



Scholarship of Teaching: a model

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ABSTRACT *In this paper we present a model which describes the scholarship of teaching. We first explore what scholarship of teaching means, both in terms of the way it is represented in the literature and also the way it is understood by academic staff themselves. From this information, we derive a multi-dimensional model of scholarship of teaching which captures the variation found in the literature and empirical studies. In the final section, we illustrate how the model is used in informing the design of programs for development of the scholarship of teaching in universities.*

Introduction

The quality of teaching and learning in universities has received much attention over the past 15 years and there has been much debate about what sort of teaching encourages effective learning (Biggs, 1996, 1999; Ramsden, 1992; Prosser & Trigwell, 1999). More recently, however, a slightly different agenda has arisen. This agenda focuses not just on teaching but on teaching as scholarship. Ernest Boyer's seminal work, "Scholarship Reconsidered" (1990), has been the starting point for this debate. Boyer's main thesis does not focus on teaching in isolation, but on teaching as a part of the larger whole of academic work. Boyer argues that we should let go of the tired old research vs. teaching argument and focus on the idea that scholarship exists in all aspects of our academic work. He suggested there are four "separate, but overlapping areas of scholarship". These are:

- (a) the scholarship of discovery—close to the old idea of research;
- (b) the scholarship of integration—which involves making connections across the disciplines and placing the specialties in larger context;
- (c) the scholarship of application—which goes beyond the application of research and develops a vital interaction and so informs the other; and
- (d) the scholarship of teaching—which both educates and entices future scholars by communicating the beauty and enlightenment at the heart of significant knowledge.

While these conceptualisations have captured the imaginations of many, Boyer's descriptions of what he means by the scholarship of teaching are limited to notions of a teacher being well informed. It is to other writers, including those from the Carnegie Foundation who continued Boyer's work, that we must go for the detail. In the next section we present an analysis of this literature. What becomes immediately apparent from this analysis is the enormous variation in the ways scholarship of teaching is represented. We are unaware of the existence of models of scholarship of teaching that currently capture this variation.

With respect to the application of these ideas, several universities in Australia now focus on the idea of scholarship of teaching within the promotion criteria for academic staff (see, for example, Ramsden, Margetson, Martin, & Clarke, 1995). In the UK, the significant developments are happening at the discipline level (e.g., see Healey, this issue). While such moves must be applauded, it is difficult to discern the models used in these developments, and anecdotal evidence, both British and Australian, suggests that within the academic community there exists still only a vague notion of what scholarship in teaching actually is. In developing the model described in this paper, we have conducted an empirical study which aimed to establish how scholarship of teaching is understood by a sample of academic staff in one Australian university.

Ramsden notes that "The aim of teaching is simple: it is to make student learning possible" (1992, p. 5). We believe the aim of scholarly teaching is also simple: it is to make transparent how we have made learning possible. For this to happen, university teachers must be informed of the theoretical perspectives and literature of teaching and learning in their discipline, and be able to collect and present rigorous evidence of their effectiveness, from these perspectives, as teachers. In turn, this involves reflection, inquiry, evaluation, documentation and communication. A model of the scholarship of teaching offers a framework for making transparent the process of making learning possible.

The Scholarship of Teaching Literature

Shulman (1993), in describing teaching as community property, sees communication as a key element. He describes the contrast between the experience of pedagogical solitude and the life of scholars, who "are members of active communities: communities of conversation, communities of evaluation, communities in which we gather with others in our invisible colleges to exchange our findings, our methods, and our excuses" (p. 6). His second key element is that scholarship "entails an artefact, a product, some form of community property that can be shared, discussed, critiqued, exchanged, built on" (p. 7). And following from this, he sees peer review as the third element. Shulman concludes the article by giving an example of how moves towards scholarly teaching might be encouraged:

In a pedagogical colloquium [a candidate for a lectureship] will address the pedagogy of their discipline. They will do so by expounding on the design of a course, showing systematically why this course is an act of scholarship

in the discipline, and explaining how the course represents the central issues in the discipline and how in its pedagogy it affords students the opportunity to engage in the intellectual and moral work of the discipline. (p. 7)

