Overview

Reports of the Committees on the
Status of Women Faculty

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The Status of Women Faculty at MIT:

An Overview of Reports from the Schools of Architecture and Planning; Engineering; Humanities, Arts, and Social Sciences; and the Sloan School of Management

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Abstract

A study completed several years ago in the School of Science found that tenured women faculty often experienced marginalization, and with it, inequities in terms of resources for research and compensation. Inequities can be difficult to detect in the absence of a systematic study. To ensure the equitable treatment of women faculty, Provost Bob Brown asked that studies similar to that in the School of Science be performed in the other Schools of MIT. Committees on the Status of Women Faculty, appointed by the Deans, analyzed data and conducted interviews, and prepared reports on their findings. Edited versions of these Reports follow this overview. Strikingly, the studies reveal that the issues that can negatively impact the professional lives of women faculty are similar in different Schools and similar to those identified in Science. They include marginalization, which can sometimes be accompanied by inequities; the small number of women faculty in many departments; and the greater difficulty of balancing family and work for women faculty. Despite generic similarities, specific manifestations of these problems differ among Schools, and even in different departments within a School. Identification of the specific concerns of women faculty has led to prompt corrective actions. It has also led to new policies to facilitate institutional change to prevent such problems from arising in the future. The collaboration of tenured women faculty with the higher administration has substantially improved the professional lives of many women faculty. If sustained, this interaction should ultimately impact the continued under-representation of women, particularly in many fields of science and engineering. Similar efforts may also help to address the almost complete absence of women of color from the MIT faculty.

Introduction

In March 1999 an article in the MIT Faculty Newsletter reported the results of a study on the status of women faculty in the School of Science. An important finding was that many tenured women faculty experienced professional marginalization. Often marginalization was accompanied by inequities, with women faculty receiving lower salaries, less space, and fewer resources for their research than male colleagues, and by exclusion from important decision making roles in their departments. The report highlighted the small number of women faculty (15 tenured women vs 197 tenured men in 1994) and the fact that, contrary to popular belief, the percentage of women faculty had remained unchanged for at least 10, and probably 20 years.

University reports can go unheeded and gather dust, but the Report on the Status of Women Faculty in Science was widely quoted in the media and had far reaching consequences, both inside and outside MIT. Within MIT, President Vest set a goal of achieving gender equity in the future, and he commissioned the Provost to ensure that this was the case. Together, with input from women faculty, Provost Brown and President Vest also established a Council on Faculty Diversity to identify fundamental issues underlying marginalization and the continued under-representation of both women and minorities on the faculty, and to try to devise institutional solutions for these problems.

Outside MIT, the Study on the Status of Women faculty in Science resonated widely with professional women. The problems identified in the MIT report proved to be essentially universal for professional women in the US. Further, the problem had frequently been ignored or misunderstood. President Vest held a conference of nine university Presidents to discuss these issues, and the Presidents made a commitment to address gender bias at their own schools.

An important observation from the Science Report was that marginalization and the inequities that result from it can be difficult to identify in individual cases at the department level. Careful study is needed to identify problems since these can differ from field to field, department to department, and even individual to individual. In addition, a mechanism is needed to correct inequities as soon as they are identified.

In light of these findings, Provost Bob Brown chose to establish committees in each of the Schools of MIT to carry out analyses similar to that in Science and to make corrections of inequities when they were documented. The Dean of each School appointed a committee of female and male faculty, and selected a woman faculty chair in consultation with the tenured women in the School. The reports of these Committees have been completed, presented to the Deans and School Councils, to the Academic Council, and to the faculty. Summaries of the reports are published here.

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Findings of the Reports: Generic Issues, Specific Manifestations

Not surprisingly, the Committees found that most female and male faculty fully appreciate the many advantages of a faculty position at MIT, with its access to exceptional students, colleagues, and resources for research. Nonetheless, across many departments and probably in all Schools, the experiences of male and female faculty differ, with women more frequently reporting negative experiences. The most striking finding from the four new reports is that many of the issues that differentially affect the professional lives of women faculty are shared in all five Schools of MIT. This might not have been readily apparent in the absence of these detailed studies.

Generic issues that differentially impact the professional lives of female vs male faculty are: marginalization; isolation resulting from small numbers of women faculty; residual effects of past inequities, particularly around salary and access to resources; and greater family responsibilities. Marginalization accumulates from a series of repeated instances of disadvantage which compound over an academic career.

