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The Question of the Times

IT CHANCED during this winter that our administration and faculty were bent on discussing the theory of the Age. By an odd coincidence, four or five noted men were each reading a discourse to the citizens of Baker or McGregor, on the Spirit of the Times. It so happened that the subject had the same prominence in some remarkable pamphlets and journals issued on campus in the same season. To me, however, the question of the times resolved itself into a practical question of the conduct of learning. How shall I learn? We are incompetent to solve the times. Our geometry cannot span the huge orbits of the prevailing ideas, behold their return, and reconcile their opposition. We can only obey our own polarity. 'Tis fine for us to speculate and elect our course, if we must accept an irresistible dictation.

In our first steps to gain our wishes, we come upon immovable limitations. We are fired with the hope to reform undergraduate education. After many experiments, we find that we must begin earlier, -- at elementary school. But the boys and girls are not docile; we can make nothing of them. We decide that they are not of good stock. We must begin our reform earlier still, -- at generation: that is to say, there is Fate, or Laws of the Institute.

After a tradition has long been practiced long enough, and it becomes a Law, it is a Herculean task to challenge it. And hence it stands for the grading tradition, as for all traditions. The desire to judge and evaluate is an ancient one, going as far back as the beginning of modern civilization. Indeed, some would argue, evaluation is a natural result of, and a necessary prerequisite to, rationality. That is a rather strong position to take, but it nonetheless appears to be generally true. No doubt, this primordial tendency has been institutionalized in many more ways than one. However, it is the grading system in particular that interests us here and today at the Institute.

Robert Frost, like Ralph Emerson, understood the dichotomy. "We are all being marked by each other all the time, classified, ranked, put in our place, and I see no escape from that. I am no sentimentalist. You have got to mark, and you have got to mark, first of all, for accuracy, for correctness. But if I am going to give a mark, that is the least part of my marking. The hard part is the part beyond that, the part where the adventure begins."

Given that evaluation is a necessary condition for learning, what we wish to ask is whether the current system, with its emphasis on grades and marking, is succeeding in creating an atmosphere conducive to real learning. However alarmist or extremist this may sound, I believe that it is not. In hindsight, I believe that the framers of the 1969 Pass / No Record Policy, which has been with the Institute for over 30 years now, have made a wise decision. The P/NR policy has not only eased the transition from high school to freshman year, which was its original intent, but also did something far more important. It has created an atmosphere of the freshman year that emphasizes learning and growth over grades and markings.

Based on concerns by both faculty and students about the “sophomore wall” – the transition from P/NR freshman year to the graded sophomore year – there appears to be almost a unanimous agreement among faculty that the second term of freshman year should “change from P/NR to A/B/C/NR” (see November 17 issue of *The Tech*). Rather than being a step forward, I believe this policy change would be a step backwards; it would bring MIT closer to the destructive grading system of the rest of the world.

Scholarship in the field of child psychology shows that grades and rewards of other forms distort and subvert the natural motivation to learn. Alphonse Kohn, in his controversial book *Punished by Rewards*, describes several experiments that lend empirical support for this position. In one of the experiments, psychologists ask one group of school-age children to do a set of drawings, and ask the other group to do the same, but also tell them that their work will be graded at the end of the session by their teachers. The results are remarkable. That group of students that were not told that their work will be graded performed better than the other group by almost all artistic measures. Mathematics and science are similar to art, and so the results are applicable. No doubt this one anecdotal example does not conclusively prove the proposition; however, numerous other psychological experiments documented by Kohn and others lends great credence to this position.

Indeed, there is at least one university in America that has opted to do away with grades. St. Francis College is a small, liberal-arts school with two campuses – one in Maryland and another in New Mexico. At this very non-conservative university, students read the classical original works of writers like Plato, Marx, Maxwell, and Einstein, and learn directly from the great masters themselves. St. Francis has found other, more successful, means of assessment and evaluation.

In addition, there are several trends at MIT in the right direction. I am personally involved in two of them – Experimental Study Group (ESG) and Mission 2004 (Course number 12.000) – which I will now describe. ESG is as old as the P/NR policy, but it remains a small, not-too-well-known group located on the 6th floor of Building 24. ESG is not just about small classes and a sense of community; it is also about self-directed and self-motivated student learning. Students are empowered (and expected) to take their undergraduate education into their own hands. At ESG, learning is not a passive process of sitting and listening in a large lecture hall. Learning is about an active give-and-take dialogue between student and teacher. In such a setting, learning and teaching are

extremely fluid roles, as the teacher often becomes the student, and the student the teacher. It is this dynamic and fluid atmosphere that makes ESG such a unique learning experience. Many students organize their own learning, by creating study groups to explore topics of their own interest. Study group topics have ranged from physics to poetry. These study groups are not graded, at least not in the official sense, but they are surely evaluated, as students chose to spend their time in something worthwhile. At the end of the day, a lot of learning has taken place that would not have otherwise.

Mission 2004 is a new freshman course under Course 12 (EAPS), led by Professor Kip Hodges; the class is based on a real project – to design a mission to Mars to search for past and present life. The class contains 50 freshman, which were divided into groups of five to work on specific parts of the mission – from propulsion systems and trajectory to biochemical experiments to political outreach and fundraising. The result is a dynamic, spontaneous, and often chaotic learning environment. Learning in 12.000 is not confined to any single tradition discipline, and learning is not bounded by the artificial borders of Courses; only the Universe is the limit. This type of interdisciplinary, spontaneous learning and research is closest to the type of real work and research that takes place in industry or in the laboratory.

MIT, with its uniquely talented and motivated student body, is uniquely poised to lead the educational community into the future. Rather than removing P/NR second term, the MIT community should embrace the philosophy behind the policy, and hasten to put the Philosophy of Learning into practice.

Visit the ESG website at <http://web.mit.edu/esg> and the Mission 2004 website at <http://web.mit.edu/12.0000/www>. Send comments to the author at dhussain@mit.edu.