

The MIT Faculty Newsletter

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SPECIAL EDITION

October 1997

This Special Edition of the Faculty Newsletter is devoted entirely to reports from the Task Force on Student Life and Learning. The results of the Faculty Survey administered by the Task Force comprise the majority of this issue. Also included is a report on the Task Force-sponsored Junior Faculty Workshop.

A summary of the survey results appeared in the September 1997 Faculty Newsletter. This Special Edition presents them in their entirety.

Articles concerning the upcoming faculty vote on changes in freshman living requirements and R/O week can be found at the Newsletter website, <http://web.mit.edu/fnl>.

Task Force on Student Life and Learning

Results of the Faculty Survey

Overview

The Task Force on Student Life and Learning was charged last fall by President Vest to review the educational processes of the Institute and the interaction between student life and learning as MIT moves forward into the next century. During the first year of its efforts, the Task Force solicited broad input to help identify fundamental educational challenges and opportunities facing MIT that would likely have long-term implications for MIT's educational mission. Through meetings, correspondence, focused interviews, and workshops, the Task Force gathered input from undergraduate and graduate students, alumni/ae, parents, Institute executives and administrators, and government and industry representatives.

The Task Force sought particularly to solicit the insight and perspective of the faculty regarding the role and future of MIT. In addition to meeting and corresponding with individuals, department heads, and school councils – and sponsoring a workshop for junior faculty (see Page 11) – in February the Task Force sent an exploratory survey to all MIT faculty, teaching and instructional staff, intended to solicit and focus input on student life and learning issues. Reminders and duplicate copies of the survey were mailed in May. This article reports the results of the survey.

The findings of the survey indicated general consensus on the following:

- “Fundamental values” of the Institute that should be retained include: science and technology; excellence; the combination of teaching and research; and intellectual freedom (for details, see Table 2 [p. 5]).
- External forces likely to influence MIT over the next 20 to 30 years include: technology; funding; changes in government/political roles; competition; and the world economy (see Table 3 [p. 6]).
- Affects of international trends and globalization include: increased international collaboration and competition and changes in the student body (see Table 4 [p. 6]).
- Elements defining a well-educated individual include: a fundamental base in science and technology; a well-rounded, liberal education; and communication skills (see Table 5 [p. 7]).
- The interaction between teaching and research at MIT is positive (see Table 7 [p. 8]).

Survey Design

Survey questions were designed in free-response and open comment formats so as not to influence the type or direction of responses and to allow faculty to discuss freely issues of personal interest or concern. Faculty were invited to focus on those questions on which they had the most insight or the strongest opinions and to omit any questions they wished not to answer. The first section of the survey consisted of free-

response questions, followed by an open comment section inviting faculty to identify and comment on other issues important to student life and learning at MIT.

The free-response questions focused on the topics below:

- fundamental values of the Institute;
- key external factors likely to influence MIT;

(Continued on Page 3)

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List of Tables

	Page
1. Survey responses received by school	5
2. Fundamental values of the Institute	5
3. External factors likely to influence MIT	6
4. Affects of international trends and globalization	6
5. Elements that define a well-educated individual	7
6. Suggested modifications of the educational mission or specific graduation requirements at MIT	7
7. Interaction between teaching and research	8
8. Factors driving pace and pressure	8
9. Factors that make faculty feel most successful	9
10. Factors that make faculty feel least successful	9
11. Types of student/faculty contact	10

See Page 10 for a list of Task Force members.

Results of the Faculty Survey

Continued from Page 1

- affects of international trends and globalization on MIT;
- elements defining a well-educated individual;
- how information technologies may affect the pedagogy of teaching;
- potential need to modify the educational mission or specific graduation requirements at MIT;
- relationship between teaching and research;
- faculty responsibility as regards the intellectual and personal development of students outside of research and classroom activities;
- factors driving pace and pressure at MIT;
- factors encouraging/discouraging faculty members;
- types of contact faculty have with students;
- barriers preventing more informal student/faculty contact.

The second section asked for the following demographic information:

- number of years teaching at MIT;
- department (optional);
- age (optional);
- sex (optional);
- academic rank;
- approximate number of students supervised per year;
- other significant student interactions.

Demographics

The survey was sent to all 1448 members of the MIT teaching and instructional staff. One hundred sixteen responses were received (59 professors, 18 associate professors, 12 senior lecturers, 11 assistant professors, 6 professors emeriti, one instructor, one adjunct professor, and one "other;" seven did not indicate their rank). Eighty-four identified themselves as male, 12 as female, and 20 did not indicate their sex. The average number of years teaching at MIT was 18 (of the 109 who responded

to the question), and the average age was 48 (of the 90 who responded to this question). Of the 83 who indicated their department, the school distribution was as shown on Table 1 [p. 5].

