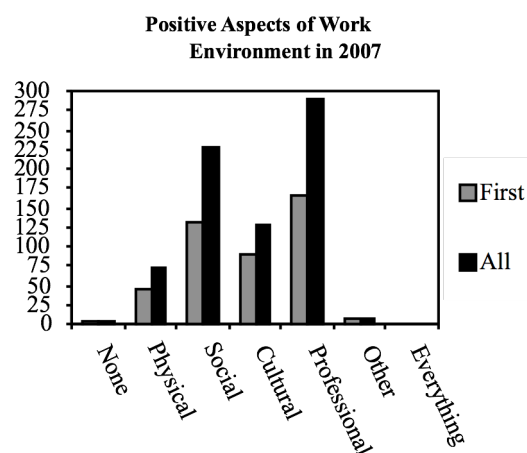
Next we consider separately these negative and positive observations on work environment within the main content categories, starting with the largest group of observations.

8.2.2 Negative Aspects

Physical Work Environment

Respondents' main concerns were clearly related to their physical work environment. This probably reflected real problems with facilities and physical resources in the university departments and research units. Moreover, the immediate physical environment constitutes a very obvious aspect of work environment that the respondents encounter every day. Thus this is a very important and clearly observable aspect of work environment, comprising

- 38.9% (178) of first negative observations,

- and 32.1% (231) of all negative observations.

Respondents mentioned most often:

- general and unspecified comments on a poor physical environment (60) and

- the poor condition of their building or their offices, including bathrooms or classrooms they used, lack of windows, or inadequate cleaning (57).

- Other respondents (64) reported a lack of space or privacy for working at the university.

Some respondents stated that because of these deficiencies, they did not work on campus but worked at home instead. Also, a sizable proportion of the respondents (32) commented on inadequate facilities such as aging computers, poor software, poor chairs or desks, and poor library facilities. A few respondents mentioned negative aspects such poor IT or administrative support (6), lack or high cost of campus parking (4), and physical isolation from their colleagues (8).

Cultural Work Environment

The second largest category of negative observations addressed cultural features of the work environment. This category includes organizational and cultural structures, such as department and institutional management, and characteristics attributed to the campus as a whole rather than to specific work groups, such as tolerance of diverse viewpoints. This result highlights some important problems with the general atmosphere encountered by several respondents. However, differences appeared in the negative observations between units and departments. In all, 21.9% (100) of the first negative features and 23.6% (170) of all negative features were related to the culture of work environment. Respondents reported most often deficiencies in their unit's or department's:

- general culture or atmosphere and collegiality (55), and

- management, leadership, or supervision (38).

Other negative observations of work culture were related to:

- overwhelming bureaucracy or lack of department autonomy (17),

- diversity issues, including lack of variation in faculty age groups or backgrounds (16),

- observations of hierarchy or intellectual elitism (14).

- negative gender issues or sexism (11).

Smaller numbers of negative observations were made about racism or lack of minorities (9), inequity of work load (6), organization (3), and other cultural aspects with dress code (1).

Professional Aspects

Dissatisfaction with professional features of the work environment represented the next largest of the four main categories of negative observations. These observations address an important source of faculty satisfaction with their academic work, university career, and opportunities for research. Of the negative observations, 16% (73) of first negative observations and 19.7% (142) of all negative observations were related to professional aspects, directly based in respondents' university work.

The respondents had clearly the most complaints about:

- lack of appreciation, support or respect for their work and accomplishments (47).

Additional negative observations included:

- disagreement with educational policies at the university (24),
- lack of support or opportunity for advancement in their career track (15),
- lack of financial resources (13),
- lack of formal recognition, rewards or feedback on one's work (12),
- and pressures including an overwhelming work load, multiple responsibilities, or pressure to raise grant money (10).?

In discussing their disagreement with educational policy, respondents referred to lack of clear vision, lack of support for undergraduate education or students, forgetting the university's teaching mission, and too much division into disciplinary silos. Other observed negative professional features included an overall lack of resources for academic work (9), lack of academic freedom or independence (6), and the poor quality of students (3). Only one respondent complained about lack of enjoyment or significance of his/her own work. Another respondent mentioned poor staff or personnel and one respondent mentioned poor mentoring.

Fourteen miscellaneous negative observations addressed topics such as such as time-keeping, suggestions for more evaluation of the campus environment, shortcomings in the questionnaire itself, and poor state support for research. Some of the ideas in these observations remained unclear.

Social Work Environment

Social aspects of the work environment were the least commonly reported type of negative observations. These observations addressed respondents' everyday interactions, communication and collaboration with their colleagues, staff and students. Their low frequency is consistent with the generally positive results of the climate indicators on these aspects and is encouraging in suggesting no serious problems with communication and support observed by the respondents in the campus. Negative features of the social work environment consisted of 137 (19.1%) of negative observations and 72 (15.8%) of first negative observations.

The most frequent negative observations were related to:

- lack of communication or collaboration with colleagues within respondents' own unit (41).

Other subcategories included:

- general negative comments on the social work environment (33),

- lack of support for collaboration within their unit, either with their colleagues or with their students (16), and also

- lack of cooperation between the units or with administrative staff (10).

- Some (24) respondents mentioned dissatisfaction with salary or other employee benefits.

A few additional negative observations included lack of help and support from their colleagues (5), lack of support for personal responsibilities as childcare (6), and lack of student-teacher interactions (2).

8.2.3 Positive Aspects

Professional Aspects

Figures 8.2.1b illustrates the frequencies of the first positive observations and of all three positive statements of work environment. Professional, work-based aspects represented the largest category of positive observations. In all, 37.2% (166) of the first positive observations and 39.6% (289) of all positive observations were related to professional aspects of the work environment. These statements reflected satisfaction with respondents' academic work and generally constitute a significant motivational component in faculty's everyday work and overall pursuit of their university career.

The most often mentioned topics were:

- the high or excellent quality of faculty or staff in the unit (80),

- the academic freedom, independence, and flexibility involved in their work (64),

- enjoyment, challenge, and overall significance of their work (47).

Some respondents pointed also to the high quality of their students and enjoyment of their teaching (37), while others valued appreciation and support for their work (37).

Smaller numbers of positive observations were related to things such as good general academic resources (6), good mentors or mentoring (4), academic appreciation (4), good funding (3), and adequate workload (2). One respondent mentioned support for his/her career track, another considered the small size of his/her unit as a positive environmental feature, and a third viewed campus academic activities as positive aspects of his/her work environment.

Social Work Environment

Another important category of positive observations was related to social aspects of work environment. In all, 29.6% (132) of first positive statements and 31% (226) of all positive statements were connected to general or more specific social aspects of the work environment. This together with the relatively small number of negative observations on this topic suggest that most faculty are satisfied with the quality of the social work environment in the campus.

The most important social positive features were related to:

- good everyday interaction and collaboration between people within a unit, and with students (68),

- general comments on positive social aspects of the work environment (65), and

- help and support from colleagues (58).

Good student-teacher interactions were a positive aspect of work for some respondents (14). Less frequently mentioned positive observations included good salary or benefits (7), communication or collaboration between different units (6), support for collaboration (4), and support for one's personal responsibilities (4).

Cultural Work Environment

Clearly fewer positive observations were noted for general or specific cultural aspects of work environment, consistent with the rather high rate of negative observations on the cultural work environment. In all, 20% (89) of first positive observations and 17.7% (129) of all positive statements were reported in this main category.

- Most of the positive observations (89) referred to a generally good work atmosphere.

Additional observations on workplace culture pointed to good management, leadership or supervision (24). Some respondents (15) noted acceptance of diversity as a positive feature of their work environment, including understanding of gender issues (3), acceptance of ethnic/racial minorities (3), and diversity in age or background of the faculty (9). One respondent mentioned the lack of hierarchy as a positive feature of his/her work environment.

Physical Work Environment

In contrast with the high number of negative observations on the physical work environment, the lowest frequencies of positive observations were related to this factor. Only 10.1% (45) of the first positive observations and 9.8% (72) of all positive observations related to physical aspects of the work environment.

- The highest number (20) of statements addressed the campus' physical setting—the good weather and beautiful surroundings in Boulder or the campus in particular.

Other respondents (15) made general comments on the overall physical environment as a positive aspect, and some (14) considered good facilities a positive feature of their work environment.

Smaller numbers of positive observations included physical conditions in the work environment (9), good IT or administrative support (8), and space (4). One respondent considered campus parking a positive environmental aspect. Other positive aspects were observed by 8 respondents. These statements considered the potential for a strong CU-Boulder image and the fact that the work place was a university as positive aspects of their work environment.

In the next sections we consider differences in observations of the work environment between men and women, between STEM and non-STEM respondents, between respondents in the three job tracks, and between LEAP participants and non-participants. Here we deal only with the frequencies of the first negative and positive observations.

8.3. Aspect of Work Environment and Gender

8.3.1 Number of Observations

Figures 8.3.1a and 8.3.1b first show the total numbers of negative and positive observations reported by women and men separately. A statistically significant gender difference applied to

both the number of negative (p< .01) and positive (p< .000) observations in favor of women. Women made more negative as well as more positive observations than did men.

- 41.9% of women mentioned more than one negative observation, whereas the percentage for men was 28.5%.

