



Challenges and opportunities in integrating teaching, research and contributions to the community in a changing university

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BY BERNARD ROBAIRE

I FEEL HONOURED to have been selected for this new award. I am very grateful to the McGill Association of University Teachers for having nominated me and to the CAUT jury for having selected me from among those nominated. Once I fully realized what this award was meant to reflect and that it had been bestowed on me, I began to think back to the critical steps in my career that led me to where I am, to my perceptions of the three university pillars and to my concerns for the future. The text below reflects these three streams of thoughts, ideals and concerns.

The path that led me down this road

IT IS DIFFICULT to identify the major influences in your youth and childhood that help shape your future development; however, there were some statements, attitudes and people that have had major influences in the development of my approach to academia and attitude to life in general. First, and probably most important, are my parents. Well before Norman Vincent wrote *The Power of Positive Thinking*, that approach reigned in our house. Words that kept reverberating from both my parents were: “You can do anything you wish, as long as it is done the best way you can.” As an albino with limited visual acuity (being legally blind), I was never made to feel that I had any handicap. Whatever was out there that I wished to do was in the range of the possible — but I had to be really good at it!

It is not the hurdles that stand out, but the great mentors I had from grade school to high school, university and postdoctoral studies. Having a professor such as Daniel Atkinson, while as an undergraduate at UCLA, was a formative experience. He was not only a superb teacher but was also excited about his research and took a gamble on me by encouraged me to do research in his lab; he pro-

vided an ideal example of what being a university professor is about. As a postdoctoral fellow, I had the opportunity to study under the tutelage of professor Larry Ewing at Johns Hopkins University. A man of high ethical standards, he seemed to manage to do it all — run courses, do outstanding research, be director of the reproductive biology division, be president of the leading society in his field, and serve on several editorial boards, yet he always had time to discuss science, education or any other topic of current concern that came to the table.

Many colleague and friends have provided invaluable support over the years. To achieve your goals most effectively in a work environment, I have learned that it is important to have a well-developed support network. I have had and continue to have an outstanding group of graduate students, postdoctoral fellows and technicians who have done all the work in my laboratory and have become cherished colleagues. A life-long friend, Sol Weisel, who I knew was always there for support and encouragement. A wife who is a true partner, a colleague and a friend. Children who are always challenging, who make you laugh, make you proud, make you feel happy.

The three pillars of academia: Three solitudes or an intertwined whole?

WHAT ABOUT THESE three pillars? The three pillars are generally viewed as teaching, research and contributions to the community; these contributions include a wide range of activities from serving as an officer of national and/or international learned societies, to participating in or serving on peer review panels, the university senate, departmental committees or administrative positions and interacting with the media. Are they truly separate, supporting forces? Or are they intertwined? In observing the symbol representing CAUT, and that of many other academically-related institutions, it is common to find the symbolic, separated pillars that support and are part of the structure. But are these pillars truly separate entities? No. In my view, the concept of separate pillars is misleading.

I believe that actively interacting, intertwining, helical-like strands far more accurately symbolize how the three major domains of the activities of a university professor relate to each other. The only way one can truly excel at any one of these activities is by being at least very good at all of them. Let me provide just a few examples of these interactions. How do teaching and research interact? Many have presented the thesis that there is a dichotomy between research and teaching, that those who are good researchers do not care and/or cannot teach effectively, while those who are good teachers do not have the ability to excel in research. The reality is that this is just not true. I am not quite sure why this misconception about academics has emerged, but in fact there is a close dependence of teaching on research and of research on teaching. To excel as a university professor at the undergraduate level, it is essential to sensitize your students to the excitement of research, to bring them to the limits of knowledge in a field and help them discover how new knowledge develops. Certainly, transmission of the well-established foundations of a field is important, but injecting research developments into the actual dogma in a field brings out the novelty and excitement about concepts and illustrates how the frontiers of knowledge are pushed back. The demonstration that dogma is often transient underscores the dynamics of knowledge. At the graduate level, teaching is an almost continuous activity of the life of a university professor. Every aspect of the interactions with a graduate student involves teaching, whether it be helping to define a thesis project, outlining

the protocol for a study, practicing presentations for national/international meetings, or going over the many drafts of manuscripts and thesis chapters. It is not possible to tabulate the number of hours spent teaching at the graduate level, as one does at the undergraduate level, because nearly every hour of the work week involves some element of teaching as well as of research.

