

The Role of Intellectual Vitality at Olin College

by

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Executive Summary. Olin College is committed to developing a rich educational environment for undergraduate engineering students involving substantial active and experiential learning activities. We intend to prepare graduates for a work environment of rapid change by emphasizing “*how to learn*” in many ways. The success of this approach depends on creating an academic environment with a high degree of authentic intellectual vitality. To create and sustain this environment and provide appropriate opportunities for our students, our faculty must be personally committed to a lifestyle of continuous professional growth and achievement. This requires a significant investment of time and resources, both from the College and from the faculty. Such investments contribute to increased educational costs per student, and compete with the intense need for educational program development, particularly in the early years. However, faculty professional development and long-term career success depend on continuous professional growth through this period. As the College’s needs transition from intense educational program development in the early years to sustained growth of national visibility in later years, the demands on the faculty will shift as well. The purpose of this paper is to explain in some detail the benefits and costs of investments in intellectual vitality, and to request advice and guidance from the reader in setting priorities.

On Defining and Measuring Intellectual Vitality. The central objective of higher education is to develop the “life of the mind.” A successful educational experience should result in achieving a substantial basis of knowledge and a love of intellectual pursuit. Sustained independent learning in a rapidly evolving career such as engineering depends on highly developed critical thinking, resourcefulness, a sense of confidence in facing unfamiliar concepts and ideas, a well developed set of skills and habits in reading broadly and discovering truth, and especially an insatiable curiosity about new discoveries. A principal educational objective is to build lifelong habits that result in sustained intellectual vitality of this kind.

As mentors, scholars, and teachers, the faculty play the central role in establishing this culture of intellectual vitality on campus. A faculty that is uniformly knowledgeable and passionate about current intellectual developments in their field is essential to establishing this culture. An educational program that depends heavily on active and experiential learning (like that at Olin College) requires a great deal of informal, out-of-classroom opportunity for intellectual discovery. When gifted and passionate engineering students are exposed to inspirational faculty members through challenging projects that involve creating new knowledge or designing new products, the educational outcome can be exceptional. However, if the intellectual vitality among the faculty should ever fall to a level below the aspirations and abilities of our gifted students, or if it should not be effectively integrated into the teaching program, the result will be a serious overall reduction in the level of educational achievement. Thus, it is very important to address the culture of intellectual vitality on campus and among the faculty.

Many academic disciplines are needed to provide a balanced education in engineering. These include mathematics, the natural sciences, and engineering—but also the arts and humanities, social sciences, business, and entrepreneurship. In addition, the serious study and experimentation in the process of education and teaching is itself an important form of intellectual pursuit at Olin College.

The evidence of authentic intellectual vitality of faculty members in each of these areas may be significantly different, requiring a flexible and broad set of measures. For example, scholarship and reviewed publications are the expected outcomes in many traditional academic fields. However, technical inventions, engineering designs, and portfolios of artistic and creative work may not be appropriately measured by publications in scholarly journals. More appropriate

measures of achievement may be required in these areas. Furthermore, the successful development of new commercial ventures may require measures which are different still. To establish such broad measures of intellectual vitality will require a degree of creativity since most colleges and universities focus heavily on traditional measures of scholarship.

Intellectual activities—even those that are highly visible and successful—are of limited value at Olin College unless they are effectively integrated into our educational program and accessible to our students. Therefore, we will also need to develop evidence of the effective use of the intellectual vitality of our faculty in this way.

At Olin College, we intend to encourage intellectual vitality of many types, and to value and affirm achievements of enduring value in all fields. While the volume of achievements of faculty members at Olin College may not match those at major research universities because of our emphasis on teaching, we expect the quality of our achievements to compare favorably with those at the best research universities. We aspire to nationally visible achievement in all of our endeavors, so our measures will involve consideration of the impact of our work well beyond the campus borders.

Surviving the Teaching Demands of the Initial Years. Without question the teaching of undergraduates is our highest priority at Olin College. In the initial years the need to thoughtfully invent the curriculum represents a massive additional responsibility beyond routine classroom teaching, requiring excessive time and effort from the faculty. Evidence for this is already apparent from our experience with the curriculum development activities to date. In fact, the drive to do an exceptional job of “reinventing” the curriculum from a clean slate represents an effective black hole of responsibility capable of consuming every ounce of creativity and intellectual energy. As a result, many faculty members may feel that they should defer serious consideration of their own professional development until the curriculum is complete.

Furthermore, since the task of inventing an entire 4-year curriculum from first principles will take at least four years, the pressure to defer professional development is likely to persist for an extended period of time. Meanwhile, the world of technology continues to advance at a rapid pace leaving behind those faculty members unable to devote adequate time to their own development.