- And 30.1% of men but 19.0% of women made no negative observations of their work environment.

Closer comparison between the distributions showed that the gender difference in negative observations applied especially to cultural aspects (p< .01).

In turn, 47.2% of women mentioned more than one positive observation, whereas only 29.8% of men reported more than one positive observation. And 30.5% (92) of men but 16.5% (41) of women reported no positive aspects in their work environment. This gender difference in positive observations applied to the number of social features in particular (p< .001).

Figure 8.3.1a: Number of negative observations by gender (W: N=248, M: N=302).
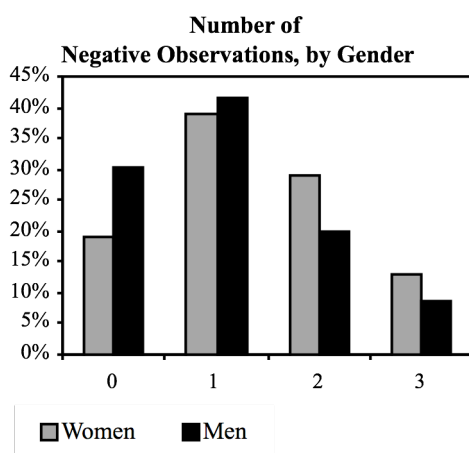
Figure 8.3.1b: Number of positive observations by gender (W: N=248, M: N=302).
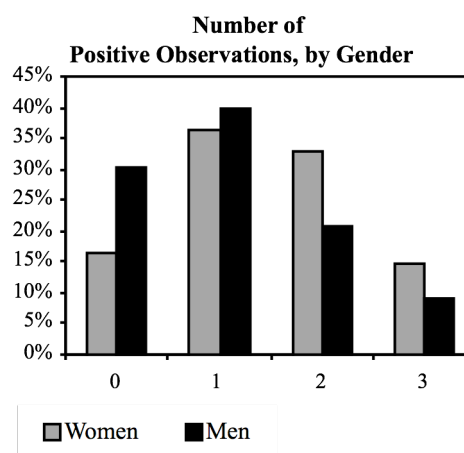
8.3.2 Character of Men's and Women's Observations

Figures 8.3.2a and 8.3.2b illustrate the distributions of the first negative and positive statements along with the seven main categories within each gender group separately. A gender difference applied both to the distributions of the first negative (p< .05) and positive (p< .05) observations.

Negative Observations

Both women and men made negative observations of their physical work environment. However,

- women more often than men reported negative observations of their social (W: 18.3%, M: 12.8%) and cultural (W: 26.4%, M: 18.1%) work environment.

- In turn, men made slightly more negative observations concerning professional issues (M: 19.4%, W: 12.5%).

Minor distinctions appeared in the subcategories. For example, men more often than women observed:

- a negative cultural atmosphere or climate (W; 15, M: 7),

- negative issues related to gender issues (W: 7, M: 0),

- and disrespect of women's performance or work by male colleagues.

Whereas men slightly more often than women:

- reported negative observations of CU's or their department's education policies (M: 10, W: 0), and

- reported that there were no needs for improvements (M: 16, W: 8).

Figure 8.3.1a: First negative observations by gender (W: N=208, M: N=227).
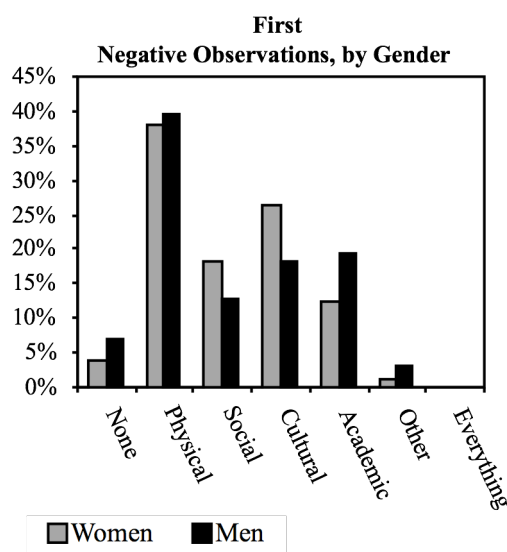
Figure 8.3.1b: First positive observations by gender (W: N=209, M: N=214).
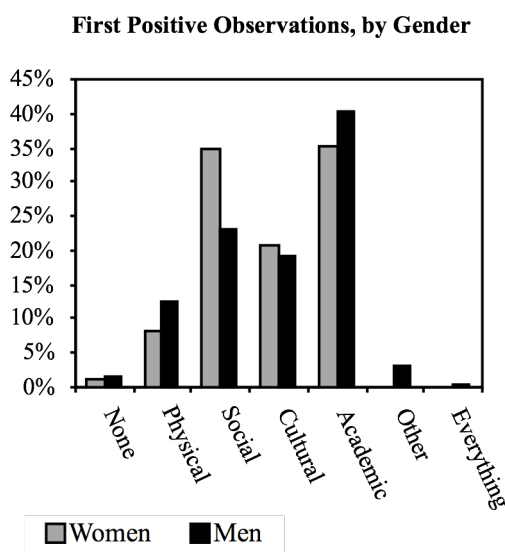
Positive Observations

Overall, the least commonly reported positive observations within the main categories concerned social environmental factors both among women (8.1%) and men (12.6%). Gender differences could be found also in that

- Women (34.9%) clearly more often reported social positive features of their work environment as compared to men (22.9%).

These positive social aspects were related to:

- help and support received from colleagues (W:22, M: 8),

- general social aspects (W:26, M:20), and

- communication or collaboration within the unit (W:19, M:14).

In turn, gender differences in positive observations on cultural and professional aspects were not as clear as with negative observations of these aspects. In all, 20.6% of women's and 19.2% of men's first positive observations were included in the cultural category. Both women and men reported more positive than negative observations on professional issues, but these features represented clearly the most significant positive aspects for men (40.2%). Women stressed both professional (35.4%) and social (34.9%) aspects in their positive observations of work environment.

Examination of the subcategories showed some more detailed information on the gender differences. Men more often than women praised:

- the good quality of faculty or staff (M:28, W:17),

- academic freedom or flexibility in their work (M:22, W:16),

- and the general physical surroundings and climate (M:11, W:2)

- and general cultural atmosphere or climate (M:36, W:30).

In comparison,

- women (11) slightly more than men (4) praised their unit's leadership and management.

Again, some men (7) but none women recognized positive features outside the main subgroups. Men reported positive observations such as potential for a strong CU-Boulder image and that the problems in their unit were perceived at different levels in CU.

Contrast Between Negative and Positive Observations

The largest differences between the frequencies of negative and positive observations applied to physical aspects both among women (38.0%-8.1%) and men (39.6%-12.6%), emphasizing strong dissatisfaction with the physical work environment. Differences between the frequencies of negative and positive observations of professional features were in the opposite direction, but also rather large for men (19.4%-40.2%) and women (12.5%-35.4%), which points to a rather good satisfaction with professional aspects of their work.

The negative and positive observations of cultural features were at about the same level among men (18.1%/19.2%), but women reported more negative (26.4%) than positive observations (20.6%) of their cultural work environment. In the social environment category, the difference between women's (18.3%/34.9%) observations of negative and positive aspects was clearly larger than that of men's (12.8%/22.9%). These differences point to the fact that women made more observations than men about their social environment and these observations were more often positive. But women made more negative observations of their cultural work environment.

Overall, these results indicate that women monitor and rate their work environment more regularly than men. Moreover, women's observations more often related to social and cultural aspects, while men tended to rate their work environment by its professional features. Both women and men considered physical aspects of CU work environment as most in need of improvement.

8.4. Work Environment and Academic Field

8.4.1 Number of Observations

Figures 8.4.1a and 8.4.1b show the number of all reported negative and positive observations of the work environment for STEM and non-STEM respondents separately. A statistically significant difference (p< .001) applied to the total number of reported negative observations, with non-STEM faculty finding more negative aspects in their work environment than STEM faculty.

- 83.3% of all non-STEM but 68.9% of all STEM respondents reported at least one negative observation of their work environment,

- while 43.7% of non-STEM but only 27.7% of STEM respondents reported more than one negative observation of their work environment.

Figure 8.4.1a: Number of negative observations by academic field (STEM: N=257, non-STEM: N=240).
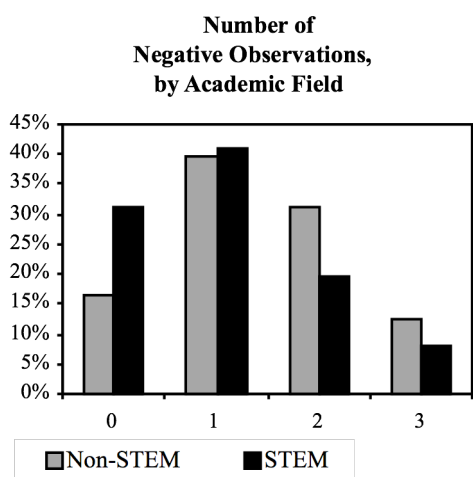
Figure 8.4.1b: Number of positive observations by academic field (STEM: N=257, non-STEM: N=240).
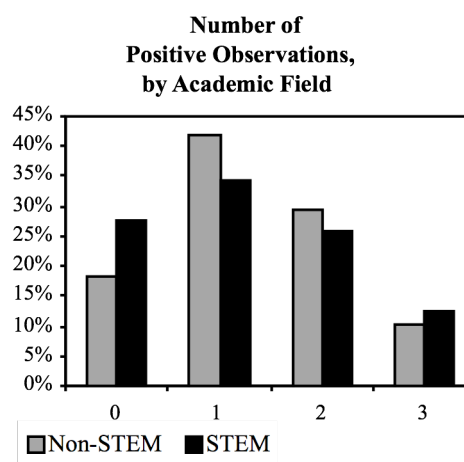
These differences in the number of reported negative observations were related to cultural (p< .001), social (p< .05), and physical (p< .05) environment.

