

EDUCATION GROUP SUBMISSION FOR TASK FORCE 2021 AND BEYOND REPORT

NOVEMBER 3, 2020

IDEA 0: EDUCATING THE WHOLE STUDENT

A frequent theme in the TF2021 Education Group has been the need for MIT to “educate the whole student”. Since its founding, MIT has focused its education on enabling a person to participate effectively in “the humane culture of the community.” [Quote taken from William Barton Rogers’ statements on the vision for MIT upon its founding.] The 1949 Lewis Report stated that “education is preparation for life” and led to the creation of a School of Humanities and Social Sciences (Arts being added later). Since that time, MIT has maintained a strong commitment to combining a deep liberal arts experience for its undergraduates with its central focus on science, engineering and technology excellence -- the Institute’s ability to embed liberal arts education within a research institution is not sufficiently recognized outside MIT. That said, we believe that MIT’s education does not adequately develop the whole student. An MIT education should include the intra- and inter-personal skills necessary to leverage disciplinary abilities in a world comprised of wildly different and overlapping cultures and increasingly complex and often painfully inequitable social structures. Such an education should help students to both take ownership of their lives and beliefs and listen carefully to new ideas and different perspectives that reaffirm, or help them to reimagine, what they believe is true and right and just. A focus on the whole student also recognizes that well-being, satisfaction, and engagement are entwined throughout college and life.

What are the stated student-focused objectives of an MIT education, in particular with respect to the whole student? Beginning with the MIT mission statement:

“The mission of MIT is to advance knowledge and educate students in science, technology, and other areas of scholarship that will best serve the nation and the world in the 21st century.

The Institute is committed to generating, disseminating, and preserving knowledge, and to working with others to bring this knowledge to bear on the world’s great challenges. MIT is dedicated to providing its students with an education that combines rigorous academic study and the excitement of discovery with the support and intellectual stimulation of a diverse campus community. We seek to develop in each member of the MIT community the ability and passion to work wisely, creatively, and effectively for the betterment of humankind.” -- MIT Mission Statement (2020)

Aspects of the whole student are certainly reflected in the “ability and passion to work wisely, creatively, and effectively”. The stated objective of combining rigorous academics and the excitement of discovery in a supportive, intellectual and diverse campus community could be favorably read to include education of the whole student. However, these statements in our mission do not explicitly recognize the growing necessity of meaning-making, consideration of different perspectives, challenging (their own/others) assumptions, understanding the history and consequence of hierarchies and inequities, and engaging in lifelong practice driven by scholarship and reflection. If MIT students are to work for the betterment of humankind and to make a better world, they need to identify problems to work and seek solutions in ways that reflect the complexities of human, organizational, and societal contexts. Although our mission statement hints at these goals, they don’t ring out like a clarion call, as is needed. It is telling that the statement begins with a reference to “science, technology, and other areas...”. While the mission statement offers little as to the nature or priority of these “other areas”, they are likely the components of an MIT education that need strengthening if we are to educate the whole student.

MIT should prominently state the goal of educating the whole student. This could be done through modification of the MIT mission statement, which was first developed in the late 1990’s and could be

revisited. We suggest that a broadly constructed group of faculty, students and staff consult widely across the community and reconsider MIT's goals in educating the whole student, first by expanding the mission statement in ways that reflect them fully, and, second, by re-distilling the statement into one with brevity and power. We understand that the Provost and Chancellor are planning an Institute-wide effort to develop a statement of MIT's shared values; the group that takes on this challenge could at the same time reconsider the mission statement. Regardless of the specific form, stating a desire to educate the whole student sends a message to the MIT community as well other academic institutions of the importance of doing so. We also believe that the act of reconsidering our mission statement is important itself and is likely to lead to valuable recognition within MIT of the desired impact and value of its education. Finally, such a statement is consistent with MIT's founding desire for its students to participate effectively in the "humane culture of community."

Five further ideas+proposals follow. The first and second are direct examples of how MIT can better educate the whole student; the third may become an example in the future; and the fourth expands our vision to educating the whole student over a lifetime. The fifth idea+proposal enables progress toward any improvements to, and innovations in, MIT education, including educating the whole student.