If the situation is left unabated for four or more years, it is likely that some faculty members will find it very difficult to re-engage meaningfully with their professional activities when the curriculum development effort finally subsides. The volume of new developments in their fields will be substantial, and the time required to master them and to develop a degree of national visibility using the new concepts can be intimidating. As a result the risk of stalled professional development at this point is high. This stalled professional development can cause particular difficulty in the promotion of young faculty members who have devoted themselves to the College’s most pressing needs during the initial years. Experience during the initial years at other new universities¹ confirms this trend.

Thus, an immediate but largely silent challenge in creating the culture of intellectual vitality is that of providing an effective mechanism for faculty members to maintain their professional development during the demanding initial years.

The Evolving Needs of the College. As the College matures and the initial curriculum invention process is completed, the demands on faculty members will change significantly. The need for numerous committees to investigate key issues and to invent new approaches will subside, and attention will be focused on other tasks instead. This could result in a decrease in the intensity of

¹ California State University at Monterey experienced high attrition of the founding faculty due to this phenomena, per Carol Tomlinson-Keasey, private communication, April 2003.

demands on faculty time for service and teaching activities, and leave more time for professional development.

It is natural to expect the level of faculty and student attention to the pursuit of independent intellectual activities to increase as the curriculum development effort matures. The College may aspire to attract and retain more faculty members who are widely recognized as intellectual leaders in their field. Such a subtle but distinct internal shift in what is valued most highly on campus can have an important impact on the campus culture. Those faculty members who were unable to effectively restart their professional development activities due to their devotion to the intense teaching and curriculum development needs of the initial years may feel undervalued as a result. Experience during the evolution of other new colleges² verifies this trend.

Thus, after surviving the challenges of the initial years of curriculum development, the transition to a mature institution is likely to present some challenges of its own related to the development of intellectual vitality.

A Matter of Balance. Another dimension of the problem of intellectual vitality is defining the appropriate balance between time spent in teaching and working directly with students on the one hand, and time spent in personal pursuit of professional development on the other. Many faculty members find that serious professional development requires significant blocks of uninterrupted time in a library, office, or laboratory, with access to recent publications or to colleagues at other institutions who are experts in their field. (Of course, some faculty members may be able to integrate the pursuit of teaching and of professional development sufficiently that the distinction between them may not be as sharp as I have indicated. However, experience on many campuses indicates that most faculty members are likely to find this challenging.) Time spent in pursuit of professional development therefore can be incompatible with time spent in teaching or helping undergraduate students outside of class. In this sense, teaching and professional development activities may compete with each other for the limited amount of available faculty time. Since both are essential, maintaining a proper balance is of central importance. (It seems that the current situation is not well balanced for many of our faculty members.)

As previously noted, prolonged periods of serious imbalance between teaching and professional development activities may have short term benefits, but long term significant negative consequences, both for individual faculty members and for the College. Thus, maintaining a proper balance is important even in the initial years.

As the College matures, the balance between activities is likely to change. For strategic planning purposes it is useful to envision the “steady state” environment that will result after the major initial transients associated with the invention of the curriculum are largely complete. It is necessary to plan now for the desired balance of activities in this steady state.

To define an appropriate balance in the steady state it is important to develop a clear vision for the aspirations of the College, as well as recognize its resource limitations. As an undergraduate institution Olin College will not have either the responsibility to produce Ph.D. graduates nor the availability of advanced graduate students on campus to support the intellectual activities of our community. It is widely assumed that the absence of these activities will substantially reduce the ability of the College to develop and sustain a vigorous activity in research and presumably other advanced activities. However, Olin College has attracted a remarkably successful founding faculty that continues to attract significant amounts of external research support. Some other high quality undergraduate institutions have also succeeded in developing and maintaining significant levels of research on their campuses. On the one hand, it would be a serious mistake to abandon prematurely any aspirations to develop a serious research environment at Olin

² Harvey Mudd College experienced an evolution toward increased importance of research after the initial years, leaving some of the founding faculty members feeling undervalued, per Sam Tanenbaum, private conversation, April 2003.

College simply because most other undergraduate institutions have not been able to develop strong programs in this area. However, it would also be a mistake to ignore the real limitations of an undergraduate institution in setting our aspirations so high that they are unattainable.

At this point in our development, our aspirations are to explore the possibility of creating an environment that lies somewhere in between the high level of research activity that is characteristic of a major research university and the much lower level that is common in high quality undergraduate institutions. While we are encouraged by the early success of some of our founding faculty, we are frankly unsure of the level of research and intellectual vitality that we will be able to develop and sustain.