- 35.0% of non-STEM but 20.7% of STEM respondents reported negative cultural aspects,

- 25.4% of non-STEM and 18.7% of STEM respondents reported negative social aspects, and

- 41.2% of non-STEM but 28.4% of STEM respondents observed negative physical aspects of work environment.

Instead, no clear differences were found between the number of positive observations of work environment between STEM and non-STEM respondents. No clear difference in the number of observations either applied within the main categories separately. Faculty in both groups

mentioned nearly as often 2-3 different positive features (STEM: 38.2%, non-STEM: 39.6%), but overall non-STEM respondents (81.7%) reported more positive features than STEM respondents (72.4%).

8.4.2 Character of Observations

As Figures 8.4.2a and 8.4.2b indicate, differences between the subjects of STEM and non-STEM respondents' negative observations of work environment were clearer (and statistically significant $p< .01$) than were differences in their positive observations.

Negative Observations

Both groups noted negative observations of their physical environment, but this applied even more to non-STEM (43.8%) than to STEM respondents (35.2%). Non-STEM more than STEM respondents reported

- lack of space (25/12), and

- poor condition of their physical work environment (26/15).

In addition, non-STEM respondents (25.6%) more often than STEM respondents (18.1%) reported negative observations of cultural issues, emphasizing a poor general cultural climate (13/7) and overwhelming bureaucracy or paper work (8/2).

In comparison, STEM respondents (20.2%) more often than non-STEM respondents (12.8%) made negative observations of professional aspects. These addressed aspects such as poor general education policy (8/1), lack of financial resources (6/0), and lack of academic appreciation or rewards (4/0). But they also (8.3%) more often than non-STEM faculty (2%) had no negative observations of their work environment.

Positive Observations

No clear differences applied to the positive observations of work environment with respect to respondents' academic field. The most common positive observations were related to social (STEM: 27.8%, non-STEM: 30.7%) or professional aspects (STEM: 38.0%, non-STEM: 36.2%) within both groups, whereas physical aspects were again the least common subject of positive observations. Cultural positive features were reported at similar levels by STEM (19.8%) and by non-STEM (21.1%) respondents. Some differences appeared with respect to single subcategories.

- STEM respondents (24) more often mentioned their academic freedom and flexibility as positive environmental features than did non-STEM respondents (11).

- In comparison, non-STEM respondents reported more often (26/17) the good quality of faculty and other personnel or of their students (10/1).

- Non-STEM respondents also more often considered their general social work environment (25/19) and leadership or management (10/5) as positive aspects of their work environment.

Figure 8.4.1a: First negative observations, by academic field (STEM: N=193, non-STEM: N=203).

**First Negative Observations,
by Academic Field**
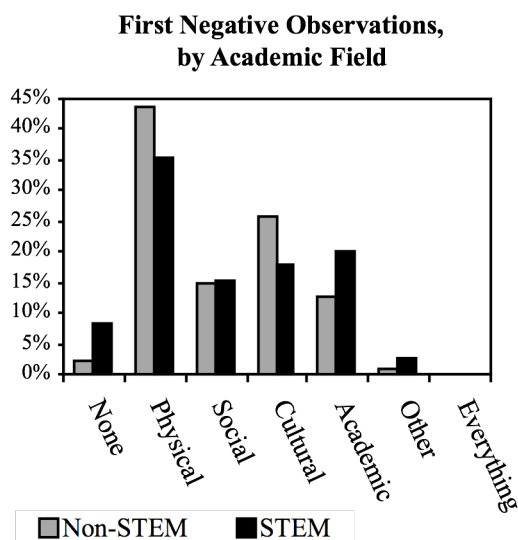
Figure 8.4.1b: First positive observations, by academic field (STEM: N=187, non-STEM: N=199).

**First Positive Observations,
by Academic Field**
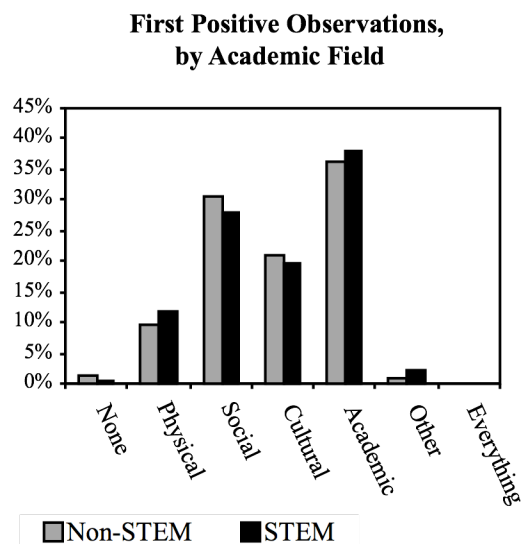
Contrast Between Negative and Positive Observations

When comparing the frequencies of negative and positive observations within each main category, the clearest distinction applied, as in the gender analysis, to observations of the physical work environment both among STEM (35.2%-11.8%) and non-STEM (43.8%-9.5%) respondents. This distinction was clearer for those in non-STEM fields, suggesting that non-STEM respondents were less satisfied with their physical work environment than STEM respondents.

Large contrasts between negative and positive observations applied also to professional aspects of work environment, with the variation from 38.0% (71) positive to 20.2% (39) negative statements among STEM respondents and from 36.2% (72) positive to 12.8% (26) negative statements among non-STEM respondents. This refers again to slightly stronger dissatisfaction with professional features of work environment among STEM respondents.

The contrast between positive and negative observations of social environment was at about the same level among STEM (27.8% - 15.5%) and non-STEM respondents (30.7% - 14.8%). Lower contrasts could be perceived between positive and negative observations oncultural aspects (STEM: 19.8% - 18.1%; non-STEM: 21.1% - 25.6%). Overall, faculty had about the same proportions of negative and positive observations of their cultural work environment, independent of their academic field, but non-STEM respondents more often observed negative (vs. positive) features of their cultural work environment.

8.5. Job Type and Work Environment

8.5.1 Number of Observations

The total numbers of observations of work environment showed some statistically significant differences between tenure-track, non-tenure-track teaching, and research-track respondents. This applied both to negative (p< .001) and positive (p< .05) observations.

- Overall, non-tenure-track teaching faculty (89.4%) reported more negative observations than the two other job groups (tenure-track: 76.3%, research-track: 65.2%).

In comparison, researchers made clearly fewer negative observations.

- Only 23.1% of researchers reported more than one negative aspect of their work environment.

- The same percentage for teaching faculty was 42.6%, and 40.6% for tenure-track faculty.

Further consideration of the numbers of negative observations indicated a difference especially with respect to cultural aspects of work environment (p< .01). Tenure-track respondents (35%) more often than the two other job groups reported at least one negative observation of the cultural aspects of their work environment (non-tenure-track teaching: 22.4%, research: 17.4%). In turn, 33.0% of the non-tenure-track teaching respondents mentioned at least one negative social aspect of work environment, whereas these percentages were 20.3% for tenure-track and 19.5% for research-track faculty. This difference was not statistically significant.

The differences in the number of positive observations of work environment indicated that,

- overall, non-tenure-track teaching faculty (89.3%) reported more positive aspects than tenure-track (73.7%) and research-track (71.8%) faculty.

- They also mentioned more often (40.4%) 2-3 different positive features of their work environment (tenure-track: 36.5%, research: 36.4%).

Within the main categories separately, a statistically significant difference (p< .05) applied only to the number of positive observations on physical work environment.

- Non-tenure-track teaching respondents (15.9%) slightly more often mentioned positive features of their physical work environment than did those in the two other job groups (tenure-track: 9.7%, research: 10.7%).

Overall, non-tenure-track teaching faculty made more both negative and positive observations of their work environment as compared to tenure-track and research-track faculty.

8.5.2 Character of Observations

Negative Observations

A statistically significant difference (p< .01) with respect to respondents' job type applied to the distributions of negative observations of work environment along with the main categories. All the three job groups reported issues in their physical environment but this was slightly less apparent among researchers (34.3%).

- Tenure-track faculty reported the most negative observations (33) on general physical environment

- and also on the physical condition of their workplace (23).

Tenure-track faculty also more often (27.8%) than the two other groups (non-tenure-track: 12.9%, research-track: 18.6%) reported negative observations on the cultural work environment. These observations focused on bad general atmosphere or climate (18), poor leadership, and bureaucracy (9).

For researchers the main negative observations of cultural work environment were related to leadership, management or supervision (11).