Rice (1992) expands on Boyer's four scholarships, and of the scholarship of teaching he writes that it:

has at least three distinct elements: first the *synoptic capacity*, the ability to draw the strands of a field together in a way that provides both coherence and meaning, to place what is known in context and open the way for connection to be made between the knower and the known; second, what Lee Shulman calls *pedagogical content knowledge*, the capacity to represent a subject in ways that transcend the split between intellectual substance and teaching process, usually having to do with the metaphors, analogies and experiments used; and third, *what we know about learning*, scholarly inquiry into how students "make meaning" out of what the teacher says and does. (p. 125)

The new categories of scholarly activity must, according to Schön (1995), take the form of action research. "If teaching is to be seen as a form of scholarship, then the practice of teaching must be seen as giving rise to new knowledge" (p. 31). Schön builds his argument around what Dewey called inquiry, the principal component of which is thought intertwined with action or reflection-in-action.

The themes of pedagogy of the discipline and Deweyan inquiry are picked up by Andresen & Webb (2000) who see scholarship of teaching as being built around the ethic of inquiry, and involves being:

- (a) well informed from a position of someone having a position (pedagogy of the discipline); and
- (b) critically reflective.

Becoming scholarly means becoming involved in more formal approaches to inquiry:

What changes [as one moves from informal inquiry to more formal approaches] is that one has in mind instead of merely oneself (or perhaps one's colleague or one's own students) as the audience of the report, the audience becomes progressively more "public". One thinks in terms of the whole department, or maybe one's team of colleagues within it; then perhaps the School or Faculty; then possibly the university or some local or regional teaching body or association; then maybe a state or national conference on teaching and learning in one's subject area. (p. 28)

The focus in this extract is on the ever-expanding horizon of the audience of the inquiry results.

In describing the ways scholarship might be assessed, Glassick, Huber and

Maeroff (1997) identify six areas that they see as being common to all four of Boyer's forms of scholarship:

Clear Goals—Does the scholar state the basic purposes of his or her work clearly? Does the scholar define objectives that are realistic and achievable? Does the scholar identify important questions in the field?

Adequate Preparation—Does the scholar show an understanding of existing scholarship in the field? Does the scholar bring the necessary skills to her or his work? Does the scholar bring together the resources necessary to move the project forward?

Appropriate Methods—Does the scholar use methods appropriate to the goals? Does the scholar apply effectively the methods selected? Does the scholar modify procedures in response to changing circumstances?

Significant Results—Does the scholar achieve the goals? Does the scholar's work add consequentially to the field? Does the scholar's work open additional areas for further exploration?

Effective Presentation—Does the scholar use a suitable style and effective organisation to present his or her work? Does the scholar use appropriate forums for communicating work to its intended audiences? Does the scholar present her or his message with clarity and integrity?

Reflective Critique—Does the scholar critically evaluate his or her own work? Does the scholar bring an appropriate breadth of evidence to her or his critique? Does the scholar use evaluation to improve the quality of future work? (Glassick et al., 1997, p. 36)

Having reached this point, it is salutary to consider the contribution to the debate made by Lawrence Stenhouse whose attention to the issue of scholarly teaching long pre-dates that of the literature above. In reflecting on the directions of secondary education, Stenhouse (1980) describes methods of teaching enhancement that involve teachers who “experiment seriously, cooperatively and doggedly” with new curricula, and are supported in the dissemination of these experiences.

How Academic Staff Experience the Scholarship of Teaching

In this section, we describe the results of an empirical study conducted to determine the extent of the variation in approaches to the scholarship of teaching. It involved 20 staff with major teaching responsibilities in three different faculties at one Australian university. In order to ensure a range of responses and some informed responses, 12 of the participants were selected because they had recently completed a course on teaching and learning in higher education or because they had recently applied for promotion on the basis of their teaching.

The central questions asked of academic staff were: What do you think scholarship of teaching is? Think of a time when you or someone demonstrated scholarship in their teaching: What was done? It is data from the second question on how teachers' approach the scholarship of teaching which are analysed phenomenographically and are the focus of this section.

Phenomenography is a qualitative research approach which has been developed over the past 20 years and used extensively to investigate learning and, to a lesser extent, teaching (Marton, 1981, 1988; Marton & Booth, 1997). This approach maps the essential variation in the understanding of a particular phenomenon in any given population. From a phenomenographic perspective, understandings of a phenomenon are not seen to reside within individuals, but are relationships between individuals and a particular task and context. They are not stable constructs, but dynamic and context dependent.