Another important consideration in determining an appropriate balance is the degree to which every faculty member carries the same relative proportion of responsibility for teaching and professional development activities. On most college and university campuses, there is a high degree of uniformity in this area. Such uniformity contributes to a sense of fair distribution of workload and also opportunity for individual achievement. However, it can also limit the ability of the institution to advance by requiring faculty members to abandon opportunities that would require an unbalanced commitment of their time or effort over a sustained period. In the most general sense, the balance between teaching and professional development activities within the faculty as a whole must be maintained, but it could be argued that the balance may be different for individual faculty members, depending on their particular role in the College and the stage in their career. Of course, there must be practical limits to the acceptable range of different faculty activities. (For example, no faculty member at Olin College should be permanently exempt from all teaching, or from all efforts to achieve appropriate national recognition, etc.)

Resource Implications. Finally, there are major resource implications to establishing a high level of commitment to intellectual vitality. To succeed in developing quality and national visibility in an intellectual pursuit, a substantial amount of time and effort are required. With a fixed operating budget this translates into an increase in the proportion of expenditures per student for intellectual vitality.

Resource allocation to intellectual vitality at Olin College is justified on the basis that it is necessary to provide the quality and type of education demanded by our mission. Intellectual vitality at Olin College serves the purpose of creating and maintaining an environment where gifted undergraduate students can learn how to learn and create new knowledge and engineering and technology.

While there are no precise measures of faculty effort in teaching, a crude measure in widespread use is the number of semester courses taught each year by each faculty member. In a teaching-only institution, a common teaching load is 6 semester courses per year per faculty member. In a major research university, the average teaching load may be approximately half that much, or 3 semester courses per year per faculty member. However, the expectations for achievement in professional development or research are also quite different in the two types of institutions. For example, the level of external funding for research in a major research university may be several hundred thousand dollars per year per faculty member, while it is rare at an undergraduate institution for the level of external funding for research or professional development to approach this magnitude. Since the cost of attending either type of institution is comparable, the reduced teaching load and increased level of research activity at the research institution is largely made possible by the income provided by external research grants.

Our current planning at Olin College is based on an average teaching load of approximately four semester courses per year per faculty member in the steady state environment. This is a higher load than that of a major research university, but a smaller load than a teaching-only undergraduate institution. It is important to note that the curriculum emphasis at Olin College on active and experiential learning is more demanding than a more traditional curriculum, the average faculty time and effort required to teach a typical course at Olin College may be larger

than at a more traditional college. We currently believe that an approximately 8:1 student/faculty ratio will support this teaching load in our emerging curriculum, and our current financial model is based on this assumption.

Resource models for the initial years of curriculum development have included about ten additional faculty members beyond what is required to deliver the courses to the small student population as a step toward providing adequate faculty resources to enable some professional development to be maintained. The overall level of externally funded research received by our faculty during these start-up years is evidence that a significant level of intellectual vitality has developed as a result. However, the level of research activity is not uniform among the faculty. More senior faculty members with a long record of success in research funding have been most successful in obtaining external funding. Young faculty members with less experience have not been as successful.

To address the need for balance among faculty activities will require some resource allocation. This might include temporary selective reduction of teaching load for those faculty members most in need of attention in professional development. It may also require other initiatives, such as early developmental leaves for faculty members to enable them to devote concentrated effort on their professional development for a significant period. Creative and thoughtful use of summer assignments could contribute to improved opportunity for faculty professional development. Some discretionary funds for the support of faculty professional development have long been available to faculty members, but they have been so busy with curriculum matters that few have used significant amounts of these funds. Opportunities for partnership with industry in research activities or with faculty members at neighboring universities might also help provide the initiative needed to develop important and sustainable research activities. Alternatively, encouragement to develop new ventures or inventions could also contribute to the professional development that is needed³.

Setting Priorities and Planning for the Future. Consideration of the level of intellectual vitality available to our students and exemplified among our faculty is important as we develop the remainder of our curriculum and revise our strategic plan. Achieving a reasonable and sustainable balance between faculty time devoted to teaching activities involving students and individual professional development is an essential task in the planning of the educational environment at Olin College. To help us in these considerations, we would benefit from your thoughts on the following basic questions:

1. How important is the goal that our gifted students be exposed to inspirational faculty members through challenging projects that involve creating new knowledge or designing new products, in your opinion?
2. Does the proposed balance between faculty teaching and professional development at Olin College in the steady state environment seem appropriate to you?
3. Do you have any suggestions for how we might help establish and maintain a better balance between teaching and professional development activities of our faculty, both now in the initial years and later in the steady-state?

Your comments on these questions are important to us, and will be given serious consideration as we finish our strategic planning exercise this year.

³ At an Academic Affairs Committee in 2002, W. Wulf recommended that Olin College consider liberal policies for faculty departure and re-engagement to participate in entrepreneurial activities.