1. **Specific manifestations of marginalization and the inequities that can arise from it**

Marginalization can take many forms and can occur for complex reasons. Marginalization has cumulative and deleterious effects on a faculty member's productivity. It leads to professional exclusion, a sense of being under-valued, and accumulated inequities from unequal levels of compensation and unequal access to resources. Marginalization and the inequities that accompany it are more likely to occur in Schools and departments with the fewest women faculty.

Examples of marginalization in different Schools

In Engineering, the School with the lowest percentage of women faculty, the report found that exclusion from professional activities, and sometimes near-invisibility of women faculty were common, although not universal issues. For example, women faculty in different departments report being excluded from participation in group grants. And some report not being invited to serve on the PhD thesis committees of the students of male colleagues. While a single incident is inconsequential, repeated over time these exclusions can have important consequences, since some of these interactions generate new ideas for further collaboration, can result in research that leads to group research grants, and can generate outside professional opportunities important to a career in some fields of engineering. Some of us were present the day the Dean of Engineering, Tom Magnanti, learned of these inexplicable, to him incomprehensible exclusions of women faculty. He was almost unable to grasp that this had routinely happened to women whom he himself knew to be highly respected members of their departments. He instantly understood, though, the severely negative professional consequences of this exclusion.

Interestingly, in Science, exclusion from group grants was also identified as part of the pattern of marginalization, but exclusion from PhD committees was not reported. In contrast, space was not reported as an issue for women faculty in Engineering at the present time, but it had been a very significant issue for some women faculty in Science.

In the Sloan School of Management, a startling manifestation of the consequences of marginalization was discovered when interviews with senior women faculty and a matched group of men were independently coded on a number of dimensions of experience. Among 60 possible comparisons there was no single case where the woman reported a better experience than did her matched male pair. And there were 40 comparisons where the man's reported experience was more positive than that of his matched pair.

In the School of Architecture and Planning, a number of women faculty reported feeling a lack of influence in important decision-making. Some male faculty, on the other hand, reported great influence and inclusion in decision-making. Although women faculty have been appointed as members or chairs of important committees, it appears that some important departmental decisions are not made within these committees, but are made outside of the committee structure.

These examples show the importance of the stories women faculty tell about their experiences in different fields. Only the aggregation of individual stories will point the way to better understanding as well as to concrete ways to improve the situation of faculty women, and undoubtedly of some male faculty as well.

The under-valuing of women and of certain fields of research

As the report from the School of Humanities, Arts, and Social Sciences (SHASS) suggests, not only women, but entire fields can be under-valued in the male-dominated culture of science and engineering. Thus, in humanities at MIT, both female and male faculty in fields without graduate programs often feel under-valued relative to those in the social sciences. These humanistic fields have a higher percentage of women faculty and lower salary scales for both men and women. As one male faculty in Humanities commented, “We’re all women here.” This difference in fields extends to the Sloan School of Management as well, where faculty in areas that are more quantitative are more highly paid and feel more central than those who rely on interpretative analyses of field-based data. The latter include most of the senior women. In Architecture and Planning, too, many women are in fields with lower compensation. The issue also arises in Engineering, where women often work in inter-disciplinary areas and nontraditional niches. This choice may contribute to their isolation and make it easier for men to undervalue their work since there may be no colleagues to collaborate with and few who can comprehensively evaluate them.

Women faculty can often earn less than male colleagues

As expected from national studies conducted over decades, and from the School of Science report, three of the four new Reports document lower salaries for women faculty in the past. In Engineering many of these were corrected some years ago, although a few additional corrections were made by Dean Magnanti in response to the Report. In Sloan, at the time the data were analyzed, women faculty salaries were lower than those of male faculty when controlled for field, rank, and past experience. But Dean Schmalensee has recently taken steps to bring men and women to parity on average. In Architecture some significant disparities were corrected through the work of the

Committee and Dean Mitchell. Only the SHASS Committee failed to find evidence of lower pay for women faculty; however, the committee obtained salary data for only one year, precluding the possibility of detecting past underpayments and corrections.

Department Heads and Deans probably often correct the lower salaries of women faculty, since a common finding in all Schools (except SHASS, see above) is sudden unexplained raises to women faculty, presumably resulting from previous underpayment. Though very important, such jumps do not make up for past unequal contributions to pension benefits. Furthermore, it has been noted that with time, women's salaries often fall behind again.