Acquisition and development of knowledge via doing research that is not effectively shared amounts to not having done that research. Effective communication of information means effective teaching. A great experimenter who cannot write and present effectively will not succeed. I have found that the overwhelming majority of leading researchers are effective communicators and enjoy teaching. In several university departments that I have examined in some detail, whether in Canada or in the United States, I have found that those individuals who were well funded usually had a relatively heavy teaching load and were committed to teaching, at both the undergraduate and graduate levels.

What about the interactions between teaching and contributions to the community/administration? These take place at many levels. Let us consider a few examples. As academics, it is essential that we communicate effectively with the public — explain what we do, why and how we do it, and discuss the implications of our work for society. The most effective means of undertaking this responsibility is to interact with the press in all of its forms. We need to interact with the public, not just to react about university or research funding, but more important, to discuss our science and our research; we need to express our excitement about teaching and research. But to do that well requires effective teaching. The media has to be considered our major window for communicating with society. We cannot shy away from public interactions. We have to seek the opportunities to do it and have to learn how to be effective when the opportunity is given to us.

A further effective mode of communication with the public is by taking our place within the school networks. For example, by cooperating with high school teachers we can make presentations to high school students about our fields of research and communicate, through effective teaching, the rewards and excitement that our careers bring to us. We should grab every opportunity we are

offered and seek every occasion we can to communicate our own research, explain what academia is about, convey the excitement of discovery to students in grade schools, high schools and junior colleges/CEGEPs. It is our job to help awaken the next generation.

Another example is the interplay between teaching, learning and administration. Departmental chairs, deans and senior administrators receive little or no specialized training to handle these difficult and challenging positions. They are appointed or elected and assume the roles. Initially, most of them are inefficient at carrying out their duties, but are eager to learn. This seems intrinsic to the collegial form of administration that we all cherish in our university system. That was certainly the position I was in when I started my appointment as Associate Vice-Principal Research at McGill University. Being willing to learn from the day of your appointment, learning from predecessors and colleagues, and searching for the optimal way to perform the responsibilities are all key elements in the life of an administrator. It is essential that we view our administrators as our peers who are learning and not our adversaries. We have to help teach them what we expect from them and from the institutions where we work. I believe that it is by a symbiotic relationship that we can understand and advance our university system.

The third type of interactions is between research and contributions to the community and administration. Let us examine three types of such interactions: committee work, peer review functions and contributions to learned societies.

As an associate vice-principal, I created and took the chair of a scholarly awards committee — yes, one more committee! In order to recognize the contributions of our peers and to help prepare their nominations for prizes and awards, the committee members educated themselves about the research, teaching and contributions made by our colleagues. Several benefits ensued. Many of the nominees received appropriate recognition for their important contributions and felt honoured to be at least recognized by their home institution and often by national and international bodies, and new research collaborations developed between committee members and nominees as well as between nominees and other members of the community who learned of the research done by the nominee. The activities of that committee have been maintained and have thrived over many years. Although it takes time and effort to prepare good nominations, I feel that it

is important for us to try to provide proper recognition for our peers, for our colleagues. That recognition is a way of giving an important signal that we appreciate what they are doing and that it does matter.

Giving up our time to serve on committees, particularly the more demanding tasks of serving on editorial boards or funding council peer review committees, is something most of us wish to avoid. The individuals responsible for finding participants for those activities will readily share stories about how difficult it is to find competent people to serve on such committees. Yet, we have a duty to serve, particularly if you are funded by an agency that is asking you to serve as a peer reviewer, or if you publish in a journal asking you to review a manuscript — others are doing it for you. But perhaps more important, it is one of the best learning experiences an academic can have. I feel that I would not have been able to function as a scientist the way I did if I had not served all those years on peer review committees for CIHR, NIH, FRSQ, and FCAR and reviewed journal articles in my field for a wide range of publications. You learn how to write your own grant by reading the grants of others in a wide range of styles and deciding what type of approach is exciting or dull, novel or boring. You learn by reading others' manuscripts; you teach by writing your reviews, whether positive or negative; you end up becoming a better researcher and a better teacher by doing administration. It's all one.