IDEA 1: INCORPORATING EDUCATION ABOUT STRUCTURAL, SYSTEMIC, AND INSTITUTIONAL HIERARCHIES

We propose that every MIT undergraduate student, as well as students in many, or potentially all, graduate programs should learn to recognize and engage critically with the Structural, Systemic and Institutional Hierarchies (**SSIH**) that shape our professional, civic and personal lives; and, further, that every Department and Section should contribute to this education in appropriately discipline-specific ways. **Shared responsibility** would enhance the quality, impact, and perceived value of an SSIH-oriented education. Furthermore, the **challenge** of devising paths toward such discipline-specific curricula would increase self-awareness within departments, and across MIT, in ways consonant with other recent initiatives toward Diversity, Equity, and Inclusion (DEI). In other words, we see value in both process and product, and therefore urge that an ad hoc committee of faculty, students and staff be charged with facilitating and incentivizing the development of such curricula, supported by Institute leadership and collaborating wherever possible with existing structures of **faculty governance**.

Educating the Whole Student, our overarching "Idea 0," should entail teaching students to perceive and analyze SSIH in contexts relevant to their disciplines and future careers. Although we can envision many implementation models (see below), we see particular value in a case studies-based approach, by which a recent scientific or "technical" challenge (e.g., AI's persistent difficulties with Black faces,¹ the ambivalence of many Black Americans towards a potential COVID-19 vaccine²) is studied both from a technical perspective and through the lens of the histories that helped produce that challenge (e.g., the brutally racialized dimension of early biomedical research which makes Black mistrust of American healthcare tragically comprehensible). Grounding this education in discipline-specific contexts would give students the vocabulary and context needed to see and engage with the SSIH in their institutions and professions (and the world at large) and influence what problems they decide to work on and how, and the drive needed to remediate inequities within their chosen profession. **Shared, five-School responsibility** in developing SSIH curricula that commands the respect of professionals in the field will ensure that students and faculty take this enterprise seriously. Furthermore, we can imagine working with alumni in building case studies for this curriculum; they might also serve as guest speakers.

¹ <https://www.wired.com/story/best-algorithms-struggle-recognize-black-faces-equally/>

² <https://theundefeated.com/features/half-of-black-adults-say-they-wont-take-a-coronavirus-vaccine/>

SSIH education relates to both DEI and ethics, albeit in different ways. SSIH, in particular those with negative consequences, are the deep-rooted impediments to the as yet unattained goals of DEI. And, as a part of learning how to engage critically with SSIH, students will need to learn how to confront ethical questions and employ moral reasoning in the SSIH context. Furthermore, understanding the hierarchies that shape us, professionally and personally, enhances our capacity for ethical action.

A central **challenge** will be that most faculty don't know how to teach about SSIH, although every one of us lives within structural, systemic and institutional hierarchies -- every one of us feels their effects when we are lower down and, whether we realize it or not, every one of us contributes to their effects when we are higher up. And yet, somewhat comparable objections were initially raised about the CI-M requirement which is now regarded as successful precisely because it is anchored in contexts appropriate to a student's major and discipline. It took time and collaboration with those who did have expertise to learn how to provide our students with CI-M experiences. The same will be needed here also, likely even more so. **Faculty Governance** processes are the best way to work through such challenges. The lesson from the history of the Communications Requirement is that we need to move forward with a vision, with creativity, since the best implementation pathways will not be clear to any of us as we begin this conversation, and with a measured pace and broad and repeated consultation.

The relative advantages of different possible modes of implementation will need to be analyzed in depth by the purpose-built committee that we recommend. We do not have a favored mode. That said, a number of examples have come up during our discussions. A single-subject SSIH-M requirement patterned on the CI-M requirement is a possibility at the undergraduate level. To build the expertise and curricula needed to offer SSIH-M subjects suitable for majors across MIT, collaboration and co-development of curricula will be key and co-teaching may be helpful. Both could be enabled by the Education Sabbaticals discussed below. A completely different way of implementing SSIH education goals could be to offer hands-on subjects that get at issues of SSIH by investigating them in more practice-based settings, perhaps including linking students to a consequential community project. Pursuing this direction to the fullest would include developing and offering experiential learning opportunities that incorporate a focus on SSIH and develop "reflective practitioner" skills. These modes of implementation may be applicable in many graduate programs as well, and would also align with our second idea+proposal below. Subject matter for such practica could be tailored to many disciplines: e.g. socially responsible finance; bioethics; algorithmic justice; etc. A third option, which could also be applicable in graduate or undergraduate programs, is to achieve SSIH education goals within the curriculum via nuggets embedded within multiple required subjects. A purpose-built committee could prompt and assess experimentation in these and other directions and share the resulting experience and expertise. It could certainly be that different departments and programs choose different implementation paths.