In comparison,

- non-tenure-track teaching respondents (22.4%) reported more often than the two other groups (tenure-track: 12.7%, research-track: 17.1%) negative social features of work environment.

- They (22.4%) also more often than the two other groups (tenure-track: 13.2%, research-track: 16.4%) made negative observations of professional aspects, especially on the lack of appreciation of their work (12).

Only one non-tenure-track teaching respondent reported that s/he found no need for improvements, while this was true for 9 tenure-track and 14 research-track respondents.

Figure 8.5.1a: First negative observations by job type (tenure-track: N=212, non-tenure-track: N=85, research-track: N=140).

First Negative Observations by Job Type
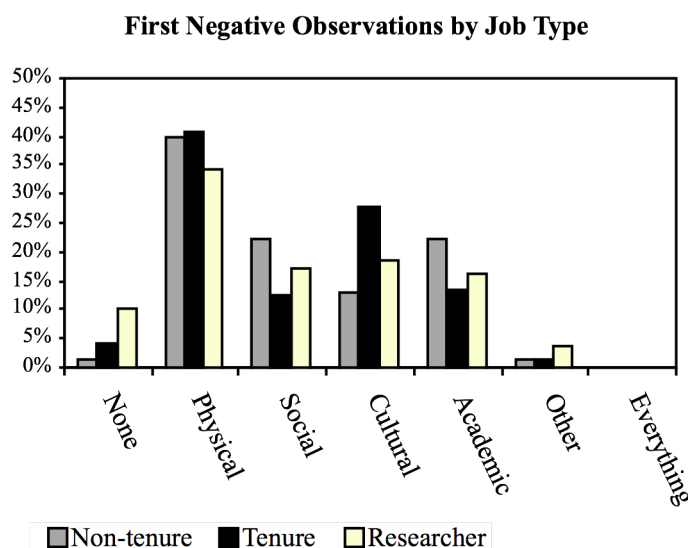
Positive Observations

No clear job-related differences were found in the general distributions of (first) positive observations of work environment. Again, the largest category of positive observations was related to professional issues for all three job groups. These issues were observed often especially by research-track respondents (44.7%, 63), who highly regarded:

- the challenge, significance, or creativity of their work (17)

- but also academic freedom and flexibility in their work (20).

- In contrast, tenure-track respondents especially valued the good quality of faculty or staff (25).

The next largest groups of positive observations had to do with social and cultural features of work environment. Tenure-track (31.5%) and non-tenure-track (32.9%) respondents reported positive social features slightly more often than researchers (22.7%), but also many researchers observed their general social work environment (13) and communication within the unit (13) as positive. Non-tenure-track faculty (15.3%) mentioned positive cultural features slightly less often than tenure-track (21.5%) or research-track (19.9%) faculty. Researchers (7) tended to observe more often than the two other groups the leadership of their unit positively.

Three tenure-track respondents reported no positive aspects in their work environment. This was also true for one non-tenure-track and for one research-track respondent. However, one tenure-track respondent reported that everything was positive in his/her work environment.

Figure 8.5.1b: First positive observations by job type (tenure-track: N=200, non-tenure-track: N=85, research-track: N=141).

First Positive Observations by Job Type

Legend: Non-tenure | Tenure | Researcher
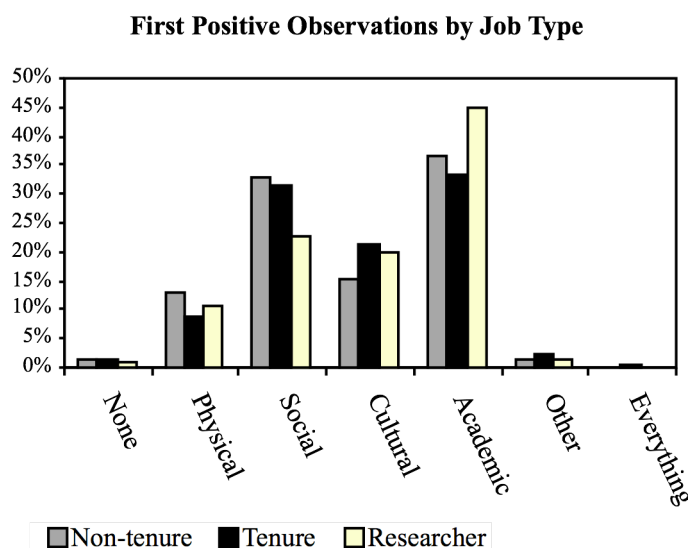
Contrast Between Negative and Positive Observations

The contrasts between reported negative and positive observations of work environment within each main category were again largest for physical aspects of work environment, for each job group. Tenure-track respondents however made the most negative observations (40.6%) and the fewest positive observations (9.0%) of their physical work environment.

The least contrast between positive and negative observations applied to social features of work environment for each job group. For cultural aspects, the frequencies of positive observations were only slightly higher than for negative observations among non-tenure-track teaching and research-track respondents. Moreover, tenure-track respondents reported cultural features more often as negative (27.8%) rather than positive (21.5%) aspects of their work environment. They experienced their cultural work environment as most negative and least positive, after the quality of their physical environment.

The largest difference between positive and negative observations on social environment applied to tenure-track respondents (31.5% - 12.7%). They reported fewer negative observations on social issues than the two other groups but nearly as many positive observations of social environment (31.5%) as the non-tenure-track teaching respondents.

Within professional features of work environment, the largest difference between positive and negative observations applied to researchers (44.7% - 16.4%). They seemed to appreciate professional aspects of their work environment in particular and were also rather satisfied with these issues. Instead, the difference between positive and negative observations of professional work environment was the smallest among non-tenure-track respondents (36.5% - 22.4%). They reported more often negative (22.4%) professional aspects than the two other job groups. However, this category represented the main positive observations of work environment (36.5%) also for them.

8.6 Work Environment and LEAP Participation

8.6.1 Number of Observations

No statistically significant difference was found in the total number of positive observations on work environment between LEAP-participating and non-participating respondents. Nor did the numbers of positive observations clearly differ between these groups of respondents within any of the main categories. Nor were clear differences in the number of positive observations between LEAP participants and non-participants observed among women and men separately. But a slighter general variation applied to these observations in favor of LEAP participants. For example, 20.9% of the LEAP participants reported no positive features of their work environment, while the percentage for non-participants was 25.2%. In contrast, 35.0% of the non-participants reported at least two different positive features of their work environment, while the percentage among LEAP participants was 43.3%. This indicates that LEAP participants tended to report slightly more positive features of their work environment as compared to those who did not participate in the program—even though their views on many of the climate and diversity indicators were less positive.

Figure 8.6.1 illustrates the distributions of the numbers of reported negative observations for all LEAP participants and non-participants separately. A clearer, statistically significant (p< .01), difference between LEAP participants and non-participants applied to the total number of reported negative observations. LEAP participants reported more negative observations than respondents who did not participate. This difference also applied separately among women (p< .05).

- 27.1% of non-participating but 19.4% of LEAP-participating respondents made no negative observations. For women, these figures were 20.8% and 14.3%, respectively.

- In addition, non-participants (6.4%) more often than LEAP participants (2.7%) explicitly reported that they did not perceive any needs for improvement in their work environment.

- Non-participants (41.6%) more often than LEAP participants (33.6%) reported one negative environmental feature,

- And LEAP participants (47.1%) observed more often than non-participants (31.4%) 2 or 3 different negative aspects of their work environment.

- Among women, 20.8% of LEAP participating women but only 9.5% of non-participating women reported at least 3 different negative observations of their work environment.

Figure 8.6.1: Number of negative observations by LEAP participation (LEAP participation: N=134, non-participation: N=421).

**Number of Negative Observations,
by LEAP participation**
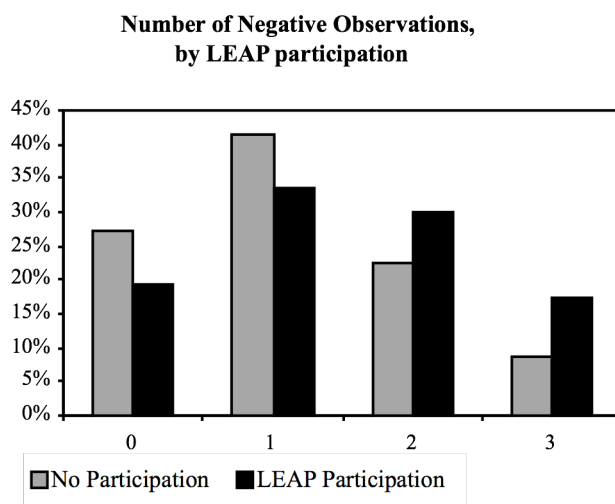
Differences in the number of negative observations occurred especially for cultural (p< .001) and professional (p< .05) aspects of work environment.

- LEAP participants more often than non-participants made at least one negative observation of the cultural work environment (36.6% vs. 24.0%).

- LEAP participants (29.9%) also made more negative observations of professional features of their work environment than the non-participants (19.2%).

Overall, these percentages indicate that those who participated in the LEAP program were more reflective on their work environment. This appeared especially in their negative observations and among women in particular. It is also plausible that those who did not participate in the program may have experienced fewer problems in their work environment, and that they therefore saw less need to participate.