The purpose of the interview and the analysis is to make explicit the essence of that which is being thought about. When the conceptions have been identified within a context they are then decontextualised and the key dimensions of the thinking about the phenomenon mapped out. It has been found that these decontextualised categories can be identified in a range of broadly similar contexts (Marton & Booth, 1997).

The phenomenographic approach means that, although conceptions are eventually decontextualised, they have to be initially identified and described within a specific context in terms of a particular task and from the perspective of an individual engaged in that task. The core interest of this study was how academic staff think about and make sense of the idea of scholarship of teaching.

The main outcome of the analysis is a set of categories that are very precisely constituted in terms of the most distinctive characteristics of the variation in the range of understandings of the key phenomenon and the relationship between these characteristics. What is consequently mapped on to a matrix, usually called an “outcome space”, is the essential variation in ways of understanding the phenomenon. The categories are hierarchical with higher order categories, incorporating lower order ones.

Categories of Description of Approaches to Scholarship of Teaching

An analysis of the data collected in the present study resulted in the following five categories of description of approach to the scholarship of teaching:

- A. The scholarship of teaching is about knowing the literature on teaching by collecting and reading that literature.
- B. Scholarship of teaching is about improving teaching by collecting and reading the literature on teaching.
- C. Scholarship of teaching is about improving student learning by investigating the learning of one's own students and one's own teaching.
- D. Scholarship of teaching is about improving one's own students' learning by knowing and relating the literature on teaching and learning to discipline-specific literature and knowledge.
- E. The scholarship of teaching is about improving student learning within the discipline generally, by collecting and communicating results of one's own work on teaching and learning within the discipline.

The relations between these categories of description in terms of what is focused on

TABLE 1. Outcome space of approach to the scholarship of teaching

Intention	Strategy			
	Know the literature	Improve teaching	Improve student learning	Improve student learning generally
Collect and read literature	A	B		
Investigate own teaching and student learning			C	
Relate discipline knowledge to teaching and learning literature			D	
Communicate results of own work and existing literature				E

(what the intentions are) and how the approach is carried out (strategy) are shown in the outcome space in Table 1.

In Category A, scholarship is described as the intention to know the literature on teaching, and to achieve this through the strategy of collecting and reading this literature.

In Category B, the approach to scholarship is still built on the strategy of collecting and reading the teaching and learning literature, but in this category, unlike Category A, the intention is not only to know the literature, but to use that knowledge to improve teaching.

In Category C, there is a qualitative shift in both intention and strategy. The intention is to go beyond improving teaching to improving student learning through a strategy of investigating one's own students' learning and one's own teaching.

Category D has the same intention as Category C (to improve student learning), but the strategy is to attend to two lots of literature, that within the discipline as well as that on teaching and learning, and to relate one to the other.

The approach to scholarship, as described in Category E, is again qualitatively different in both the intention and the strategy. The intention is to improve student learning generally, not just the learning of one's own students. The strategy is to go beyond literature collection and investigation of student learning to the communication of the results of one's own work on teaching and learning to a larger audience.

Below, we illustrate these categories with some comments from staff:

A. Knowing the literature on teaching by collecting and reading the literature.

I think of the research projects on teaching and of journals like Teaching Sociology and also Boyer of course.

Its when you really know the literature, read and know what it says about teaching ... That is what it is to be scholarly.

B. Improving teaching by using the literature on teaching.

Scholarship in teaching, as distinct from research and publication, is being familiar with the literature and using this to improve teaching.

Scholarship in teaching is when you introduce a new teaching idea into classes after reviewing the literature. Not introducing new ideas in teaching, or introducing new ideas without this step means scholarship is absent.

C. Improving student learning by investigating one's own teaching and student learning.

Scholarship in teaching is about learning about your students' learning and what makes learning possible. It is an investigation of the teaching/learning dynamic and the institutional context, and reflection on this ... and then changing practice.

I see teaching as requiring an orientating philosophy about teaching and learning and informed evidence of what works and doesn't work. Informed through the literature and through practice. Scholarship in teaching involves developing and reflecting on and reviewing one's own thinking about how students learn and what helps this.