Now that we better understand the marginalization of women faculty, it is easier to see why the compensation system so frequently results in women faculty earning less than men. Salaries, it seems, are primarily driven by the market and respond most robustly to outside offers. In this market-driven system, therefore, obtaining a high salary requires that women faculty 1) know how the system works, 2) obtain outside offers as frequently as men, 3) be as willing and capable of moving to another location as male colleagues, 4) obtain an equally robust response to an outside offer from their Department Head or Dean. Marginalization and exclusion from knowledge, the lower probability of having a spouse willing to follow you to a new location, and under-valuation in the eyes of those who make offers and those who respond to outside offers, make this long standing problem more comprehensible, indeed, make it almost predictable.

Recently, in the School of Science, it is apparent that women faculty, particularly young single women, have learned to use outside offers, and thus, some now have among the highest salaries in the School. Similarly, women hired from outside in several Schools have high salaries. But for now, the Committees on women faculty are serving as an additional check on salaries, for both men and women. We are gradually coming to see that our compensation system may be both out of date and gendered: it worked well for a man with a movable wife, but is irrelevant for many two-career couples and most women.

As noted above, in some Schools, entire departments and fields are under-valued and all faculty have low salaries. This is not a gender equity issue, although it may reflect the feminization of these fields, particularly within the hard-science, male-dominated culture of MIT.

2. **Small numbers of women faculty and the prospects for increasing the numbers**

Only 16% of MIT faculty are women. This number is expected to be lower overall than many other universities since the percentage of women in science and engineering is lower than in other fields, and since nearly two-thirds of MIT's entire faculty are scientists or engineers. By School, comparable field, or by department, MIT appears to have the same or slightly more women faculty than comparable units of comparable universities.

Once again, in analyzing the numbers of women faculty, careful analysis of data has proven to be critical for identifying specific issues that need to be addressed. For

example, in Engineering, the percentage of women hired in the last 10 years is roughly equal to the percentage of women PhDs produced in the US. However, the Engineering Report documents that most of these hires occurred in half the departments, particularly Civil Engineering, Chemical Engineering, and Material Science and Engineering. In contrast, Electrical Engineering and Mechanical Engineering made virtually no progress in hiring and retaining women over a decade. Between 1990 and 1998 Electrical Engineering hired 28 men and 0 women. This was not for lack of trying. Four offers were made to women, but none accepted. This stunning finding reflects a trend in the School: the acceptance rate for women of job offers to join the Engineering faculty was lower than that of men. Furthermore, engineering will occasionally hire its own best PhDs, but the proportion of male MIT-trained PhDs hired was twice that of MIT-trained women hired. Clearly, only by identifying these very specific issues, department by department, can one begin to address them.

In Architecture and Planning, the proportion of women faculty is high relative to other Schools. But in relation to the much higher proportion of graduate students in the School, they could be doing much better. The School has been very successful in recent years in increasing the numbers of women faculty to very high levels, especially by hiring senior women from without. However, at the same time, there have been problems promoting junior women to tenure from within. These important findings point to areas that require further analysis and understanding, and the need for long term commitment in order to truly impact the number of women over time.

Even in SHASS, the number of women faculty is equal to men in only a few fields of Humanities. While there they are 50-50, in fact in these fields the fraction of women PhDs is even higher. So while the 50-50 mix is highly desirable, even this may be an under-representation of the fraction of trained women PhD's in the pool.

Interestingly, in Science, the number of women faculty has increased by about 50% since its study was conducted. However, most of the increase occurred at that time, and some of it has been eroded by the departure of 4 tenured women. In Science, as opposed to Engineering, the acceptance rate of job offers for men and women over the past decade has been close to equal. The difficulty has been in making offers at a steady pace over a long period of time.

The important information about numbers collected in these reports points to a critical need for a more detailed study of the number of women available in each field, the numbers who apply for faculty positions, the number interviewed, offers made, and acceptance rates over time. This detailed pipeline study is essential for the important next step, which is to determine where the missing women go, and why. As discussed below, the issue of increasing the number of women faculty is being addressed by the Provost, the Deans, and the Council on Faculty Diversity.

Women of color are the most under-represented faculty

Although none of the Reports deal specifically with the issue of the diversity of women faculty this omission in itself reflects a harsh reality: there are almost no women of color on the MIT faculty. Nationally, women of color are all but invisible. Their numbers are hidden in both the numbers of women and in the numbers of under-

represented minorities, but they are almost never seen as a group in their own right. National statistics of top universities show that these women exist in single numbers at best. At a recent conference held at MIT on minority women scientists and engineers in the academy, organized by Professor Evelynn Hammonds (STS, Director, Center for the Study of Diversity in Science, Technology, and Medicine), members of the audience were able to identify – by name – all the women in the top 50 departments of Science and Engineering in the United States! This under-representation applies to African American, Hispanic, and Native American women, and to a non-official minority group of women, those of Asian origin.