8.6.2 Character of Observations

The distributions of negative and positive observations of work environment were examined within the six main categories for LEAP participants and non-participants separately. No statistically significant differences appeared in the frequencies of these two groups' first, second or third negative or positive observations of work environment. This indicated no clear differences in the nature of LEAP participants' and non-participants' negative or positive observations of their work environment.

Some minor variations were observed in the frequencies of observations in the subcategories. Generally, LEAP participants' negative observations were more often related to cultural and professional features of the work environment. For example, LEAP participants:

- made more negative observations of general cultural climate or atmosphere (9.0% vs. 3.7%).

- more often noted lack of appreciation of or support for their work (9.0% vs. 5.2%).

In comparison, in their negative observations, non-participating respondents reported slightly more frequentlys the poor condition of their work environment (6.4% vs. 2.7%).

Some minor differences could be perceived also in some subcategories of positive observation:s

- LEAP participants more frequently remarked on help and support from their colleagues (12.0% vs. 5.6%).

- Non-participants more frequently observed good communication or collaboration within their unit (8.8% vs. 4.6%).

- Non-participants more often considered academic freedom and flexibility as positive features of their work environment (10.7% vs. 4.6%).

The considerations above showed only slight differences in the quality of negative or positive observations between those who did and did not participate in LEAP. The smaller number of LEAP participants makes it more difficult to draw conclusions. However, the variation in the number of reported observations, in particular with respect to negative observations of work environment indicated that LEAP participants were more reflective and also critical about aspects of their work environment. We cannot determine whether this difference was caused by increased awareness of work environment after the LEAP program or by the variation in the two groups' population is difficult to conclude.

8.7 Summary of Results from Open-ended Questions

8.7.1 General Findings

In their responses to the open-ended questions in 2007, about two-third of all respondents observed at least one negative and at least one positive aspect of their work environment. Most respondents reported both positive and negative observations, in comparable numbers. Most (88.5%) of the respondents who observed three or more negative features also reported least one positive aspect in their work environment. This tendency applied even more clearly among men than among women.

The distributions of the first negative and all three negative observations across the seven main categories had the same pattern, as did, for the most part, the distributions of the first and all three reported positive observations of work environment. However, the character of reported negative and positive observations on work environment differed clearly. The most commonly mentioned positive aspects of the work environment consistently represented the least commonly reported negative observations, and vice versa.

8.7.2 Negative Observations

The most frequent negative observations were related to physical aspects of work environment, which probably reflected real problems in the university departments and research units. In all 38.9% of first negative observations and 32.1% of all negative observations dealt with needed improvements in respondents' physical work environment. Respondents mentioned most often:

- the general poor physical environment,

- the poor condition of their building or offices, including bathrooms or classrooms that they used, a lack of windows, or inadequate cleaning.

- Other respondents reported serious lack of space or privacy for working at the university.

The second largest category of negative observations was related to cultural features of the work environment, thus indicating some problems with the atmosphere in some units. This category comprised 21.9% of first negative observations and 23.6% of all negative observations were related to the culture of work environment. The most often mentioned were :

- general observations on the culture, atmosphere and collegiality, and

- deficiencies in management, leadership, or supervision .

Professional aspects of the work environment were the subject of 16.0% of first negative observations and 19.7% of all negative observations. These are important sources of satisfaction with academic work, university careers, and opportunities for intellectual growth. The largest sub-group of these addressed:

- lack of appreciation, support or respect of their work and accomplishments .

Lastly, negative social aspects of the work environment were noted at about the same lo frequency as were negative professional features. This suggests that people generally feel positively about their specific interpersonal interactions, although they perceive broader issues with the culture at large. The most frequent negative observations were related to:

- lack of communication or collaboration with colleagues within respondents' own unit.

8.7.3 Positive Observations

Professional aspects represented clearly the most important category of positive observations of the work environment. In all, 37.2% of first positive observations and 39.6% of all positive observations were related to professional qualities of the work environment. This reflects the general importance of professional aspects of university work for faculty members in their everyday work and overall career. The most frequent positive observations were related to:

- the high or excellent quality of faculty or staff in the unit.

- the academic freedom, independence, and flexibility involved in their work.

- the enjoyment, challenge, and overall significance of their work.

The social work environment represented another important category of positive observations, comprising 29.6% of first positive statements and 31% of all positive statements. This together with the smaller related negative observations indicates a rather good quality of the social work environment in the campus departments. The most important social positive features included:

- good interaction and collaboration between people within a unit,

- general positive observations on social aspects of the work environment, and

- the help and support received from colleagues .

Fewer positive observations were made about cultural aspects of work environment,consistent with the rather high rate of negative observations, including 20.0% of first positive observations and 17.7% of all positive statements. Most of these observations were general comments on a "good work atmosphere." Together, these results indicate needs for improving the general atmosphere as well as management or leadership in some departments. Some problems were noted with respect to diversity, including gender issues and lack of variation in age or professional background.

Physical work environment, the topic of the most numerous negative observations, was also the least commonly mentioned positive aspect of work environment. Only 10.1% of first positive observations and 9.8% of all positive observations cited physical aspects of the work environment. These comments cite the need for improvements in the physical facilities and their condition of the immediate work environment.

8.7.4 Differences Between Groups of Respondents

Gender

Women more often reported negative as well as positive observations of their work environment as compared to men. Their negative observations focused especially on social features of work environment, and positive observations on the cultural work environment. This suggests that women were more sensitive to or reflective about their work environment, especially its social and cultural features.

Content analysis confirmed these gender differences, which were more apparent within the negative observations. Among men, both negative and positive observations were focused on professional issues. Women's negative observations were more often related to social and cultural features of work environment, and in their positive observations, women stressed both social and professional aspects.

Dissatisfaction with the physical environment was apparent both among women and men, exhibiting the largest contrast between negative and positive observations. The contrast between negative and positive observations on professional features showed a rather good satisfaction with these professional aspects by women and men. Men's negative and positive observations on cultural features were at about the same level, but women reported more negative than positive observations of their cultural work environment. Likewise, the difference between women's negative and positive observations of social aspects was clearly larger than for men. These indicate again women's higher attention to and/or dissatisfaction with their social and cultural work environment.

Academic Field

Non-STEM faculty found more negative aspects in their work environment than did STEM faculty, in their cultural, social, as well as physical environment. But non-STEM respondents also observed on the whole more positive features than STEM respondents.

Content analysis confirmed some differences in the nature of the negative observations. Both groups mentioned negative observations of physical environment, even more for non-STEM than STEM respondents. Non-STEM respondents more often raised concerns about cultural issues, including general comments on a poor cultural climate and comments on overwhelming bureaucracy or paper work. On the other hand, STEM respondents' negative observations more often referred to professional aspects. No clear differences applied to the nature of positive observations of work environment by academic field.

The contrast between negative and positive observations within each main category indicated again that physical work environment was most negative and least positive among both STEM and non-STEM respondents, more strongly so for non-STEM faculty. These contrasts also indicated a slightly stronger dissatisfaction with professional and cultural features of work environment among STEM than non-STEM respondents.

Job Type

Differences appeared in the total numbers of negative and positive observations between tenure-track, non-tenure-track teaching and research-track respondents. Overall, non-tenure-track teaching faculty made more negative observations than the two other job groups, whereas researchers made fewer negative observations. This difference was strongest on cultural features of work environment. Minor difference applied to the number of positive observations, with non-tenure-track teaching faculty reporting overall slightly more positive observations than the other two groups.

Some variation applied to the character of negative observations between the three job groups. Members of all three job groups reported problems in their physical environment but this was slightly less apparent among researchers. Tenure-track faculty's negative observations were more often related to cultural work environment, addressing a poor general atmosphere or climate, poor leadership, and bureaucracy. In turn, non-tenure-track teaching respondents' negative observations more often concerned social and professional features of their work environment, especially lack of appreciation of their work.

No clear job-related differences applied to the three job groups' positive observations. The largest category was related to professional issues for all three job groups, especially for researchers. They pointed to the challenge or significance of their work and to academic freedom and flexibility, whereas tenure-track respondents referred most often to the good quality of faculty or staff. Tenure-track and non-tenure-track teaching respondents reported positive social features slightly more often than researchers. And non-tenure-track teaching faculty observed positive cultural features slightly less often than tenure-track and research-track faculty.

The contrast between negative and positive observations produced further information. Tenure-track respondents had the most negative and the fewest positive observations of their physical work environment. Negative and positive observations of social issues occurred at about the same level among all the three job groups. Unlike the two other job groups, tenure-track respondents reported cultural features of work environment more often as negative than positive. This confirmed the idea that tenure-track faculty were most strongly dissatisfied with their physical and cultural work environment. On the other hand, they less often noted negative social issues. The contrast between negative and positive observations also strengthened the perceptions that researchers were rather satisfied with the professional aspects of their work,

whereas non-tenure-track teaching respondents were more dissatisfied than the other groups with these issues.

LEAP Participation

No clear difference appeared in the total number of positive observations of work environment between LEAP participating and non-participating respondents, neither at large nor among women and men separately. However, LEAP participants tended to cite more positive features of their work environment than did those who did not participate in the program. Especially among women, LEAP participants also reported more negative observations than non-participants, and primarily on cultural and professional aspects of work environment. These results suggest that the faculty who participated in LEAP were more reflective on their work environment than the non-participating faculty. Those who did not participate in the program may have perceived fewer problems in their work environment.

