

Managing Technological Change

Strategies for College and University Leaders

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Chapter Ten: Avoiding the Faustian Contract and Meeting the Technology Challenge

By this time, you may well have asked the question: Is it worth it? I must confess that I get tired merely thinking about what needs to be done. The implementation of the strategies so far outlined will present a major challenge to any university or college administration. Are they all necessary? Do the changes have to be as drastic as suggested? Could one not just let technology-based teaching gradually develop from the bottom up, and then deal with issues as they arise?

The Limitations of Planning

Most successful strategies are not totally planned in advance; as Mintzberg (1994) argues, they tend to emerge from patterns of small, individual decisions that can emanate from anywhere in an organization. I have been cautious about a traditional top-down strategic planning approach, putting more emphasis on developing vision and broad goals at a departmental level.

The significant feature of emergent strategy is that it is based on what has been learned from the pattern of the individual actions. So the planning and management process is an iterative one: strategies that emerge are learned, then applied in a deliberate and controlled way, and then modified as other, different strategies emerge. The strategies presented in this book are based on what has been learned from the result of many individual actions in a number of different institutions that are implementing technology-based teaching and learning.

In other words, this book is a little like a photograph, a moment captured in time. All the strategies recommended here should be seen in that light. They will need to change both in space and time; they will need to be adapted to local contexts and modified as further experience develops in using new technologies for teaching. Indeed, probably many other strategies are also necessary if technology is to be used successfully for teaching and learning.

Furthermore, timing is critical. There is a stage, for instance, where an institution needs to move from using "weak" criteria for funding that encourage maximum involvement of faculty members in developing new technology-based learning to using "strong" criteria for funding that will result in projects that are likely to succeed or be sustainable.

Then there is the cost of change. It takes time to design effective learning materials, to put technology systems in place. At the same time, the flow of conventional students and the necessity to conduct research does not stop. Thus, there is always a period where old and new systems are running in parallel. It may be several years after a project has started before the cost of developing it can be justified by improved learning outcomes or increased access.

The strategies proposed in this book are also all interrelated. There is no point in making major investments in technological infrastructure without a parallel development of a vision of how the institution wishes to teach over the next ten years. A "build it and they will come" approach without academic strategies for using the technology is a very expensive policy.

Another problem is caused by the impatience of senior managers or government. I know of several instances where someone has been called in and told to get a multimedia production department in a college up and running and fully cost-recoverable within two years. This is frankly impossible. It took more than a hundred years from the invention of the steam engine to Henry Ford's first production line. We are no more than twenty years into the so-called information revolution. Such revolutionary changes have to progress at a rate that can be absorbed by human beings, and in the case of higher education this means being absorbed by faculty, administrators, and students. The changes suggested in this book will need to be implemented over a period more like ten years than one or two years.

Nevertheless, the imperfect nature of planning and management does not diminish the need for deliberate strategies to implement effective technology-based teaching. Organizations such as universities and colleges tend to be conservative by nature. Without deliberate and coordinated actions, they are not so much unwilling as unable to adapt to the requirements for the successful use of technology for teaching.

When resources are limited or even diminishing, priorities have to be set. Funding reallocation will be essential to support technology-based teaching and learning.

A healthy organization learns from experience. That experience does not have to be confined to what happens in its own organizational boundary, but it can be learned through comparing best practice in other organizations and adapting it to the local context. The key here is flexibility and the willingness to learn from experience, both from inside and from outside the institution.

Resistance Is Futile?

There is also the option of not going down this road. An institution may decide to limit the use of technology for teaching to very specific purposes, such as teaching computer-aided design, where computers are absolutely essential. Technology may be used solely as a supplement to face-to-face teaching. Some institutions may decide to focus entirely on face-to-face teaching. I predict that there will be increasing differentiation between institutions, even institutions in the same sector, based on their use of technology for teaching and learning.

However, all alternative approaches that play down the role of technology in teaching contain high risk as well. More and more, learners will have developed extensive experience and skills in using information technologies in their nonacademic lives, and they will be increasingly unforgiving of institutions that seem out of touch with developments in the "real" world. Learners are likely to reject higher education institutions that do not integrate technology into the curriculum because of the perceived negative impact on their employability after graduation if they are not exposed to the use of technology. Furthermore, merely using technology as a supplement to traditional classroom teaching will increase costs without easily measurable or discernible benefits. An institution that deliberately shuns technology and places great emphasis on small group teaching, with a low student-teacher ratio, is likely to be a very expensive and

hence highly exclusive institution. What Do We Lose?