3. Family-work issues for women faculty, and increasingly for male faculty

Not surprisingly, women faculty often remark on the greater responsibilities that women shoulder for family care, including care of both children and aging parents. This issue, also central to the findings of the Science Report, is similar for women in all Schools, although the best solutions can be very different depending on the field, stage of career, and nature of the responsibility. Further, as in most universities, many fewer of the women faculty are married or have children. Related to this is the fact that the benefit structure is still geared to a male earner with a family, and some of the needs of women faculty are not being met. In some departments male faculty also cited family-work issues as being of very great concern. This is increasingly true of junior male faculty. These issues are currently being addressed by changes to institutional processes.

Progress for Women Faculty at MIT: Quick Fixes and Long Term Solutions

From these Reports, as from the Science Report, we learned that female faculty can have different, often less positive professional experiences than their male colleagues. Painstaking data gathering by faculty and administrators deep within the institution, including collecting the important stories of female faculty, have helped to make this issue visible and thus make it possible to address it. The MIT administration has made two types of responses to the Science report and to these four new reports as well: quick fixes to specific inequities, and efforts at long term solutions including institutional change.

1. **The Committees on the Status of Women Faculty will continue to monitor equity**

When inequities are documented now by the Committees on women faculty, they are usually promptly addressed by the Deans. The importance of this cannot be over-estimated, since the studies reveal the extreme frustration and discouragement that can result from a feeling that there may be inequities in the system. Furthermore, realizing that inequities will probably continue to arise and impact the productivity and quality of life for women faculty, the Provost and President have requested that the Committees on women faculty remain in place and continue to monitor equity, including annual reviews of primary salary data by Committee chairs. However, as President Vest had noted earlier, important though this is, “fixing inequities is the easy part” of the solution. The more difficult part is to understand the reasons inequities arise, the reasons for marginalization and for the small number of women faculty and to address these.

In recognition of these complex problems, President Vest and Provost Brown, in consultation with tenured women faculty, established a Council on Faculty Diversity in the fall of 2000. This administrative mechanism allows faculty with knowledge of an important issue to work hand in hand with administrators who have both a deep knowledge of institutional process and the power to impact it rapidly. The first Council on Faculty diversity has been Co-Chaired by Provost Bob Brown, Professor Nancy Hopkins (who was Chair of the first Committee on Women Faculty in Science) and Professor Phillip Clay (previously Associate Provost, now Chancellor of MIT. Clay has recently been replaced by Professor Wesley Harris.) In her capacity as Co-Chair of the Council, Professor Hopkins sits on the Academic Council, the highest committee of academic administration at MIT. She is one of two women faculty on the Council, twice the number of women faculty to ever sit there at one time. In addition to Professor Hopkins and Professor Alice Gast (Vice President for Research and Associate Provost), the Council includes four women in positions of administrative leadership (three vice presidents and the director of libraries).

2. **The Council on Faculty Diversity examines institutional process in light of the findings of the Committees on the Status of Women Faculty**

The Reports from all five Committees on women faculty make clear that the small numbers of faculty in many departments, and the greater demands of family are two areas of extreme concern for women faculty. In recognition of this, the Council on Faculty Diversity has specifically addressed these two issues.

Policies to address family-work issues

A Subcommittee on Quality of Life, chaired by Professor Lotte Bailyn (Sloan), with input from faculty across the Institute, developed three new policies for family leaves for the birth or adoption of a child, and for care of a family member or partner. These policies have been approved by the Deans and by the Academic Council and have been put into place in the current year. Their use and effect over time will be monitored by faculty who will report to the Council on Faculty Diversity, thus setting up a monitored experiment.

Small numbers of women faculty: Hiring policies, pipeline

To address the under-representation of women, and also minorities, on the faculty, Provost Brown worked with the Deans to develop guidelines for hiring practices. Each School was asked to develop protocols that could be used by search committees and that would ensure that tenured women and minority faculty play a part in all searches. In addition, some Deans have adopted the policy of reviewing all searches themselves and sending back those in which potential women or minority faculty candidates were not seriously considered. To assist these new programs, Professor Gibson (Chair of the Engineering Committee on women faculty) has prepared a Handbook on Faculty Search Procedures modeled after one developed by Dean of Engineering Denice Denton, U. of Washington. The Council on Faculty Diversity is also in the process of developing new approaches to analyzing and stimulating the pipeline, both for women, including women of color, and for minority males, but this work is still at an early stage.

