

TEACHING QUALITY MATTERS IN HIGHER EDUCATION

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Higher Education in Australia is once again facing a period of reform, this time addressing buzzword criteria of quality, equity, diversity and sustainability. Since winning a national teaching award in 2002, I have been asked to comment on various aspects of academic life. I have had to deliberate on my teaching practices and provide objective measures of their quality. In this paper, I make subjective comment on teaching quality from my experiences as a preclinical scientist teaching foundational biology and vocational microbiology. Obviously, my musings are biased and should not be taken as consensus opinion.

Both teachers and students yearn for quality educational experiences and outcomes. But what constitutes quality? How do we measure it? What criteria and standards apply? Who measures it? What are the consequences for good or bad performance? Will good quality be rewarded? Will poor quality be punished or remediated? Addressing these concerns will be difficult because governments, unions, university management and academic staff have disparate views on many work issues, such as academic freedom, independence, money, resources, workloads, appraisal mechanisms, performance criteria, etc.

Most universities have been progressive in their pursuit of teaching and learning quality and have established annual award schemes recognizing individual and team performance. Academics nominated by students and peers are asked to reflect on their teaching and learning activities in accordance with prescribed criteria. For example, the Australian Awards for University Teaching require nominees to address the following ten selection criteria.

1. Interest and enthusiasm for teaching and promoting student learning
2. Ability to arouse curiosity, stimulate independent learning and develop critical thought
3. Ability to organize course material and to present it cogently and imaginatively
4. Command of subject matter, including incorporation of recent developments
5. Innovation in design and delivery of content and course materials
6. Participation in effective and sympathetic guidance and advising of students
7. Provision of appropriate assessment, including worthwhile feedback
8. Ability to assist students from equity groups to participate and achieve success
9. Professional and systematic approach to teaching development
10. Participation in professional activities and research related to teaching

These criteria give an indication of the breadth of teaching and learning activities expected from modern academics. However, academics do more than just teach. Universities are professed to fulfill three main functions: to act as living repositories of accumulated knowledge; to pass on this knowledge to the younger generation; and to add to the sum total of knowledge through research. Indeed, academic staff are appraised on the basis of their teaching, research and service, although it is often difficult to discriminate between these activities.

TEACHING

Teaching activities vary considerably and practitioners know they involve as much planning and preparation as presentation and delivery. Scientists tend to be dominated by course content rather than teaching and learning processes. However, stating fact after fact in didactic lectures does not guarantee student learning or understanding. Tertiary teachers need to be flexible and experiment with different techniques to get students to learn. Every educational experience is unique so teaching must be tailored to facilitate appropriate student outcomes. We must accommodate the changing face of science. Biology has progressed over two decades from organismal to cellular to molecular biology. Technological advances have allowed us to go from studying whole animals or plants to examining their tissues and cells and now their proteins and DNA. Teachers need to be utilitarian, sometimes being generalists knowing whole programs, and sometimes specialists with expertise in defined fields. It is advantageous if they are involved in curriculum development to ensure appropriate coverage, align objectives with outcomes, and promote best practice. They must consult with all stakeholders; including employers, industry, government, schools, fellow teachers and students themselves.

While teachers are dominated by content, students are certainly dominated by assessment. “What’s examinable” dictates their study habits, learning and understanding. Assessment practices are undergoing considerable change. Criterion-referenced assessment is becoming widely adopted where students address defined criteria with performance standards. Universities and society have come to value generic graduate attributes (such as critical thinking, problem-solving, communication) as much as specific knowledge. Science students are generally not well versed in educational paradigms so it is important they realize teaching is not whimsical but rather an orchestrated series of interactions designed for learning in cognitive, affective and psychomotor domains. We need to translate educational jargon and explain teaching and learning models so they understand and appreciate program and course design. When students understand educational processes, they participate and become active learners rather than passive recipients. Engagement empowers students, facilitates self-determination, engenders ownership, generates enthusiasm and stimulates feedback on process, content and delivery.

RESEARCH

Academics are expected to engage in scholarly research. Indeed, two key parameters used to quantify research are grants-in and papers-out. Objective measures of quality (such as journal impact factors and citation indices) are now being used to complement traditional subjective peer review processes used by granting agencies, publishing houses and employers. The funding climate currently favors collaborative programs with the formal creation of industry linkages, research networks, centres and institutes. Despite the logistic advantages of collaborative groups, the work itself is still done by individuals who must be valued above all else. Regrettably, people do not always interact profitably with anecdotal evidence suggesting that only one in four collaborations will be fruitful. Network approaches to science usually involve workload intensification through management by committee which requires greater bureaucratic support. Most scientists now effectively perform their own secretarial duties as a consequence of the IT revolution. When was the last time you had the time to sit back and engage in creative thought, lateral thinking, deductive logic, hypothesis formulation?

Into this dynamic environment, we apprentice research students for careers as scientists. Training postgraduate students requires superior communication and negotiation skills so they can undergo professional and social induction in a progressive and cooperative environment. This is generally not the experience of many research students who suffer too much or receive too little supervision. Peer support networks and counseling services are required to assist students with many issues, such as project development, resource utilization, multi-skilling, interdisciplinary liaison and personal development. I believe research should also be embedded in all undergraduate teaching programs to provide vocational context, technical skills, problem-based and self-directed learning experiences.