Faculty were asked whether they teach primarily undergraduate students, graduate students, or both. Fifty-three indicated that they teach both, 29 that they teach primarily undergraduates, and 26 that they teach primarily graduate students. Eight did not respond. Of those who responded, the average number of UROP students was 2.6, the average number of postdoctoral associates was 2, the average number of non-Ph.D. graduate students was 3.6, and the average number of Ph.D. students was 3.8.

Analysis Method

The analysis of the Task Force survey responses reflects the limitations of a free-response and open comment design. The responses and comments for each question were analyzed and sorted into related categories, which were then tallied by numerical frequency and percentage of respondees providing answers in each. (Note that respondees could indicate more than one answer for each question.) As this exploratory survey was intended simply to identify key issues for faculty, the analysis did not include tests for size or representative accuracy of the sample nor statistical significance of the response data. These factors should be considered in interpreting the results.

Results

The first question, "What do you consider to be the *fundamental values* of the Institute that should be retained and protected as we move into the future?" yielded 109 responses, which included 221 answers that could be grouped into a broad range of categories including science and technology, excellence,

combination of teaching and research, intellectual freedom, service to society, ethics/integrity, and meritocracy. Numerical frequencies and percentages are provided in Table 2 [p. 5].

One hundred nine respondees listed 247 key *external factors* likely to influence the way MIT will evolve as an educational institution over the next 20 to 30 years. Those most frequently mentioned included, in descending order: technology, funding, changing government and political roles, competition, world economy, and cost of education. Numerical frequencies and percentage of respondees providing these answers are provided in Table 3 [p. 6].

Ninety-five respondees provided 111 likely *affects of international trends and globalization* on MIT over the next 20 to 30 years, most of which pointed to change, from the levels of international collaboration and competition, to the makeup of the student body, to the use of educational technology (see Table 4 [p. 6]). Many of those who predicted change in the student body speculated that there will be increased polarization of classes at MIT and worldwide.

In response to a question regarding *elements that define a well-educated individual*, faculty provided a wide range of criteria ranging in categories from academic, to personal, to social. Nearly half of the 98 who responded listed a fundamental base of science and technology as a defining element of a well-educated individual that is unlikely to change over the next 20 to 30 years. Approximately one-third listed a well-rounded liberal education and communications skills as defining elements. Other responses are included in Table 5 [p. 7].

(Continued on next page)

Results of the Faculty Survey

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Responses to the question, “In your view, *how will information technologies (e.g., World Wide Web) affect the pedagogy of teaching* over the next 20 to 30 years and how should MIT respond?” were somewhat difficult to analyze and categorize, as some faculty responded to the former part of the question and some the latter. Although responses reflected a range of opinions, a significant number of respondents suggested that the WWW could enhance, but should not replace, current teaching methods.

When asked whether the changes mentioned in the questions above suggested a *need to modify the educational mission of MIT or specific graduation requirements*, 46 responded no, 44 responded yes, and 26 responded that they were unsure. Fifty-nine specific suggestions for how MIT should modify or change included those shown in Table 6 [p. 7].

An overwhelming majority (91 of the 106) who responded suggested that the *interaction between their teaching and research* is positive. Five said that the interaction was neutral, four that it was negative, six that they were unsure, and ten did not answer (see Table 7 [p. 8]).

When asked to what extent MIT and its faculty have the *responsibility to contribute to the intellectual and personal development of students outside of research and classroom activities*, 47 proposed that MIT and its faculty have a high level of responsibility, 37 proposed a moderate level of responsibility (many of these commenting that the status quo seemed to be adequate), 16 proposed no responsibility, and 14 did not answer the question.

Respondees identified various institutional, cultural, and personal factors *driving pace and pressure* at MIT (see Table 8 [p. 8]). Responses

indicated that there might have been some confusion as to whether the question referred to pace and pressure for students, for faculty, or for both. Nonetheless, 43 suggested that the Institute should attempt to mitigate pace and pressure at MIT, 20 suggested that MIT need not do so (many of these asserting that the level of pace and pressure is an integral part of the MIT culture), and 53 did not respond or were undecided.