3. **Women faculty in the administration**

A striking finding from the Science report was that no woman professor had ever been a Department Head, or Center or Lab director in Science in the history of MIT. In fact, there were no women in the administration of either Science or Engineering at the time of the study. This lack of access to knowledge of the system is a serious source of problems. The absence of women from such knowledge and positions of power is also found in some departments of other Schools as the new Reports reveal. Today, six women faculty from Science have roles in the academic administration (see Update from Dean Silbey for the School of Science) including women Heads of two labs in Physics and a Director of the highly prestigious Whitehead Institute, and three women have line positions in the administration in Engineering, while four others have non-line positions with substantial administrative responsibilites. In addition, Professor Terry Knight (Chair of the Committee on women faculty in Architecture) was recently appointed Associate Dean of the School of Architecture and Planning. These appointments have already had a significant impact by dramatically increasing women faculty knowledge of the system, as well as further increasing awareness among male administrators of the problems women faculty can experience. In addition, these women are beginning to impact institutional processes to make them more effective for a diverse faculty.

4. **A collaboration of committed administrators and committed women faculty is responsible for the progress at MIT**

Many women faculty have been amazed by the progress and changes in their own professional lives at MIT as a result of the work described in this Overview and in the Reports that follow. If one were to ask what was the most important factor in change to date, it would have to be the Reports that documented the problems and led to the engagement of administrators in solving them. This could not have occurred without two key components: a significant number of tenured women faculty who worked closely together and were willing to commit an enormous amount of their time to this issue, and a higher administration that, given the knowledge of the problems the women faculty provided, made a long term commitment to work with the women faculty to address the issues. Initially the Dean of Science fixed problems for women faculty on a case by case basis. But today, the Provost, and also Deans, work closely with women faculty within the administration to address these problems on behalf of the institution. This is a profound change, probably the most important to occur for some decades.

5. **Why MIT? "Engineers solve problems"**

When the Science Report was published, many people expressed surprise that analysis of what in the end is really a societal problem should come from a School of science and engineering. However, this may in fact be key to MIT's approach to gender equity. In a conversation with Provost Brown, in which one woman expressed her concerns about whether these complex problems were really fixable, the Provost, an Engineer by profession, seemed quite taken aback. "This is MIT," he replied. "We're engineers. Engineers solve problems." Indeed, it may be the can-do, entrepreneurial,

even upstart confidence of the engineer that explains in part both Vest's and Brown's commitment to this difficult issue. A confident belief that data-gathering, analysis, design of goals and development of metrics can solve most problems may give MIT the courage to try to change societal problems as elusive even as gender bias.

The Future: Will we be monitoring equity forever?

But will it work, this engineers' approach to gender equity? Despite the enormous progress we have made at MIT, there is still a long way to go. While the findings of these reports and the administrative mechanisms they have generated can ensure equity for women faculty, it will remain hard to solve the marginalization of women. Many women faculty are still unlikely to have many female colleagues during their entire professional lives, given the slow rate of faculty turnover and the small numbers of women faculty still being hired in some fields. These women will remain at risk to be marginalized since no matter how many policies one enacts, in the end, consciousness raising of the entire faculty will be needed to solve this problem. But would even that be enough to increase the numbers of women faculty, and solve the family-work issue?

Do we need to change the rules of the game?

As we have seen with salaries and with the numbers of women faculty, once the concrete data are available, committed administrators can make a difference. But lasting equity cannot depend only on the good will of department heads and deans. So, despite the important progress MIT has made, there are still underlying causes that have not been uncovered. There still is very little awareness at MIT, or elsewhere, of the gendered nature of academic rules: how criteria of evaluation, timing expectations, conventions of authorship - to name a few - help men more than women. Nor is there awareness that reputations are constructed, and cumulate from slight advantages that favor men, and slight inequities that disadvantage women. Lasting equity requires rethinking these institutional rules, which evolved for a different demographic group, in order to ensure that they do not systematically disadvantage women, or men in dual career partnerships. MIT has successfully used the experience of the women faculty in the School of Science to ensure that women in all the schools are treated fairly, and that everyone understands the rules. What still needs doing, and what eventually will be necessary in order to achieve lasting gender equity, is to question and rethink the nature of the rules themselves.