Study of the nature of observations confirms the general lack of difference between LEAP participants and non-participants in their positive observations of work environment, nor did a clear qualitative difference emerge for negative observations. Some minor differences are evident; for example, LEAP participants' negative observations were more often related to cultural and professional features of work environment, including the general cultural climate and lack of appreciation of or support for their work.

The results showed only slight differences in observations of work environment between those who did and did not participate in the LEAP program. The smaller number of LEAP participants reduces the probability of finding real differences, but the findings indicate that LEAP participants were more reflective and also more critical of aspects of their work environment than were non-participating respondents.

Appendix A:

Table A.1. Average Scores and Standard Deviations for Climate Items in 2003 and 2007.

	2003			**2007**				
	Mean	SD	N	Mean	SD	N	Min	Max
Climate								
friendly	4.16	0.916	444	4.11	0.965	654	1	5
non-racist	4.33	1.000	440	4.48	0.962	626	1	5
respectful	3.93	0.971	444	3.88	1.046	649	1	5
collegial	3.75	1.071	437	3.90	1.080	640	1	5
nonsexist	3.98	1.086	442	4.09	1.134	627	1	5
collaborative	3.32	1.191	443	3.64	1.135	650	1	5
non-homophobic	4.26	0.939	420	4.36	0.946	592	1	5
supportive	3.70	1.116	440	3.69	1.101	647	1	5
civil	3.41	1.588	439	4.22	1.038	642	1	5
Collegiality								
value my work	2.01	1.037	433	3.73	1.127	610	1	5
change to gain respect, reversed	3.89	1.106	432	3.74	1.178	608	1	5
change to earn tenure, reversed	3.62	1.271	398	3.54	1.278	585	1	5
questions about performance	2.22	1.096	431	3.67	1.130	600	1	5
raise controversial issues, reversed	3.59	1.236	415	3.41	1.314	605	1	5
ask about gender/ethnicity	3.76	1.066	347	1.96	1.014	490	1	5
a spokesperson, reversed	3.55	1.209	370	3.93	1.132	511	1	5
ask my opinions	2.70	1.214	429	3.12	1.257	594	1	5
ask colleagues' opinions	2.28	1.012	424	3.63	1.026	585	1	5
lower expectations, reversed	4.23	0.886	400	4.12	1.071	555	1	5
under scrutiny, reversed	3.70	1.163	427	3.66	1.202	600	1	5
work harder, reversed	3.47	1.304	424	3.52	1.347	581	1	5
network within unit	2.15	1.006	434	3.77	1.014	602	1	5
network outside unit	2.18	1.143	430	3.71	1.128	602	1	5
Institutional Support								
family responsibilities	3.21	1.681	337	3.89	.992	473	1	5
family leave	2.71	1.739	340	3.84	1.015	395	1	5
child care	2.25	1.585	384	3.30	1.188	309	1	5
partner/spousal hiring	2.46	1.684	397	3.41	1.141	320	1	5
mental/physical health	2.91	1.698	383	3.49	1.000	369	1	5
career planning	3.18	1.427	412	2.88	1.131	466	1	5
improvement of teaching	3.05	1.627	402	3.28	1.119	441	1	5
administrative opportunities	2.84	1.598	410	3.15	1.065	391	1	5
tenure clock	2.00	1.526	415	3.44	.911	238	1	5
acquiring resources	3.49	1.294	400	2.85	1.192	538	1	5

Table A.1, continued:

	2003			2007				
	Mean	SD	N	Mean	SD	N	Min.	Max.
Chair Leadership								
high academic standards	3.72	1.097	385	4.09	1.017	518	1	5
open to constructive criticism	3.95	1.009	389	3.61	1.323	496	1	5
effective administrator	3.78	1.182	368	3.69	1.285	523	1	5
interest in faculty/researchers	3.65	1.145	370	3.93	1.206	532	1	5
even-handed treatment	3.28	1.208	356	3.76	1.311	512	1	5
helps to obtain resources	3.46	1.221	373	3.67	1.237	508	1	5
useful feedback	3.34	1.202	308	3.32	1.335	495	1	5
articulates a clear vision	3.90	1.117	354	3.53	1.295	518	1	5
clear criteria for promotion	3.41	1.263	346	3.45	1.309	462	1	5
honors agreements	3.52	1.245	375	3.94	1.233	485	1	5
handles problems effectively	3.65	1.225	388	3.45	1.333	480	1	5
communicates	3.74	1.100	321	3.57	1.302	517	1	5
creates a cooperative environment	3.52	1.176	337	3.73	1.284	524	1	5
commitment to diversity	4.08	0.989	361	3.93	1.119	436	1	5
collegial opportunities	3.59	1.235	333	3.64	1.215	471	1	5
Mentoring								
role model	2.79	0.663	222	2.87	0.510	250	1	4
promotes career through networking	2.54	0.780	218	2.65	0.694	237	1	4
advises about advancement	2.65	0.714	222	2.74	0.624	243	1	4
advice on publishing	2.65	0.730	197	2.71	0.688	217	1	4
advises about unit politics	2.66	0.737	221	2.83	0.618	248	1	4
helps obtain resources	2.71	0.691	216	2.79	0.604	231	1	4
advocates for me	2.76	0.667	225	2.86	0.558	245	1	4
meets	2.79	0.638	232	2.90	0.481	261	1	4
listens	2.53	0.853	236	2.91	0.464	260	1	4
advice on balancing work and family	2.83	0.587	239	2.51	0.819	192	1	4

Appendix B: Categories and Frequencies of Open-Ended Responses

Table B.1: Needs for Improvements and Positive Aspects of Working Environment

Category	Improvements		Positive Aspects	
	N	%	N	%
None	25	3.5	5	0.7
Physical	**231**	**32.1**	**72**	**9.8**
overall	60	8.3	15	2.1
space	64	8.9	4	0.5
conditions	57	7.9	9	1.2
facilities	32	4.6	14	1.9
IT or administrative support	6	0.8	8	1.1
parking	4	0.5	1	0.1
surrounding environment, weather			20	2.8
physical connection	8	1.1	1	0.1
Social	**137**	**19.1**	**226**	**31.0**
general social	33	4.7	65	9.0
communication/collaboration within unit/depart	41	5.7	68	9.4
communication/cooperation between units/offices	10	1.4	6	0.8
support for collaboration	16	2.2	4	0.5
support for personal responsibilities	6	0.8	4	0.5
help, support from colleagues	5	0.7	58	7.9
student-teacher interaction	2	0.3	14	1.9
salary, benefits	24	3.3	7	1.0
Cultural	**170**	**23.6**	**129**	**17.7**
general cultural, atmosphere, collegiality	55	7.7	89	12.2
organization	3	0.4		
hierarchy, intellectual elitism	14	1.9	1	0.1
management, leadership, supervision	38	5.3	24	3.4
bureaucracy, regulation, departm. autonomy	17	2.4		
gender issues, sexism	11	1.5	3	0.4
ethnicity, racism, minorities	9	1.3	3	0.4
other diversity (age groups, backgrounds)	16	2.2	9	1.2
work equity	6	0.8		
other cultural (e.g., dress code)	1	0.1		

Academic, Work-Based Issues	142	19.7	289	39.6
general academic resources	9	1.4	6	0.9
financial resources, funding, fellowships	13	1.8	3	0.4
general demands, responsibilities, workload	10	1.4	2	0.3
work significance, challenge, enjoyment	1	0.1	47	6.4
academic appreciation, feedback, reviews	12	1.7	4	0.5
appreciation/support of work	47	6.5	37	5.1
academic freedom, flexibility, independence	6	0.8	64	8.8
support for career tracks, advancement	15	2.1	1	0.1
educational policy (university policy)	24	3.3	2	0.3
mentors, mentoring	1	0.1	4	0.5
size of unit/department			1	0.1
bad/good faculty, staff, personnel	1	0.1	80	11.0
bad/good students	3	0.4	37	5.1
campus academic activities			1	0.1
Other Needs/Positive Aspects	14	1.9	8	1.1
Everything			1	0.1
Total	**719**	**100.0%**	**730**	**100.0%**

Appendix C: Survey Instrument for 2003

LEADERSHIP EDUCATION FOR ADVANCEMENT AND PROMOTION
2003 SURVEY OF TEACHING & RESEARCH FACULTY

Section A: Work Environment

1. Please rate the work environment in your primary unit (i.e. department, institute, program, center, etc.) along the following dimensions:

	1	2	3	4	5	6	
Friendly Hostile	O	O	O	O	O	O	
Racist Non-racist		O	O	O	O	O	O
Homogenous Heterogeneous	O	O	O	O	O	O	
Disrespectful Respectful	O	O	O	O	O	O	
Collegial collegial	O	O	O	O	O	O	Non-
Non-sexist	O	O	O	O	O	O	Sexist
Collaborative Individualistic	O	O	O	O	O	O	
Cooperative Competitive		O	O	O	O	O	O
Homophobic Non-homophobic		O	O	O	O	O	O
Non-supportive Supportive	O	O	O	O	O	O	
Civil civil	O	O	O	O	O	O	Un-

2. Please indicate your level of agreement with the following.	Strongly disagree	Tend to disagree	Neutral	Tend to agree	Strongly agree	Don't Know
My colleagues value my work (teaching, research, creative work etc).						
I feel pressure to change my work interests in order to gain colleagues' respect.						
I feel pressure to change my work interests to earn tenure/promotion.						
I am comfortable asking questions about performance expectations.						
I am reluctant to raise controversial issues for fear it will affect my promotion/tenure.						
Colleagues ask about my gender/ethnicity specifically to better understand gender/ethnic issues.						
Colleagues assume I am a spokesperson for others of my gender/ethnicity.						
Colleagues solicit my opinions about their research.						
I solicit colleagues' opinions about my research.						
My colleagues have lower expectations of me than of others in my position.						
I constantly feel under scrutiny by my colleagues.						
I have to work harder than my colleagues do in order to be perceived as a legitimate scholar.						
I network (seek & give adivice/assistance) with colleagues in my department/unit.						
I network with colleagues outside my department/unit.						