The Task Force asked two questions about the factors that make the respondents feel most and least successful as faculty. Among factors yielding the greatest feeling of success were interaction with students, research, and teaching successes (see Table 9 [p. 9]). The principal factors leading to feelings of least success were unpleasant interactions with students, funding pressures, and workload (see Table 10 [p. 9]).

The final question asked what *types of contact faculty have with students* outside the classroom and *what barriers, if any, prevent faculty and students from having more informal contact*. The first question yielded 190 answers from 102 respondents, which included the following types of contact: undergraduate advising, meals/drinks/socializing, graduate advising/mentoring, counseling, extra-curricular activities/organizations, UROP, dorm, informal conversation, and housemaster. Five respondents reported that they had little contact with students outside the classroom, and five indicated that they did not wish to have contact with students outside the classroom. For numerical frequencies, see Table 11 [p. 10].

A majority of respondents (51 of the 94 who responded to the second part of the question) listed lack of time as a barrier

preventing faculty and students from having more informal contact. Other barriers preventing more faculty student contact included: lack of physical structures to support it (7), faculty living at a distance from campus (7), lack of support from the MIT culture and/or reward structure (6), the difficult role of being both a teacher and a friend (4), shyness (4), age differences (4), no inclination (4), and consideration for students’ privacy (1).

In the final section of the survey, faculty were invited to comment on other issues important to student life and learning at MIT. Respondees provided comments and suggestions on issues including facilities, curriculum, pace and pressure, role of the faculty, and grading.

In Conclusion

The Task Force wishes to thank all who contributed and responded to the survey and appreciates the opportunity to have heard the voices of the many faculty who cared to communicate their thoughts, concerns, and suggestions regarding the present and future of MIT. The Task Force invites individuals or groups who are so inclined to communicate freely with the Task Force – by e-mail (learning@mit.edu), correspondence (Rm. 4-117), or in person with individual Task Force members (see list, Page 10) – on the above-mentioned or other issues of interest or concern.

The Task Force will soon move into the second phase of its work, which is to identify changes in the current educational processes (interpreted broadly) that will enhance the educational mission of MIT and seek consensus for those changes. We look forward to the continued involvement of the faculty during this – and all – subsequent stages of the Task Force’s work. ❖

**Results of the Faculty Survey
by the
Task Force on Student Life and Learning**

Table 1: Survey responses received by school (n=116)

School	Number of faculty (as of 10/96)	Number of surveys returned (total of 116)	% returned by school
Architecture	71	5	7%
Engineering	314	39	12%
Humanities/Social Sciences	139	18	13%
Management	75	2	3%
Science	262	19	7%
Did not indicate affiliation		33	

Table 2: Fundamental values of the Institute

Fundamental values	Number of answers (total of 221, provided by 109 respondees)	% of respondees providing this answer
Science and technology	48	44.0%
Excellence	39	35.7%
Combination of teaching/research	26	23.9%
Intellectual freedom	22	20.2%
Service to society	18	16.5%
Ethics/integrity	12	11.0%
Meritocracy/best students	10	9.1%
Intellectual breadth	9	8.3%
Hands-on experience	7	5.9%
Research	7	5.9%
Teaching basic & applied science	6	5.5%
Hard work	5	4.6%
Innovation	5	4.6%
Diversity	4	3.7%
Collegial atmosphere	2	1.8%
Being different	1	1.0%

Table 3: External factors likely to influence MIT

External factors	Number of answers (total of 247, provided by 109 respondees)	% of respondees providing this answer
Technology	37	36.7%
Funding	32	31.7%
Changing government/political roles	31	30.6%
Competition	26	25.7%
World economy/global society	26	25.7%
Cost of education	24	23.8%
Demographic changes	17	16.8%
Changing societal values	17	16.8%
Internationalization of students	12	11.9%
Industry	11	10.9%
Societal/environmental concerns	7	6.9%
Secondary education	4	4.0%
Increased importance of broad education	3	2.9%

Table 4: Affects of international trends and globalization

Affects of international trends and globalization	Number of answers (total of 111, provided by 95 respondees)	% of respondees providing this answer
Increased international collaboration	31	32.6%
Student body will change	24	25.3%
Increased international competition	23	24.2%
No effect on MIT	10	10.5%
Will enrich MIT	9	9.5%
Don't know	7	7.4%
Increased use of educational technology	5	5.3%
Curriculum will change	2	2.1%