Our group was not unanimous about the ideal form and remit of SSIH curricula, and we anticipate that views in the broader MIT community would be even more wide-ranging. We therefore present this proposal with a spirit of real humility about the range of possible outcomes that may emerge as we embark upon this conversation and begin experimenting — but with equal confidence that to do nothing would be a grave error.

IDEA 2: EXPERIENTIAL EMPATHY: DEEPENING RELATIONSHIPS BETWEEN MIT STUDENTS, BOSTON, AND THE WORLD

Although MIT's mission statement encourages all of us to "serve the nation and the world in the 21st century," many students struggle to incorporate meaningful and impactful social engagement into their MIT education. Students are often reluctant to leave the "MIT bubble," and connecting students to structured public service opportunities isn't easy, requiring significant capacity, planning, and resources.

Still, as a part of Educating the Whole Student, the MIT education should be enhanced in ways that: (i) empower and incentivize students to participate in projects that serve the public interest; (ii) healthily “joggle” students by getting them out of the MIT bubble through immersive experiences that reframe their perspectives, whether in the greater Boston community or around the world; (iii) engage students in self-reflection, relationship-building, and holistic growth while breaking down barriers between MIT and the world, both local and global.

To address these goals, we propose expanding support and capacity for the Office of Experiential Learning to play a convening, catalyzing, connecting role, driving a concerted and substantial expansion of public interest-focused experiential learning opportunities for MIT students that immerse them in contexts that feel far from MIT, whether they are located nearby or at a distance. Through these experiences, students can meaningfully collaborate with, learn from, and contribute to local non-profits, public agencies, and/or global NGOs. For example, a Course 6 student might work with Boston Public Schools (BPS) to develop new educational technologies serving students and teachers. Groups like MISTI, PKG Public Service Center, D-Lab, and the MIT Leadership Center, and individual faculty members currently make these types of experiences available to students, but at a very limited scale. Equipping the Office of Experiential Learning with additional support will enable greater coordination among these groups and a thoughtful but ambitious expansion of the pool of readily available opportunities for students—while still enabling them to identify and pursue experiences about which they are passionate.

To both help prepare students for these internships and amplify their learning as they participate in them, we propose identifying and developing a series of “curricular wrappers”: “reusable” for-credit subjects or modules. These modules would: prompt reflection, introspection, peer-to-peer learning among students; enhance awareness of different cultures, languages and structural, systemic and institutional hierarchies (see previous idea+proposal, above); and enable them to explore first-hand the potential ethical implications of their work. For example, Course 6 students building educational technologies in BPS might engage in curricular wrappers on racial and socioeconomic inequalities in US public education; language learning (a large fraction of BPS families speak Spanish); community-based participatory design; and the potential ethical pitfalls of emerging technology. In some cases (e.g. MISTI), short subjects or trainings on language and cultural learning already exist to prepare students for their engagements abroad. To ensure that they remain rigorous, curricular wrappers should be initiated and sustained by academic departments, and approved through existing channels of faculty governance. To preserve flexibility, they may be instructor-led on-campus subjects with discussions led by graduate students, faculty-led subjects offered in the field, or remote MITx modules. They may augment existing D-Lab/PKG/other subjects, and could potentially also be eligible for HASS credit.