D. Improving student learning by attending to the literature of discipline as well as that on teaching and learning, and relating one to the other.

Engaging in teaching in a reflective manner, remaining focused on student learning and desired discipline specific outcomes. Drawing on research on student learning and teaching, substantiated experiences of other teachers in the discipline and being across debates in the profession and the discipline.

No matter how good a teacher you are, you have to have knowledge of the discipline as well and be able to integrate those two things. So, there's two research fields to be across. In computer systems there's a way of thinking which can be picked up on in the teaching. I'm sure it helps students see what you are on about and almost work through things intuitively.

E. Improve student learning generally, by communicating the results of one's own work on teaching and learning to a larger audience.

I think it resembles a regular research process. You spend some time looking at different approaches to teaching and learning within a specific field of knowledge and about learning in general in that area. You research how the knowledge is known and practised and applied within the discipline and you consider what others have done ... and then you plan your program and you monitor the results and improve it. It is also about writing about it and communicating it to others in the larger arena.

You communicate what you do locally so other students within the discipline or profession can be helped to learn and more can be known about how the learning

is achieved and how thinking and knowledge is structured in the areas. It's about reflective practice and its about active dissemination of that practice for the benefit of learning and teaching.

We have identified five qualitatively different ways in which staff say they experience the scholarship of teaching. These ways range from common sense ideas about knowing a lot, to complex ideas concerning the relating of teaching and learning to the structure of knowledge within a discipline and the communicating of resulting insights about teaching and learning to colleagues and to peers. Table 1 suggests two major qualitative divisions. Categories C and D differ from A and B in shifting the focus from teaching to students. Category E is a description of an approach which aims to improve teaching and student learning but, unlike the other four categories, it goes beyond that to the communication of the knowledge of these processes.

These results suggest that a more inclusive approach to the scholarship of teaching involves a focus on using the literature in an exploration of the teaching and learning environment of one's own teaching, with the aims of improving teaching and student learning, and communicating information obtained to others. A less inclusive approach has a focus on engaging with the literature with the focus on improving teaching.

A Model Describing the Scholarship of Teaching

The results of the empirical study described above show distinct parallels with the dimensions of scholarship of teaching described in the literature. The higher order approaches (Categories C, D and E) describe the concerns of several authors in the area. For instance, Schön (1995) emphasises that teaching is a form of action research where practice and reflection on that practice give way to new knowledge. This is at the heart of the approach described within Category C. Glassick et al. (1997) also include the concept of reflection in their Reflective Critique category, and their categories Adequate Preparation and Effective Presentation have elements in common with Categories B and E, respectively. Shulman (1993) also emphasises the issue at the heart of Category E, that teaching and learning within the discipline must be communicated and made open to discussion and scrutiny.

The higher order approaches (Categories C, D and E), with the focus being on students rather than the teacher, are consistent with the higher order approaches to teaching and learning found by Prosser and Trigwell (1999) and others. Boyer (1990) emphasises that scholarship of teaching begins with what the teacher knows and that teachers must be well informed and intellectually active, and engaged with both their subject and their students. This concern with student learning and with learning within the discipline is consistent with Categories C, D and E. The writings of Stenhouse (1980) also emphasise scholarly teaching as being teaching which helps to enhance the particular concerns and problems of the discipline and is consequently in keeping with Category D.

From the relations between the results of the empirical study and the literature described above, at least four dimensions of scholarship of teaching emerge—being

TABLE 2. Multi-dimensional model of scholarship of teaching

Informed dimension	Reflection dimension	Communication dimension	Conception dimension
Uses informal theories of teaching and learning	Effectively none or Unfocused reflection	None	Sees teaching in a teacher-focused way
Engages with the literature of teaching and learning generally		Communicates with departmental/faculty peers (tea room conversations, department seminars)	
Engages with the literature, particularly the discipline literature	Reflection-in-action	Reports work at local and national conferences	
Conducts action research, has synoptic capacity, and pedagogic content knowledge	Reflection focused on asking what do I need to know about X here, and how will I find out about it?	Publishes in international scholarly journals	Sees teaching in a student-focused way

informed about the literature and/or knowledge of teaching and learning in a discipline; focusing on student learning and on teaching, rather than mainly on teaching alone; reflection on the literature, one's own context and the relations between the two; and communication.