Learned societies are key to the functioning of modern science. Whatever your discipline, there is likely to be one or several societies fulfilling the need for gathering researchers, promoting exchanges, publishing journals, setting ethical standards, etc... These societies need dedicated leadership. For them to thrive, for them to be able to take positions relative to all the major issues in society, there has to be individuals willing to step forward and make difficult decisions. This form of administration needs to be recognized and encouraged. There are also real research and teaching benefits associated with undertaking such activities. The very real learning and research advances that take place with leading colleagues in your field often are initiated in a casual context, during a heated discussion during a coffee break, over a beer at the end of the day or during dinner. By appreciating how tightly integrated our teaching, research and contribution activities are, it becomes easier to "give time" to one function, realizing that it will impact on all aspects of our academic life.

What are the concerns for the future?

SO IF THAT'S the case, why should I have any worries or any concerns for the future? Do I have any? Yes, I have many concerns. I will highlight just a few. Let us consider three subgroups: those pertaining to professors, those pertaining to universities, and probably the biggest one, those pertaining to the role of the university as leading or responding to the needs of society, or both.

The professor: this should be familiar to most of you. Since the early 1990s, there has been a downloading of administrative duties to all of us. This is, at least in part, due to the advent of the computer and its powerful "time-saving" tools in every aspect of our lives. The downloading of functions ranges from undertaking secretarial duties to becoming accounting experts and financial managers — budgeting our research accounts and having more and more "simplified" computer forms for every action are becoming the norm. There are more forms for radioactivity; there are more forms for animal care; there are more forms for appointments; there are more forms for committees and more forms for grant submissions. This has been downloaded for us to handle in our "spare time." The price we have to pay is in spending less time on our teaching, research and real contributions to the community. One of my major concerns is that if this trend continues, one of two things will happen: either we will just refuse to perform these "trivial" administrative functions (or do them hurriedly and poorly), or we will become much less effective at doing what we are meant to really be doing: teaching, research and contributions to the community. I hope that together we can raise the awareness of university administrators across the country that it is essential to provide the infrastructure necessary to allow professors to do what they know how to do best. We do not have the training to be effective clerks, accountants, or grants officers. We are trained to teach, to do research and make contributions to our communities.

Teaching is not what it used to be. The professor that stands in front of the classroom, with chalk and blackboard, still exists, but he/she is becoming a rarity. It is not just the technology that has changed; we have moved from blackboard to overheads, to slides, to PowerPoint, and to whatever technology will appear next, but that is not the major change: the very nature of our interaction with students has changed. The students' effective use of the internet has altered what students expect from us. The knowledge base, inquisitiveness and expectations of students have changed, and we have to respond. Many of us are very

reluctant to adjust to changing times and to go forward with this transformation, but I think that we really do need to adapt to this ever-changing teaching environment. This requires major work and effort — a real transition — for most of us. I am concerned that while some of us are doing this, many are not.

With research, there are many pressures on professors. There is a commitment by the G10 universities that they will increase the amount of funding they receive in five years by twofold. How will they do this? It's not the administrators of our universities that are going to be doing this; it's us, so they're coming to us and telling us that we will need to raise twice as many dollars as we raised five years ago. This means that I'm going to have to write twice as many grants, write larger grants for more money and produce more. So the pressure is increased! What's really happening is that we are moving away from the individual researcher, with an original research idea, towards bigger and bigger centers and networks and groups. This is perfectly appropriate for big science, and applies if you have a genome project, driven by the technology that requires this scale of science. As a rule, major discoveries have not been made this way, but you can do great technology this way. Advances in science are made by creative individuals, often working on their own or with small groups. Unfortunately, government policies and those of some of the funding councils do not reflect this reality. Consequently, the young individual professor who wants to get his/her career underway and wants to get tenure is under tremendous pressure. On the one hand, there is pressure to become a member of and contribute to these centres, these networks, these reseaux. On the other hand, there is equal pressure to develop a distinct identity. If both facets of the research endeavour are not developed, then when tenure review or promotion comes up, there is a real concern that he/she may meet failure. Therefore, it is easy to understand why a large proportion of our young colleagues, who are doing excellent research, feel under pressure to perform in research in a way that is unprecedented in our country. They have very real concerns, and so they should.