MIT students often feel a tension between using their education to serve the public interest, and “optimizing” their futures through prestigious and lucrative industry experiences. To eliminate (or at least weaken) this trade-off and increase participation in public interest-focused experiential learning, we recommend the creation of competitive, prestigious fellowships offered in partnership with major industry or other players. To be eligible for these fellowships, students should have previously participated in public interest internships and relevant curricular wrappers. Fellowships would include a summer and/or IAP internship placement with the industry partner that immerses students in teams and projects probing pressing issues at the intersection of research and society (e.g., a Google-sponsored “Computing and Society Fellowship” offered in partnership with Google, which would include a summer internship at Google exploring the social implications of computing; or, a Unilever-sponsored “Ethical Global Business Fellowship” which would include an international internship placement to help design fair and equitable global supply chains; etc.).

While we envision the Office of Experiential Learning taking the lead in identifying, curating and developing the meaningful new experiential programs and rigorous and innovative curricular models outlined above, it should also convene and collaborate with the many individuals and offices across the Institute who possess relevant expertise, relationships, and administrative know-how. To aid with this, we recommend the creation of a Faculty Advisory Board that would work closely with the Office of Experiential Learning, providing strategic vision and a breadth of perspective as MIT cultivates the aforementioned internships and curricular wrappers. Faculty Advisory Board members can also serve as ambassadors to departments across the Institute as these opportunities grow. We recommend that this group explore how these experiences might differ for undergraduate and graduate students, and how students might access them throughout their life cycles at MIT: from the months leading up to matriculation through the months, or even years, after graduation.

IDEA 3: HOW CAN WE ENHANCE THE UNSCRIPTED IN-PERSON ENGAGEMENT, WHERE THE MAGIC OF MIT IS TO BE FOUND, BY INTEGRATING DIGITAL DELIVERY MODES OF EDUCATION? HOW WILL DOING SO IMPACT CAMPUS?

So much of the magic of MIT lies in the unscripted engagement that happens among our community members, whether it be students working together on projects and problems or students and instructors engaging in seminars, labs, UROPs, ... When we all return to campus, the digital delivery modes with which we now have become familiar can be deployed to deliver some of the scripted parts of our teaching; how do we take advantage of this experience to create more time and space for the interactive, engaging, components from which the magic originates? In each disciplinary context, how do we save more in-person time for the kind of intense engagement that yields moments of understanding or discovery or creation? What precursors to those experiences can be learned well when taught online? Can we fulfill our institutional mission even more effectively if we take digital delivery models increasingly seriously? What lessons can we learn from our collective experience this semester that will help us find ways to do so? How will doing so impact campus?

These are big questions that many of us will be thinking through, in different ways, in different contexts, across MIT. It is too soon to answer these questions definitively. We all need time to reflect upon our Fall experiences and look ahead. Many faculty have noted an intensified interest in, focus on, and discussion of teaching and learning. The creativity and ingenuity brought out by necessity, the focus on finding ways to engage with students and support group interactions, the thinking anew about what works and why since we cannot just teach the way we always have, are sure to bear fruit in the long term. Surely we will be able to use what we have learned to create more engagement, more magic, when we are all bumping into each other again. That said, the best answers for how to do this are unlikely to emerge before we start doing it. The early answers emerging in our discussions include: (i) using what we have learned about asynchronous digital delivery options to reduce dependence on large in-person lectures; (ii) finding ways to recreate the role of the Zoom “Chat” in enabling students to be comfortable asking questions that improve the learning experience for all, even in large lectures; (iii) continuing to use Zoom to make it easier to bring in outside speakers, including alumni, allowing our students to engage with experts from anywhere; (iv) and, as we build and renovate buildings, adding more flexible teaching and learning spaces with a focus on the (many) kinds of engagement that only happen in-person.

We are in the midst of an intense period of experimentation and learning, with a collective focus on education, but, what is the big picture? It is too soon to know. The big ideas and opportunities (or maybe many small and medium-sized ones) will emerge only as we enter the post-COVID era and begin to weave what we have learned into a new normal. It is too early to identify big opportunities or make big recommendations. What we need is the conversation. We recommend that the Office of Open Learning

play a convening, catalyzing and connecting role as people across MIT develop -- and experiment with -- answers to these questions as we return to teaching and learning together.