3. Which aspects of your university work environment (i.e. physical, social, or cultural) need improvement?

4. What are some positive aspects of your university work environment?

5. Please rate how well your primary unit supports the following.

	Excellent	Above Avg.	Average	Below Avg.	Poor	Don't Know
Accommodating family responsibilities						
Family leave						
Child care						

Partner/spousal hiring						
Mental/physical health accommodations						
Career planning						
Teaching improvement						
Administratie opportunities						
Tenure clock adjustments						
Acquiring space, equipment, other resources						

6. Would you encourage friends from the following groups to work in your primary unit if they are seeking a friendly work environment?	Yes	Probably	Probably not	No
racial/ethnic minority males				
racial/ethnic minority females				
white males				
white females				

7. Increasing the number of females in my primary unit is…

☐ very important.

☐ important.

☐ not important.

8. Increasing the number of racial/ethnic minority persons in my primary unit is…

☐ very important.

☐ important.

☐ not important.

9. To what extent are you personally committed to increasing gender diversity in your primary unit?

☐ Not at all committed

☐ Somewhat committed

☐ Very committed

10. To what extent are you personally committed to increasing racial/ethnic diversity in your primary unit?

☐ Not at all committed

☐ Somewhat committed

☐ Very committed

11. How often do you discuss issues of gender and racial equity at work (formal and informal conversations)?

☐ Daily ☐ A few times a year

☐ Weekly ☐ Less than yearly

☐ Monthly ☐ Never

12. How often do you discuss issues of gender and racial equity in your personal life?

☐ Daily ☐ A few times a year

☐ Weekly ☐ Less than yearly

☐ Monthly ☐ Never

Section B: Mentoring and Leadership

1. How do you rate your **current** primary unit leader (chair or director) in each of the
following areas?

The chair/director of my unit…	Poor	Below avg.	Average	Above avg.	Superior	Don't Know
maintains high academic standards						
is open to constructive criticism						
is an effective administrator						
shows interest in faculty/researchers						
treats faculty/researchers in an even-handed way						
helps me obtain resources I need						
gives me useful feedback about my performance						
articulates a clear vision						
articulates clear criteria for promotion/tenure						
honors agreements						
handles disputes/problems effectively						
communicates consistently with faculty/researchers						
creates a cooperative and supportive environment						
shows commitment to diversity						
provides adequate collegial opportunities						

2. Did you negotiate for more than offered to you at the time of your hire (i.e. salary,
workload, space, etc.)?   ☐ YES…   If yes, did you receive what you
negotiated for?   ☐NO ☐YES

☐ NO…   If not, were you aware that you could negotiate?   ☐NO   ☐
YES

3. Is there anyone whom you **currently** regard as a mentor—someone who gives
advice and counsel on career issues and/or sponsors or advocates for you?

☐ No

☐ Yes…..   If yes, how many? _____

What is the gender of your *primary* mentor?   ☐ Male ☐
Female

Is she/he in the same primary unit?   ☐ No

☐ Yes

4.   Please indicate the level of mentoring you currently receive from your primary mentor.

My mentor…	None	Too little	Adequate	Too much	Not applicable
serves as a role model.					
promotes my career through networking.					
advises about preparation for advancement.					
provides useful advice on publishing.					
advises about department/unit politics.					
helps me obtain resources I need.					
advocates for me.					
meets with me.					
listens to me.					
provides advice on balancing work and family.					

5. How many faculty/researchers (not grad students) do you currently mentor at CU?___

Section C: General Information

1. How much do you know about the Leadership Education for Advancement and Promotion (LEAP) program?

  ☐ Never heard of LEAP

  ☐ I heard about LEAP

  ☐ I participated in a LEAP activity

2. If you are familiar with the LEAP program, how (or from whom) did you learn about it?

  ☐ colleague   ☐ brochure   ☐ website

  ☐ LEAP committee member   ☐ invitation   ☐

other:_____

  ☐ LEAP-funded grad student   ☐ newspaper

3. In which academic division do you work, primarily?

  ☐ Arts/Humanities   ☐ Engineering   ☐ Education

☐   Social Sciences   ☐   Law   ☐   Music

☐   Natural Sciences   ☐   Business   ☐   Journalism

☐   Research Institute or Center   ☐   Libraries   ☐
Other:_____

4. What is your department/institute? _____

5. What is your current title or rank?

    ☐ Full Professor   ☐ Research Professor

       ☐ Associate Professor   ☐   Research Associate

       ☐ Assistant Professor   ☐   Professional Research Assistant

       ☐ Instructor/Lecturer   ☐   Other:

_____

6. How many graduate students do you currently advise or supervise? _____

7. How many years have you spent in each rank? Please mark zero where necessary.

	Years
Instructor/Lecturer	
Assistant Professor	
Associate Professor	
Full Professor	
Research Professor	
Research Associate	
Professional Research Assistant	
Other:	

8. If you hold a teaching position, how many courses do you normally teach per semester? _____

   How many semesters have you been released from teaching? _____

    If you have been released, please indicate the reason:

☐ grant or fellowship funds

☐ administrative work

☐ sabbatical

☐ leave of absence

☐ other:

_____

9. Have you ever held an administrative position at CU?   ☐ Yes   ☐ No

    If yes, for how many years (total rather than consecutive years)? _____

10. What is your gender? ☐ Female   ☐ Male

11. What is your race/ethnicity?

_____

> *Please return the survey to Dr. Rankin at 390 UCB (Physics).*
>
> *We appreciate the time you spent to fill out the survey and thank you for your participation.*

Appendix D: Survey Instrument for 2007

2007 Survey of Teaching & Research Faculty - LEAP

2007 Survey of Teaching and Research Faculty

This survey is conducted for Leadership Education for Advancement and Promotion, a program at CU Boulder funded by the National Science Foundation. It should take you 10-20 minutes to complete, depending on your answers. We value your input.

This survey is conducted under approval from the CU Boulder Human Research Committee. If you have any questions about the survey, please contact Sandra Laursen, sandra.laursen@colorado.edu.

Section A: Work Environment

1. Please indicate your level of agreement with the following descriptions of your work environment.

	Strongly agree	Tend to agree	Neutral	Tend to disagree	Strongly disagree	Don't Know
friendly	○	○	○	○	○	○
racist	○	○	○	○	○	○
respectful	○	○	○	○	○	○
collegial	○	○	○	○	○	○
sexist	○	○	○	○	○	○
collaborative	○	○	○	○	○	○
homophobic	○	○	○	○	○	○
supportive	○	○	○	○	○	○
uncivil	○	○	○	○	○	○

Section A: Work Environment (continued)

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2. Please indicate your level of agreement with the following:

	Strongly agree	Tend to agree	Neutral	Tend to disagree	Strongly disagree	Don't Know
My colleagues value my work (teaching, research, creative work, etc).	○	○	○	○	○	○
I feel pressure to change my work interests in order to gain colleagues' respect.	○	○	○	○	○	○
I feel pressure to change my work interests to earn tenure, promotion, or advancement.	○	○	○	○	○	○
I am comfortable asking questions about performance expectations.	○	○	○	○	○	○
I am reluctant to raise controversial issues for fear it will affect my promotion, tenure, or advancement.	○	○	○	○	○	○
Colleagues ask about my gender/ethnicity specifically to better understand gender/ethnic issues.	○	○	○	○	○	○
Colleagues assume I am a spokesperson for others of my gender/ethnicity.	○	○	○	○	○	○
Colleagues solicit my opinions about their research.	○	○	○	○	○	○
I solicit colleagues' opinions about my research.	○	○	○	○	○	○
My colleagues have lower expectations of me than of others in my position.	○	○	○	○	○	○
I constantly feel under scrutiny by my colleagues.	○	○	○	○	○	○
I have to work harder than my colleagues do in order to be perceived as a legitimate scholar.	○	○	○	○	○	○
I network (seek & give advice/assistance) with colleagues in my department/unit.	○	○	○	○	○	○
I network with colleagues outside my department/unit.	○	○	○	○	○	○

Section A: Work Environment (continued)

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3. Which aspects of your university work environment (i.e., physical, social, or cultural) need improvement?