SERVICE

Academic staff are asked to provide service to their universities, profession and community. Committee membership is part of our corporate culture and we serve on a variety of Departmental, School, Faculty and University committees. We also serve to champion our disciplines through involvement with professional societies and journals, advising industry and government, and contributing to public education campaigns. There are a growing number of science promotion programs operating at local, state and national levels, such as *Science in the Pub* and *Science meets Parliament*. Participation in these diverse service roles supports teaching through curriculum review, resource provision, discipline recognition and community awareness.

CONTEXT

Public perceptions of science and technology are changing and scientists play a greater role in society than ever before. I therefore believe science is best taught in context. Teachers must show course relevance to contemporary science and technology, vocations, employers and communities. This involves changing teaching paradigms to better model workplace practices. Increasingly, students are involved in problem-based or case-based learning, industry projects and even industry placement. Such changes involve reverting to small-group teaching, contextual learning and fostering SDL (self-directed learning) through a process of DSL (directed self-learning). We have experienced a shift from transmissivism models (where teachers transmit content to students) to social constructivist models (where students construct meaning). In a society where universities are at the apex of the education pyramid, I find it paradoxical that teaching models are better understood by primary and secondary school teachers than by most university teachers. School teachers must have essential qualifications to teach, these days being a dual degree (B.Ed. slowly replacing Dip.Ed. in most states). However, in most university Faculties, tertiary teachers do not need any formal qualifications to teach. It seems to me that we are denying academics the most elementary tools of the trade. How do we then aspire to quality?

QUALITY ASSESSMENT

Most universities conduct annual staff appraisals which are generally linked to applications for salary increments, continuing appointment/tenure or promotion. Staff summarize their activities and achievements to line managers who make subjective judgments of their scope, quality and impact. Various teaching parameters are considered, the foremost being feedback from students using various instruments of evaluation. However, student perceptions of teaching do not always mean that effective learning has occurred. We need to develop better mechanisms to assess teaching quality other than to run popularity contests. Courses must undergo periodic

review to remain contemporary and relevant, clients need to be identified and consulted, graduate satisfaction and career outcomes need to be determined, and managers need realistic (not idealistic) data to allocate resources. Academics do not experience equity in teaching workloads as research and service commitments vary between staff. Many Faculties conduct teaching quality audits where a percentage of their budget depends on successfully addressing certain criteria. National and international benchmarking programs now consider quality outcomes besides quantitative data on graduands and grants. All universities are not equal and they cater to different markets. Some have elected to remain comprehensive while others have specialized. Quality issues will therefore differ.

Irrespective, our objective should be to improve teaching quality. Unfortunately, training programs are resisted and often resented by staff, particularly those most in need. Without being unduly critical, many academics are apathetic or antagonistic to teaching reform. Many are paternalistic and always know best. Any attempt to change allegedly impinges on their expertise or academic freedom. Many are insular and simply lack vocational experience. Collegiality is not widespread as many staff consider others as political or economic rivals. This is not meant as a gloomy scenario but rather a realistic assessment of many workplaces. Petty issues dominate. How do you then institute change?

QUALITY IMPROVEMENT

Methods to improve quality must progress beyond reward and punishment. There are various local and national awards for teaching excellence. While such rewards acknowledge effort and performance, they are regarded as elitist without tangible benefits for everyone. Punishment and penalties are counter-productive and are contrary to workplace agreements except where breaches of law and professional conduct occur. Withholding increments and erecting barriers to career advancement are inappropriate and open to abuse by hostile managers. There is a growing trend to abolish tenure and introduce contractual employment where renewed appointment is dependent on satisfactory performance. The problem arises as to what constitutes satisfactory performance and who decides?

Surely it is better to support staff and instigate cultural change where teaching is valued. Many universities promise to “spend the money as it’s earned” but not all teaching income finds its way back to teaching activities. Universities do fund staff development initiatives involving action learning projects, teaching induction programs, IT and multimedia training, and teaching and learning conferences. Various mechanisms for providing informal training are being explored including the concepts of mentoring junior staff, peer feedback through buddy systems, forming teaching teams and running specialty workshops. The major problem encountered has been poor staff motivation and participation. Voluntary attendance does not access the staff who would benefit most from training programs. Perhaps it is time we seriously consider formal qualifications for tertiary teachers at the certificate, diploma or degree level. Quality could only improve as we teach teachers how to teach. Because many academic staff are recruited primarily on the basis of their research endeavours, they would profit by undertaking training in educational theory and practice. Sadly, most suggestions to institutionalize teacher training are met with alarm and undue concerns about workloads and restrictive work practices. Improving teaching quality will necessitate workplace reform.

Change is normal and inevitable. It should not be regarded as onerous or insoluble. We employ various educational models within our undergraduate and postgraduate courses; why not give the same consideration to continuing education for academics? For example, I frequently use the SACK model to differentiate between educational domains (Skills, Attitudes, Concepts and Knowledge). We need to provide academics with essential teaching skills, change their attitudes from teacher-centred to student-centred to facilitate deep rather than rote learning, establish fundamental educational conceptions and provide knowledge of best practice. Small-group teaching in context does lead to better learning outcomes but it does have heavy resource implications in terms of staff numbers and class rooms. Governments and universities must be progressive to afford and facilitate quality higher education in Australia if we are ever to meet our own 'smart-state' and 'clever-country' rhetoric. This begs the question, what price quality?