Table 5: Elements that define a well-educated individual

Elements of a well-educated individual	Number of answers (total of 224, provided by 98 respondees)	% of respondees providing this answer
Fundamental base of science/technology	46	46.9%
Well-rounded, liberally educated	31	31.6%
Communication skills	30	30.6%
Social awareness	19	19.4%
Analytical skills	15	15.3%
Cultural exposure	15	15.3%
Ability to apply knowledge	14	14.3%
Self education	14	14.3%
Teamwork/collaborative skills	11	11.2%
Intellectual curiosity/creativity	11	11.2%
Facility w/ complex systems/organizations	7	7.1%
Sound judgment	5	5.1%
Conversant with information technology	4	4.1%
Integrity/ethics	2	2.0%

**Table 6: Suggested modifications of the educational mission
or specific graduation requirements at MIT**

Suggested modifications	Number of answers (total of 59, provided by 44 respondees)	% of respondees providing this answer
Add communications or language requirement	11	25.0%
Broader academic focus	11	25.0%
More I/T focus	8	18.2%
More flexibility/options	7	15.9%
Changes to graduate degree requirements	5	11.4%
Respond to students' personal/social dev't.	4	9.1%
Add to UG degree requirements	3	6.8%
Extra year	2	4.5%
More professional education	2	4.5%
Inquiry-based educational model	1	2.3%
More internships	1	2.3%
More interdepartmental collaboration	1	2.3%
More lab time	1	2.3%
Simple need for change	1	2.3%
More independent study	1	2.3%

Table 7: Interaction between teaching and research

Interaction between teaching and research	Number of answers (total of 106)	% of respondents providing this answer
Positive	91	85.9%
Unsure	6	5.7%
Neutral	5	4.7%
Negative	4	3.8%

Table 8: Factors driving pace and pressure

Factors driving pace and pressure	Number of answers (total of 134, provided by 104 respondents)	% of respondents providing this answer
Self motivation/drive/ambition	34	32.7%
MIT culture	23	22.1%
Competition	18	17.3%
Curriculum	14	13.5%
Appointment/promotion/tenure system	13	12.5%
Shrinking funding	10	9.5%
Opportunities	5	4.8%
Increasing amount of knowledge in field	5	4.8%
Bureaucracy	4	3.8%
Reengineering	4	3.8%
Committees	2	1.9%
Technical demands	1	0.9%
Academic calendar	1	0.9%

Table 9: Factors that make faculty feel most successful

Factors that make faculty feel most successful	Number of answers (total of 160, provided by 95 respondees)	% of respondees providing this answer
Interactions with students/graduates	44	46.3%
Research	39	41.1%
Teaching successes	36	37.9%
Positive feedback/recognition	15	15.7%
External impact	9	9.4%
Free inquiry	5	5.3%
The MIT environment	4	4.2%
Excellent support	3	3.2%
Interactions with colleagues/peers	3	3.2%
Time for reflection	1	1.0%
Publication	1	1.0%

Table 10: Factors that make faculty feel least successful

Factors that make faculty feel least successful	Number of answers (total of 120, provided by 95 respondees)	% of respondees providing this answer
Politics/administrativa/bureaucracy	27	28.4%
Unpleasant interactions with students	22	23.2%
Funding pressures	17	17.9%
Workload	12	12.6%
Institute recognition/reward structures	8	8.4%
MIT environment	7	7.3%
Problems with colleagues	7	7.3%
Wasted time	6	6.3%
MIT's focus	5	5.3%
Curricular/teaching issues	4	4.2%
Lack of community	2	2.1%
Conflicting responsibilities	2	2.1%
Outside demands on time	1	1.0%

Table 11: Types of student/faculty contact

Types of student/faculty contact	Number of answers (total of 190, provided by 102 respondees)	% of respondees providing this answer
Undergraduate advising	51	50.0%
Meals/drinks/socializing	48	47.1%
Graduate advising/mentoring	23	22.5%
Counseling	20	19.6%
Extra-curricular activities/organizations	11	10.8%
No answer	9	8.8%
UROP	7	6.9%
Dorm	6	5.9%
Don't wish to	5	4.9%
Not much	5	4.9%
Informal conversation	4	3.9%
Housemaster	1	1.0%

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Key Findings from the **Task Force on Student Life and Learning Junior Faculty Workshop**

Last January, the Task Force on Student Life and Learning sponsored a workshop for junior faculty for the purpose of soliciting junior faculty input to the Task Force through non-traditional interaction. Approximately 75 attendees (nearly one-third of junior faculty members at MIT) were separated into six breakout groups to discuss and report back to the larger group on the following six questions:

1) What establishes MIT's reputation in its various areas of activity? Where does MIT stand in comparison with other institutions in these different areas?