IDEA 4: LIFE-LONG LEARNING

The cadence and rhythms of university education have changed little in the last hundred years in the United States. Undergraduates attend for four years, typically starting at age 18 or 19, and professional masters students attend for one to three years in their early to mid 20s. Engineering and management schools often supplement their degree offerings with shorter, non-degree granting courses, usually taken later in life. This scheme was born in a world in which a highly engaged teaching mode required students and faculty to be in the same room and combining that requirement with expensive travel dictated lengthy, intense periods of co-location punctuated by a few lengthy opportunities to practice the skills learned in the classroom (e.g., internships). While the question of whether the “semester separated by lengthy breaks” constituted an optimal format in the pre-digital world is a question for historians, there is little reason to believe that it remains well matched to the educational requirements of a rapidly changing world increasingly connected by digital technology. As one example, it’s hard to believe that the best way to educate managers and leaders in the 21st century is to give them an intense dose of training and networking at age 27 and then sporadically supplement that with a combination of books purchased in airport newsstands offering “The New Science of...” and short in-person training courses built on the folk-wisdom of case-based discussions that sample heavily on the dependent variable of success.

Digital technology radically alters the economics of education delivery and it is high time that we revisit both the frequency and dosage of our offerings. Our core recommendation is that MIT charge a new committee with tackling this question in depth and proposing a set of experiments in life-long learning. Note that our industry is very much entrained to the existing cadence and it is unlikely that it will be entirely overturned any time soon. Thus, borrowing a term from our friends in the Entrepreneurship Center, the committee should think carefully about the most fruitful “beachhead market”: what area of education might most benefit from a new higher frequency, lower dosage model? In the last few years there have been ongoing discussions about using digital learning modes *prior* to a student’s arrival to MIT’s campus. MicroMasters programs, for example, can serve both as a standalone educational offer and an extended screening for applicants who wish to later join a degree program.

As we already have MicroMasters programs underway, our initial discussions suggest a focus on life-long learning *after* professional master’s degrees. Offering our alumni opportunities to return to campus for additional education might have several desirable properties, including further enhancing their ties (and hopefully their subsequent generosity) to the Institute. Note that many schools including MIT offer extensive post-degree education whether it be in engineering (through Professional Education) or management (through Sloan Executive Education). However, these offerings are generally fragmented and the prospective student is left to choose their path through them. Our notion is that we offer a set of such paths that have been carefully designed, thus having our students return to MIT on a regular basis, rather than reconsidering the educational menu anew each time they require additional training. These are speculative ideas and the newly constituted committee should tackle these questions in depth and, in addition consider how MIT can best enable its undergraduate alumni to achieve their life-long learning needs and goals.

IDEA 5: REALIGNING INSTITUTIONAL EDUCATION INCENTIVES: INSTITUTE-WIDE, INSTRUCTOR AND SENIOR FACULTY EDUCATION SABBATICALS

In our discussions it quickly emerged that the largest obstacle to education advances and innovation is the lack of dedicated time available to both faculty and instructors (academic teaching staff including Instructors and Lecturers) to update and improve MIT's subject offerings, to totally reimagine and revamp a subject, and to work collaboratively with a colleague from a different department toward an education goal. The root cause appears to be fewer institutional incentives to innovate in the education space compared to research. We see making it easier for faculty and instructors to invest time and creative energy in these directions as a necessity if MIT is to rise to the challenges of educating the whole student.

To unleash the full educational prowess of MIT's faculty and instructors, we propose to create an *Education Sabbatical*, separate from senior faculty sabbaticals, to provide equal opportunities for both senior faculty and instructors to delve deeply into initiatives to substantially improve their education offerings. Rather than focusing on specific educational methods, education goals, or new technologies and pedagogies, this proposal seeks to address the root causes preventing or slowing the uptake of any and all such advances: insufficient time, resources, and institutional incentives for utilizing one's time to improve education. More details and potential obstacles are described below.

Consistency is valued more in teaching than in research, but in too many cases we often settle into an overly stable equilibrium. Our fields evolve, our students learn in new ways, education technology changes quickly, and maintaining MIT-quality educational offerings requires an ability to adapt to this change. The current MIT system does not incentivize excellence in education nearly as much as in research, despite it being in our primary Mission Statement. With the exceptions of Alumni Class Funds, d'Arbelloff Funds, and to some degree MITx, *formal* mechanisms do not exist to enable faculty to dedicate substantial time to significantly improve the quality, modernity, and efficacy of education at MIT.