The increasing intrusion of technology into teaching forces the following questions to be addressed:

- What are the unique features of face-to-face teaching, and for what kinds of learner are these essential?
- What are the unique benefits of being on campus, and what kinds of learner will benefit most from this?
- What do the necessary processes of planning and managing technology do to the culture of an academic institution?

For a conventional campus-based institution, probably the most difficult challenge will be to achieve an appropriate balance between face-to-face and technology-based teaching and learning for the different kinds of students it will be serving. Distributed learning-as distinct from "pure" distance education-allows for a mix of campus-based and technology-based activities. There are potentially significant economic advantages from the use of distributed learning, particularly if it reduces the need for lectures and other forms of face-to-face teaching and thus reduces the need for attendance on campus.

What are the particular benefits of being on campus that cannot be (or are poorly) substituted by technology-based learning, and who will benefit most from this? For instance, electronic access to library facilities, especially over the Web, will increasingly allow just as wide a choice of readings as physical attendance at the campus library. Students can communicate flexibly and extensively with one another and their instructors through on-line discussion forums. Virtual labs can enable more intensive student interaction and a wider range of experiments than wet labs. Brilliant, motivating lectures that capture and synthesize the essence of a subject can be digitized on a CD-ROM.

So what in the way of teaching and learning cannot be done through technology? The list gets shorter each year. Nevertheless, there will always be some aspects of teaching and learning for which face-to-face teaching will be much more appropriate. However, no longer can it be taken as a general assumption that face-to-face teaching is always better. On the contrary, it will become increasingly important to justify it. The basis of the justification will increasingly move away from the nature of the subject matter and the teaching methodology to meeting the needs of particular learners for whom personal contact with teachers is important.

The fact is that many young people (and a few older ones) do not go to university or college just for academic learning purposes. They come for the social and cultural context. But how many institutions really provide social and cultural events these days in an accessible and acceptable format for students? It seems to be a common complaint among faculty members that students are more "instrumental" and less interested in cultural and social activities on campus than in the past. This is no doubt because of their increasing need to work while studying, the large lecture classes, and the lack of availability of cultural functions supported by the institution as budgets come under increasing pressure. However, if technology is to be a major means of delivering teaching, then it becomes even more vital to identify and provide social and cultural activities for those students who do need and want them.

At the same time, the changing demographics of higher education, with older students, returning graduates, and professionals needing updating, means that many learners do not need or care for these cultural activities to be provided as part of their studies. They do not feel the need to attend the campus, or cannot, even if they wanted to. The

appropriate balance between technology-based teaching and face-to-face or campus-based teaching then will differ according to the needs of different types of learners. Nevertheless, technology merely heightens the importance of defining exactly what the social and cultural roles of a campus-based university and college are, relating these to the differing needs of different types of students and ensuring that these needs are met.

Perhaps the least obvious but potentially most important consequence of introducing technology is the change it will bring to the way faculty members do their work. The reduction in face-to-face contact with students will be negative for many faculty members (and positive for some). But more significant will be the impact on the independence and autonomy of faculty members. There will be a greater need for teamwork, planning, and training, and at least in the short term the use of technology is likely to require that much more time be spent and attention paid to teaching-related activities than has been the custom, at least in research universities. At the same time, we are finding that the challenge of teaching with new technologies has led to a revitalization of many professors' teaching.

Last, the planning and management strategies necessary for the successful implementation of new technologies really require a change in the culture of many institutions. A laissez-faire approach to teaching and the use of technology becomes increasingly difficult or expensive as the application of technology to teaching spreads throughout an institution. The danger is that planning and rationalizing the use of scarce resources may lead to top-down management and unacceptable restrictions on academic freedom. One of the most difficult challenges will be to build a postindustrial form of organization, with teaching and administration devolved to small and flexible units in an overall planning and management framework.

Can It Be Done?

It could be argued that the strategies proposed in this book require such fundamental changes in a university or college that the whole enterprise is unsustainable; it may be "better" to create new institutions from scratch.

I believe that this view underestimates the ability of some of the most intelligent and well-educated people in the world to learn, change, and take control of their own destinies. It also underestimates the pressure that is likely to be exerted on universities and colleges to change, by governments, by competition, and from within. Last, I ask skeptical professors: "Who is having the most fun in teaching: those struggling to serve increasingly large classes in the conventional system, or those who have embraced technology as a possible solution to increasing demands and reduced resources?"

So I predict that a number of universities and colleges will not be able to make the necessary changes and adaptation. However, others will protect their core activities by improving the quality of learning and the institution's cost-effectiveness, and they will do this through the intelligent use of technology. I hope this book helps those who decide to take this road.