4. What are some positive aspects of your university work environment?

5. Please rate how well your primary unit supports the following:

	Excellent	Above Average	Average	Below Average	Poor	Don't Know
Accommodating family responsibilities	◯	◯	◯	◯	◯	◯
Family leave	◯	◯	◯	◯	◯	◯
Child care	◯	◯	◯	◯	◯	◯
Partner/spousal hiring	◯	◯	◯	◯	◯	◯
Mental/physical health accommodations	◯	◯	◯	◯	◯	◯
Career planning	◯	◯	◯	◯	◯	◯
Improvement of teaching	◯	◯	◯	◯	◯	◯
Administrative opportunities	◯	◯	◯	◯	◯	◯
Tenure clock adjustments	◯	◯	◯	◯	◯	◯
Acquiring space, equipment, other resources	◯	◯	◯	◯	◯	◯

Section A: Work Environment (continued)

6. Would you encourage friends from the following groups to work in your primary unit if they were seeking a friendly work environment?

	Yes	Probably	Probably not	No
racial/ethnic minority males	◯	◯	◯	◯
racial/ethnic minority females	◯	◯	◯	◯
white males	◯	◯	◯	◯
white females	◯	◯	◯	◯

7. Increasing the number of females in my primary unit is . . .

◯ very important

◯ important

◯ not important

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8. Increasing the number of racial/ethnic minority persons in my primary unit is ...

- ⭘ very important
- ⭘ important
- ⭘ not important

Section A: Work Environment (continued)

9. To what extent are you personally committed to increasing gender diversity in your primary unit?

- ⭘ Not at all committed
- ⭘ Somewhat committed
- ⭘ Very committed

10. To what extent are you personally committed to increasing racial/ethnic diversity in your primary unit?

- ⭘ Not at all committed
- ⭘ Somewhat committed
- ⭘ Very committed

11. How often do you discuss issues of gender and racial equity at work (formal and informal conversations)?

- ⭘ Daily
- ⭘ Weekly
- ⭘ Monthly
- ⭘ A few times a year
- ⭘ Less than yearly
- ⭘ Never

12. How often do you discuss issues of gender and racial equity in your personal life?

- ⭘ Daily
- ⭘ Weekly
- ⭘ Monthly
- ⭘ A few times a year
- ⭘ Less than yearly
- ⭘ Never

Section B: Mentoring and Leadership

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13. How do you rate your current primary unit leader (chair or director) in each of the following areas? He/She ...

	Superior	Above Average	Average	Below Average	Poor	Don't Know
maintains high academic standards.	◯	◯	◯	◯	◯	◯
is open to constructive criticism.	◯	◯	◯	◯	◯	◯
is an effective administrator.	◯	◯	◯	◯	◯	◯
shows interest in faculty/researchers.	◯	◯	◯	◯	◯	◯
treats faculty/researchers in an even-handed way.	◯	◯	◯	◯	◯	◯
helps me obtain resources I need.	◯	◯	◯	◯	◯	◯
gives me useful feedback about my performance.	◯	◯	◯	◯	◯	◯
articulates a clear vision.	◯	◯	◯	◯	◯	◯
articulates clear criteria for promotion, tenure, or advancement.	◯	◯	◯	◯	◯	◯
honors agreements.	◯	◯	◯	◯	◯	◯
handles disputes/problems effectively.	◯	◯	◯	◯	◯	◯
communicates consistently with faculty/researchers.	◯	◯	◯	◯	◯	◯
creates a cooperative and supportive environment.	◯	◯	◯	◯	◯	◯
shows commitment to diversity.	◯	◯	◯	◯	◯	◯
provides adequate collegial opportunities.	◯	◯	◯	◯	◯	◯

14. Did you negotiate for more than offered to you at the time of your hire (i.e. salary, workload, space, etc.)?

◯ YES

◯ NO

15. Please elaborate on your answer to #14:

	Yes	No
If YES to #14, did you receive what you negotiated for?	◯	◯
If NO to #14, did you know you could negotiate?	◯	◯

Section B: Mentoring and Leadership (continued)

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16. Is there anyone on campus whom you currently regard as a mentor—someone who gives advice and counsel on career issues and/or sponsors or advocates for you?

◯ No

◯ Yes

17. If YES to #16 (else skip),

please describe your mentor(s):	How many mentors?	What is the gender of your primary mentor?	Is she/he in the same primary unit?
	[▼]	[▼]	[▼]

18. Please indicate the level of mentoring you currently receive from your primary mentor. My mentor...

	none	too little	adequate	too much	not applicable
serves as a role model.	◯	◯	◯	◯	◯
promotes my career through networking.	◯	◯	◯	◯	◯
advises about preparation for advancement.	◯	◯	◯	◯	◯
provides useful advice on publishing.	◯	◯	◯	◯	◯
advises about department/unit politics.	◯	◯	◯	◯	◯
helps me obtain resources I need.	◯	◯	◯	◯	◯
advocates for me.	◯	◯	◯	◯	◯
meets with me.	◯	◯	◯	◯	◯
listens to me.	◯	◯	◯	◯	◯
provides advice on balancing work and family.	◯	◯	◯	◯	◯

19. How many faculty/researchers (not counting students) do you currently mentor at CU?

◯ 0   ◯ 1-2   ◯ 3-4   ◯ 5 or more

Section C: Involvement in LEAP

20. Have you heard about the Leadership Education for Advancement and Promotion (LEAP) program (before now)?

◯ Yes, I have heard of LEAP.

◯ No, I have not heard of LEAP.

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21. Have you participated in a program sponsored by the Leadership Education for Advancement and Promotion (LEAP)?

○ Yes, I have participated in a LEAP-sponsored program.

○ No, I have not participated in a LEAP-sponsored program.

22. Mark all the LEAP activities in which you have participated.

☐ none

☐ attended multi-day leadership workshop

☐ attended short leadership workshop

☐ attended course development workshop

☐ participated in coaching program and/or coach training

☐ attended seminar or talk

☐ participated in book group

☐ served on board or as advisor to LEAP

☐ received a personal grant

☐ worked with my department to implement a departmental grant

☐ held a leadership fellowship that provided me with course release time

☐ Other (please specify):

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23. Mark all gains that you experienced as a result of participating in LEAP activities.

- [ ] made no gains
- [ ] developed new skills
- [ ] used new skills or concepts in particular situations
- [ ] gathered ideas or solved problems with others
- [ ] networked with peers in a similar career stage to me
- [ ] networked with colleagues in other career stages, senior or junior to me
- [ ] learned about leadership
- [ ] learned about how this campus works
- [ ] learned about women in science
- [ ] learned about diversity issues
- [ ] reflected on my own career interests and aptitudes
- [ ] gained confidence in my ability to succeed professionally
- [ ] took action to make changes in my career
- [ ] Other (please specify):

Section D: General Information

24. In which academic division do you primarily work?

- ( ) Arts/Humanities department
- ( ) Social sciences department
- ( ) Natural sciences department
- ( ) Research institute or center
- ( ) Engineering
- ( ) Law or Business
- ( ) Libraries
- ( ) Education
- ( ) Music
- ( ) Journalism
- ( ) Other

25. What is your primary department/institute?

2007 Survey of Teaching & Research Faculty - LEAP

26. How many graduate students do you currently advise or supervise in a formal role?

◯ 0   ◯ 1-2   ◯ 3-5   ◯ 6-9   ◯ 10 or more

27. How many courses do you normally teach per semester?

◯ 0   ◯ 1   ◯ 2   ◯ 3   ◯ 4 or more

Section D: General Information (continued)

28. What is your CURRENT title or rank?

◯ Full Professor

◯ Associate Professor

◯ Assistant Professor

◯ Instructor or Lecturer

◯ Research Professor

◯ Research Associate (including Senior RA)

◯ Professional Research Assistant (including Senior PRA)

◯ Other

29. How many years have you spent in each rank AT CU BOULDER? Please mark zero where necessary.

	0	1-3	4-6	7-9	10 or more
Full Professor	☐	☐	☐	☐	☐
Associate Professor	☐	☐	☐	☐	☐
Assistant Professor	☐	☐	☐	☐	☐
Instructor or Lecturer	☐	☐	☐	☐	☐
Research Professor	☐	☐	☐	☐	☐
Research Associate (including Senior RA)	☐	☐	☐	☐	☐
Professional Research Assistant (including Senior PRA)	☐	☐	☐	☐	☐
Other	☐	☐	☐	☐	☐

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30. How many years have you spent in each rank (or a comparable rank) AT OTHER CAMPUSES? Please mark zero where necessary.

	0	1-3	4-6	7-9	10 or more
Full Professor	☐	☐	☐	☐	☐
Associate Professor	☐	☐	☐	☐	☐
Assistant Professor	☐	☐	☐	☐	☐
Instructor or Lecturer	☐	☐	☐	☐	☐
Research Professor	☐	☐	☐	☐	☐
Research Associate (including Senior RA)	☐	☐	☐	☐	☐
Professional Research Assistant (including Senior PRA)	☐	☐	☐	☐	☐
Other	☐	☐	☐	☐	☐

Section D: General Information (continued)

31. What is your gender?

○ Male

○ Female

32. What is your race/ethnicity? (check ALL that apply)

☐ American Indian or Alaskan Native

☐ Asian

☐ Black or African American

☐ Latino/a

☐ Native Hawaiian or other Pacific Islander

☐ White