The extent to which a teacher is engaging in the scholarship of teaching might therefore be described in terms of these four dimensions as follows:

- (a) the extent to which they engage with the scholarly contributions of others, including the literature of teaching and learning of a general nature, and particularly that in their discipline;
- (b) the focus of their reflection on their own teaching practice and the learning of students within the context of their own discipline: whether it is unfocused, or whether it is asking what do I need to know and how do I find out;
- (c) the quality of the communication and dissemination of aspects of practice and theoretical ideas about teaching and learning in general, and teaching and learning within their discipline; and
- (d) their conceptions of teaching and learning: whether the focus of their activities is on student learning and teaching or mainly on teaching.

These four dimensions, and the qualitative variation within each, constitute the multi-dimensional model of scholarship of teaching illustrated in Table 2.

Using this model, we would describe teachers who are less likely to be engaging in the scholarship of teaching (towards the top of Table 2) as tending to be using informal theories of teaching and learning to inform their practice. These teachers

are more likely to be teacher-focused than student-focused. They would engage in little reflection on what they do in teaching, and if they reflect at all it would be reflection on what they do, not on what students experience. They would be more likely to keep their ideas of teaching and learning to themselves and to see teaching as a personal, private activity.

Teachers who are more likely to be engaging in scholarship of teaching (towards the bottom of Table 2) seek to understand teaching by consulting and using the literature on teaching and learning, by investigating their own teaching, by reflecting on their teaching from the perspective of their intention in teaching while seeing it from the students' position, and by formally communicating their ideas and practice to their peers. This is the position of the teacher from whose description Category E was constituted.

As Table 2 suggests, these two positions are at the extremes of the range of approaches to scholarship in teaching. Included within these extremes are teachers who might develop their teaching using the literature as a guide, who may informally discuss their teaching with their peers and who might also think about their teaching as the sort of things students might do in learning, but still see this mainly in terms of how they, the teacher, will organise this activity (teachers whose descriptions fit Categories A–D).

An Application of the Model

The Australian Scholarship of Teaching Project (1999) made use of these ideas in the design of two learning modules for academic staff wishing to develop their scholarship of teaching. One module focuses on the practice of scholarly teaching (aimed at experiencing variation in the conception, informed and reflection dimensions), while the second focuses on the communication of that scholarly teaching practice (experiencing variation in the reflection and communication dimensions).

The schema underlying the structure of the program in the first module is shown in Figure 1. Staff select aspects of their current teaching (such as teaching method, or assessment) and study each one from the perspective of a particular set of views about student learning and the nature of scholarship. Each is also, subsequently, to be the subject of reflective practice based in the teacher's own work, through seeking answers to questions such as: ... *"What is it, regarding my teaching, that I want to know about here ... ?"* *"How will I find out about it ... ?"* and so on.

By the end of the application of the first module to their teaching, participants should have:

- developed an awareness of the central position of the *perceptions of students* in developing their approaches to teaching;
- developed a capacity to use the *higher education literature* on teaching and learning (particularly that which is available in their own discipline areas) together with appropriate *experience of colleagues*, to inform their ideas about teaching and learning; and
- reflected upon up to four key aspects of their own teaching (development of

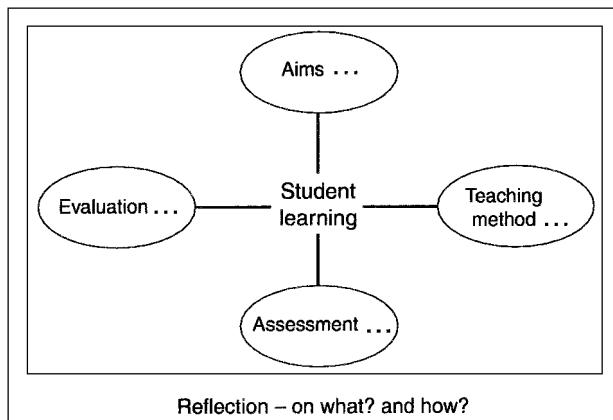


FIG. 1. Schema underlying the structure of Module 1.

learning aims; choice of teaching methods; designing assessment for students' learning; evaluation of all these processes) from a perspective that takes into account students' perceptions of their study task and their study environment.