Finally, one of the issues that has come to the fore for professors since the early '90s is the growing pressure to interact with industry. The private sector, whether venture capitalists or industrial companies, has invested funds in university-allied activities. It is normal that industry should

want to maximize their investment by getting the most from us for the least. Most of us have next to no experience with the business world and we have had to learn from and rely on our universities' technology transfer offices. We are pressured to cooperate, and so we should; if we can transfer our knowledge into technological advances that will help society, it is our responsibility to do so. Yet, both governments and universities are probably expecting far more than they should from this technology transfer, in job creation for the former and revenue generation for the latter.

Let us now turn to the concerns of, and for, our universities. They are being charged with a changing role and set of responsibilities. Governments are playing a growing role in the funding of universities; consequently, they are exerting more control, not necessarily overtly, but via their expectations. Yes, universities remain remarkably underfunded; yes, they do need more money to provide better services for our students, better laboratories and a more supportive infrastructure for our professors. But if the only funding source is governments, we have to be aware of the consequences of accepting more money from them. So, what are the alternatives? Not that many. Other than governments, forms of support include private donors, foundations, industrial partnerships/support and further increases in fees and tuition. A major problem with private donors is the price extracted in exchange for the donation. Although there is no harm in putting a name on a fellowship, a building, or lectureship, none of us want to see situations where donors exercise control over who holds a chair, or the nature of the research done in the building. Many universities have developed sound policies to establish such norms, but I am concerned that others have not and the attraction of large gifts may drive them to alter the autonomy of the university and the academic freedom of professors.

Globalization of the university network has placed new pressures and expectation on our universities. The need to recruit both professors and students from around the world and the forces attracting some of our best professors and students to perceived greener pastures have resulted in new stresses on our university system. While understanding the need to primarily serve local communities, our universities must compete internationally for staff, students, funding and a place in the growing web-based distance education enterprise. A few of our universities are well-equipped to handle these challenges, but many are not.

The government sees universities as a source of highly-qualified manpower; in fact, we are the major source. Many

government policies are built on the premise that we are developing in Canada a "société du savoir," a knowledge-based society. If we are to move towards this goal, then the only place where these people will be trained is in our universities. As a consequence, universities are pushed not only to accept more students, but also to make sure these students are able to find jobs quickly upon graduation; this coincides with students' expectations of quick employment. This drive for a "pragmatic education" has a tendency to decrease the intellectual endeavour of the university, the curiosity-oriented approach, the development of the mind as one of the primary drives. These opposing forces create great concern within the university.

A final concern of, and for, our universities is the expectation that every person should have access to a university education. There is also an expectation, in some quarters, that every person should be able to graduate from university. This has applied pressures on some of our universities to lower standards either for admission or graduation. In some places there are graduation incentives; the more people who graduate from the university, the more money the university gets. It is not difficult to see the temptation to lower standards, with the best of intentions, i.e., obtain more funds to be able to provide a better education. Clearly, such conditions present dilemmas for our universities, but the dangers are real. We have to keep up the standards of academic excellence so that when a university awards a bachelor's degree, say in philosophy or biochemistry, there is an expectation that a certain curriculum has been pursued and that a set level of expectations has been met.

Perhaps my greatest concern lies with the role of the university in society. Will it continue to serve as a leading light that helps open new paths and avenues for the development of knowledge, or will it grow into an instrument serving the perceived needs of society? Are universities in the process of being transformed from places where the next generation of ideas, thoughts and concepts are born, to places which respond solely to the needs of society and develop into a series of professional schools, providing the manpower projections of government bureaucrats? It is imperative that our universities retain a clear vision of their central mission: teaching, research and contributions to the community and society as a whole.

CAUT's decision to create the Distinguished Academic Award can perhaps be viewed as a signpost that there is a need to reassert our common values of what does and does not constitute the life of a university professor in an increasingly complex world. ■



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