In addition, there are serious inequities between our faculty and instructors. Instructors are often at the core of our education efforts and typically dedicate a larger fraction of their time to teaching, and yet are not afforded the same freedoms with their time as faculty. This Education Sabbatical proposal will be a major step in increasing equity among MIT's teaching staff, as Instructors and Lecturers of all ranks would be equally eligible to apply for an Education Sabbatical as senior faculty.

The Education Sabbatical is designed to be:

- **Substantial**: Complete relief from one semester-course worth of teaching. It would not release anyone from other duties related to research, service or advising. That said, there should be flexibility to propose and award different kinds of Education Sabbaticals. Perhaps in some context a half-semester would suffice to achieve a focused goal. Perhaps in other cases, where the goals are larger or broader, a semester plus a summer (possibly including summer salary) would be needed.
- **Competitive, yet Unrestricted**: These are not automatically earned, but rather applied for with a short proposal. The number should have no fixed limit, but each proposal should require support from Department leadership, subject to the Department having balanced the associated short-term loss of teaching with the subsequent gains to result from the work done during the sabbatical.
- **Accountable, pre-Sabbatical**: Departments may require faculty and instructors who propose an Education Sabbatical to help plan for their absence from teaching in advance — in some cases it may help to pre-record their class in the semester before they are on Education Sabbatical.
- **Accountable, post-Sabbatical**: Faculty and instructors will write a brief report detailing what they accomplished during their Education Sabbatical, which will affect chances of success in future applications for an Education Sabbatical.

- Not Guaranteed: Applicants must demonstrate support from Department leadership, and depending on the proposal, perhaps School- or Institute-level support with an additional letter.
- Open Only to Instructors and Senior Faculty: Pre-tenure faculty would not be eligible as (1) they already have a semester of junior faculty research leave with more benefits and fewer responsibilities, and (2) one of the criteria for tenure is sustained demonstration of teaching excellence, which for most pre-tenure faculty benefits from teaching a subject with a stable curriculum several times.

Examples for good uses of an Education Sabbatical could include, but are certainly not limited to:

- Substantially updating a subject to include new knowledge in a rapidly evolving field, for example creating machine learning and computational modules and problem sets in nuclear engineering.
- Writing a book for a subject, or a complete revamp of course notes to include substantial new material, new explanations, and/or new assessments and assessment methods.
- Complete soup-to-nuts redesign of a subject that takes it in a new and innovative direction. Proposals of this nature should be welcomed, but it is important that Education Sabbaticals can equally well be used to make what we already teach better.
- Co-designing a jointly taught subject across departments, schools, and/or centers. (We note that making it easier for faculty across departments/schools to co-design education opportunities is needed to enable other proposals.)
- Learn how to co-teach with a colleague from another department in the service of an important educational goal and to gain new perspective. Examples could include building subjects that make up the “Common Ground” envisioned as a contribution of the Schwarzman College of Computing or developing curricula that teach our students to recognize and engage critically with Structural, Systemic and Institutional Hierarchies, as we have described above.
- Some Education Sabbaticals may be sabbaticals spent in a different MIT department than one’s own; such sabbaticals may yield other benefits in addition to the primary education goals. One can imagine proposals made jointly by two faculty, in which A gets an Education Sabbatical in B’s department followed the next semester by B getting an Education Sabbatical in A’s, with the goal of building education modules that are of value to both departments.
- Launching a major new education initiative, such as a NEET thread, or developing “curricular wrappers” for public-interest focused experiential learning opportunities, described above.

Importantly, these are *not* designed to be periods of relaxation or simple reflection. Faculty can use their regular every-seven-year sabbatical for that purpose if they so choose.

Why now? COVID has forced us to teach in new ways, and at the same time it has prompted us to think anew about teaching and learning, about what works and what doesn’t. We think that the availability of competitively awarded Education Sabbaticals will most rapidly improve how MIT achieves its education mission at any time, but there is a particular opportunity to channel the new ideas and energies that can flow in this direction as we come out of the COVID pandemic.

TASK FORCE 2021 AND BEYOND -- EDUCATION GROUP

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