The module draws heavily on the integration of the current teaching practice of the participant with three texts: Ramsden's *Learning to Teach in Higher Education* (1992); *Understanding Learning and Teaching: The Experience in Higher Education*, by Prosser and Trigwell (1999); and Gibbs and Habeshaw's *253 Ideas for Your Teaching* (1992). The first two texts describe the research results that help form our understanding of who our students are, how they learn and what they are experiencing. Both of these texts use this information to develop teaching principles and strategies. The third text looks at a range of teaching strategies that are in alignment with these principles.

The second module picks up on Shulman's description of the practice of scholarship developing within a community of scholars. Communication is central to the idea of community and it is the medium for scrutiny, debate and learning to take place. Aligned with this is the belief that improving teaching practice to improve student learning is based on reflective and collaborative processes. The exercises and activities in the module have been designed to provide teachers with opportunities to focus, reflect and evaluate their practice through communication and within a climate of challenge to old ways and support for new ways of providing learning opportunities for students. The module contains five units as described below.

Scholarly discourse to establish a local culture of scholarly teaching. This unit provides guidelines for the introduction, development and maintenance of regular meetings of departmental or faculty staff to work together over a semester or two, to address questions and concerns about the particulars of teaching and student learning in their specific discipline or course.

Scholarly peer review, as collaboration to improve student learning in a specific course or discipline. This unit provides a series of strategies and guidelines to enable colleagues (in pairs, small groups or at departmental level) to examine, inquire and

reflect on their teaching and their student's learning in a systematic and purposeful manner. Examples of these activities are reciprocal classroom visits, protocols for interviewing each other's students, examining student work, and curriculum materials. The activities and the ensuing discussion are designed to provide insight into new and improved pedagogical ideas.

Communicating to gain resources for the further development of scholarly teaching. This unit provides guidelines for the development of funding submissions, and includes:

- establishing the context (analysis of the granting organisation and its agenda);
- describing the hypothesis or aims of the submission;
- developing a strategy;
- marshalling the evidence; and
- making the case.

Communicating to contribute to the scholarship of teaching. This unit provides guidelines and advice for the development of specific artefacts for the presentation of individual scholarship of teaching. It addresses points to consider when:

- making a presentation to departmental colleagues;
- preparing a paper to deliver at a conference (including the submission of the initial abstract); and
- writing for publication, preparing material for submission to a refereed journal.

Demonstrating the scholarship of teaching through a scholarly teaching portfolio. This unit provides a range of activities to develop materials for inclusion in a scholarly teaching portfolio. The practice of scholarly teaching provides the basis for the materials that follow:

- documenting scholarship of teaching;
- constructing an argument to demonstrate the scholarly nature of practice;
- presenting the argument in the form of a portfolio or dossier;
- assembling the evidence to support the argument; and
- presenting this evidence as a teaching portfolio.

The unit also considers a range of institutional practices in the use of teaching portfolios for promotion and other forms of performance appraisal.

The module makes explicit what is valued in the scholarship of teaching through processes of reflection, collaboration and documentation.

Conclusion

An attempt has been made in this paper to incorporate the ideas of scholarship of teaching described in the literature and by academic staff teaching in an Australian university into a scholarship of teaching model. We believe this model offers a

framework for making transparent the process of making learning possible. The model has four dimensions relating to the areas of (a) being informed about teaching and learning generally and in the teachers' own discipline; (b) reflection on that information, the teachers' particular context and the relations between the two; (c) the focus of the teaching approach adopted; and (d) communication of the relevant aspects of the other three dimensions to members of the community of scholars. All four dimensions are considered to be a necessary part of the scholarship of teaching. In addition to describing these dimensions of scholarship of teaching, the model makes use of the inclusive hierarchy of categories from results of an empirical study reported here to illustrate qualitatively different approaches to the scholarship of teaching. Teachers can be engaged in scholarly teaching practices in the sense that they include aspects of all four dimensions described in the model. Other teachers, who engage in these same practices but qualitatively go beyond them in one or more dimensions, would be considered to be adopting a more inclusive approach to the scholarship of teaching. The teacher who made the following response to questions on their approach to the scholarship of teaching, has a more inclusive approach than any of the other teachers in the study reported here:

I think it resembles a regular research process. You spend some time looking at different approaches to teaching and learning within a specific field of knowledge and about learning in general in that area. You research how the knowledge is known and practised and applied within the discipline and you consider what others have done ... and then you plan your program and you monitor the results and improve it. It is also about writing about it and communicating it to others in the larger arena.