2) What are the personal goals of faculty members and how do they relate to MIT's educational mission? How does MIT support these goals?

3) What are the forces for change that are likely to affect MIT over the next 20-30 years? What are the implications for MIT? Are there barriers to change?

4) What are the elements of the job description of an MIT faculty member? What percentage of a faculty member's effort is typically dedicated to each element? Which of these elements impact learning? How should this change to further MIT's educational mission?

5) What is the quality of the undergraduate and graduate student experience at MIT? What can we do to enhance the experience?

6) What will define a well-educated person in the twenty-first century? How do we deliver such an education?

Following the breakout sessions, representatives from each group presented summaries of their discussions. In its subsequent discussions and for purposes of this article, the Task Force extracted the most prominent findings of the workshop, which are outlined below.

1) Research is a high priority for Junior Faculty.

The group of junior faculty asked to outline the job description for MIT faculty answered that although a unified description could not be given (job descriptions seem to vary greatly among the different disciplines and departments) several important elements could be identified. Of these, research was rated as the highest priority and professional leadership was rated third (teaching was second). Their "ultimate job description," as they termed it, was "to become a world leader and to teach."

The group that worked on MIT's reputation also identified excellence in research as its leading element, followed by graduate education (in most programs centered around an intense research experience). This group also stated that MIT's reputation in the future will depend on the "continued vitality of its research enterprise." The group that discussed the forces for change identified a number of forces related to the research activities of faculty at MIT: the increasing complexity of how scientists interact, the changing nature of funding sources, and the declining perceived value in society

of basic research. Research issues also played prominently in the group that discussed the personal goals of faculty members.

2) Junior Faculty enjoy and deeply care about teaching.

Teaching was presented by group four as the second most important element of the job description of an MIT faculty member, and the first group identified graduate and undergraduate education among the top four items that contribute to MIT's reputation. Teaching students how to learn (rather than simply imparting factual knowledge) was also deemed important for MIT's future reputation. In response to the various forces for change that act upon MIT, the third group stated that MIT should rethink the core skills it provides its undergraduates and should continue to experiment and innovate in education. The great importance that junior faculty give to teaching came throughout in several other ways:

(1) teaching was featured prominently by the group who discussed personal goals of the faculty, who suggested broader (not increased) tenure criteria that integrate the value of teaching and curriculum development;

(2) teaching was the second most important element of the job description of an MIT faculty member; and

(3) in the general discussion that followed the group presentations, participants called for teaching to be

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Key Findings from the
Task Force on Student Life and Learning
Junior Faculty Workshop

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given more value at MIT, for the development of mechanisms to measure the impact of teaching, and for curricular development to be given a higher level of institutional legitimacy.

3) Junior Faculty seek societal impact for MIT and for their own activities.

Societal impact was reported by group one as one of the five leading elements contributing to MIT's reputation. In their view, MIT's future reputation will also depend on the application of research to problems with societal implications. Among the personal goals of the faculty, making an impact on the outside world was prominently featured by group two. Those who discussed the forces for change restated the Institute's social responsibility to bring and apply its knowledge to society. Furthermore, group five noted that the external relevance of students' work is amongst the positive elements of the undergraduate experience.

4) Junior Faculty have a broad view of undergraduate education and feel a strong obligation to participate in it.

As mentioned above, group one listed undergraduate education as one of the five leading elements contributing to MIT's reputation. Junior faculty interpret undergraduate education broadly, and feel a substantial responsibility to participate in it. Group four, for example, singled out student interactions outside the classroom as one of the top five elements of the job description of a faculty member. They added that these extracurricular interactions need more recognition and that MIT should care deeply about the impact of such interactions on the lives of the students. Group five provided considerable insight into how faculty can help students to cope with some of the negative elements of the student experience at MIT (such as exhaustion, unhappiness, lack of balance and lack of humanistic values) by providing

copied strategies and guidance, teaching learning skills, advising students to try to enjoy their experience, helping students to improve their self esteem, teaching better communication and social skills, and better respecting each other's time. In the discussion session, junior faculty asserted that faculty have distinct non-academic responsibilities to students, but commented that the institutional incentive system does not value these non-academic factors. UROP was singled out in various contexts as being one of the few points of one-on-one interaction outside the classroom between undergraduates and faculty. ♦

For a more detailed summary of the workshop, please contact Traci Considine in the Task Force Office (x3-6399), or see the Task Force home page [<http://web.mit.edu/committees/sll/index.html>].