You communicate what you do locally so other students within the discipline or profession can be helped to learn and more can be known about how the learning is achieved and how thinking and knowledge is structure in the areas. It's about reflective practice and its about active dissemination of that practice for the benefit of learning and teaching.

This response includes all four dimensions and in highly inclusive ways in all of them.

The final section of the paper contains an outline of a development program for academic staff seeking to develop their scholarly approaches to teaching. The model was used to underpin this design. This section shows the usefulness of the model in ensuring consideration of not only the full range of dimensions in such a program, but also in indicating the qualitatively more complete aspects of those dimensions which are to be the focus of the development in each dimension.

The more inclusive elements in each of the dimensions of communication, reflection and conception were relatively easily accommodated in the described development program. However, we believe the issue of pedagogical content knowledge raised by Shulman (1993), Rice (1992) and Andresen and Webb (2000) and included in the Informed dimension, is still poorly understood, as is the contribution it makes to scholarly teaching. Our investigations into the relational issue of the *what* of teaching and how it relates to teaching outcome is the focus of our continuing research.

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References

- ANDRESEN, L. W., & WEBB, C. A. (2000). *Discovering the scholarship of teaching*. Unpublished report: University of Western Sydney Hawkesbury.
- AUSTRALIAN SCHOLARSHIP of TEACHING PROJECT (1999). Available: <http://www.clt.uts.edu.au/Scholarship.of.Teaching/Scholarship.html>
- BIGGS, J. B. (1996). Enhancing teaching through constructive alignment. *Higher Education*, 32, 1–18.
- BIGGS, J. (1999). *Teaching for quality learning at university*. Buckingham: SRHE and Open University Press.
- BOYER, E. L. (1990). *Scholarship reconsidered: Priorities of the professoriate*. Princeton, NJ: The Carnegie Foundation for the Advancement of Teaching.
- GIBBS, G., & HABESHAW, T. (1992). *253 ideas for you teaching*. Bristol: Technical and Educational Services.
- GLASSICK, C., HUBER, M., & MAEROFF, G. (1997). *Scholarship assessed: Evaluation of the professoriate*. San Francisco: Jossey-Bass.
- HEALEY, M. (2000). Developing the scholarship of teaching in higher education: A discipline-based approach. *Higher Education Research & Development*, 19(2), 169–189.
- MARTON, F. (1981). Phenomenography—describing conceptions of the world around us. *International Science*, 10, 177–200.
- MARTON, F. (1988). Describing and improving learning. In R. R. Schmeck (Ed.) *Learning Strategies and Learning Styles*. New York: Plenum.
- MARTON, F. & BOOTH, S. (1977). *Learning and Awareness*. Hillsdale, NJ: Lawrence Erlbaum.
- PROSSER, M., & TRIGWELL, K. (1999). *Understanding learning and teaching: The experience in higher education*. Buckingham: SRHE and Open University Press.
- RAMSDEN, P. (1992). *Learning to teach in higher education*. London: Routledge.
- RAMSDEN, P., MARGETSON, D., MARTIN, E., & CLARKE, S. (1995). *Recognising and rewarding good teaching in Australian higher education*. Canberra: Committee for the Advancement of University Teaching, Australian Government Publishing Service.
- RICE, R. E. (1992). Towards a broader conception of scholarship: The American context. In T. Whiston & R. Geiger (Eds.), *Research and higher education: The United Kingdom and the United States* (pp. 117–129). Buckingham: SRHE and Open University Press.
- SCHÖN, D. A. (1995). The new scholarship requires a new epistemology. *Change* (November/December), 27–34.
- SHULMAN, L. S. (1993). Teaching as community property. *Change* (November/December), 6–7.
- STENHOUSE, L. (1980). Reflections. In L. Stenhouse (Ed.), *Curriculum research and development in action* (pp. 244–262). London: Heinemann Educational Books.