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Investigating Indicators of the Scholarship of Teaching: Teaching Awards in Research Universities

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Results from a nationwide study of teaching awards programs in mathematics departments of U.S. research universities show that only a small percentage even offers such awards. Those that do either use ad hoc procedures and criteria for making awards or prioritize curricular contributions over instructional and pedagogical knowledge in selecting award winners. In addition, mathematics faculty reserve the term scholarship for research in the discipline rather than research on teaching of the discipline.

We're a research university, and the first thing we look at [when hiring] is the scholarship.

It's good and bad to win the award. [It is] good in that you won the award and receive recognition for good teaching; bad in that you have to chair the committee the next year. (Badran, 2004, p. 50)

These quotes from faculty participants of a nationwide study (Badran, 2004) encapsulate how mathematics faculty at American research universities perceive winning a teaching award and how much they value the scholarship of teaching, a concept first coined by Boyer (1990) and later expanded on by others (Cross & Steadman, 1996; Hutchings & Shulman, 1999; Kreber, 1999, 2001a; Kreber & Cranton, 1997, 2000; Paulsen, 1999; Rice, 1992; Shulman, 1987; Weimer, 1995). This study explores the award procedures, criteria, and specific indicators that the selectors (those who choose award recipients) use,

and compares them to the indicators created and recommended by Kreber and Cranton (2000).

The Literature on Teaching Awards

“The purpose of teaching is to help students learn more effectively and efficiently than they would on their own” (Angelo, 1996, p. 57). Along with this opportunity comes a responsibility to understand what exemplary teaching is. According to Smith (2001), “faculty must develop their own expertise in helping students learn before they can help students develop expertise” (p. 69). Lowman (1996) offers insight into exemplary teachers, defining them as enthusiastic and engaging speakers as well as approachable, concerned, accessible, demanding, and dedicated. But these criteria are not universally endorsed. Without a clear, agreed-upon definition of exemplary teaching, we cannot determine what constitutes appropriate criteria for rewarding superior teaching (Kreber, 1999).

The structure of a program to honor exemplary teaching reveals important messages about the department’s or institution’s teaching standards (Svinicki & Menges, 1996). Research studies (Dunkin & Precians, 1992; Forsythe & Gandolfo, 1996; Jenrette & Hays, 1996; Lunde & Barrett, 1996; Miller, 1995; Quinn, 1994; Wergin, 1993; Zahorski, 1996) have explored the types of awards used for institutional and departmental recognition, the procedure involved in these programs, and the criteria selectors use for choosing the exemplary teacher. These studies have been conducted in various sizes and types of institutions of higher education. Research is lacking on the *indicators* of the criteria used for selection.

Wergin (1993) looked into “departmental awards,” which universities award to an entire department for its collaborative efforts in teaching, several of which were initiated by major universities in 1992–1993 alone. They reflected an effort to reform faculty roles and rewards systems to deemphasize individualism and provide incentives for departments to act as “self-directed collectives, working cooperatively toward goals derived from a well-articulated institutional mission” (p. 24).

Exploring how two-year colleges honor exemplary teaching, Jenrette and Hays (1996) found that most colleges solicit nominations and make awards using a competitive model rather than a standards-driven model. The awards vary from temporary endowed teaching chairs to project funding to various salary enhancements and public recognition. Many colleges define and publicize the nature of excellent teaching in brochures, applications, and other print material.

Lunde and Barrett (1996) describe the effort of four departments “to precisely identify ways that teaching activity might be better documented, so that effective teaching might be better rewarded and faculty members thus motivated to improve instruction” (p. 94). These departments assigned committees to develop award recommendations from studying how other units conferred awards, reviewed the teaching records of colleagues, and provided formative peer feedback to both nontenured and tenured faculty. This process of peer review raised the importance of teaching to that comparable of research and other scholarly activities, thereby integrating the evaluation of teaching into the “fabric of the department’s personnel processes” (p. 96).

Dunkin and Precians (1992) explored award-winning university faculty’s concepts of teaching excellence in Australia. They interviewed recipients from a broad range of disciplines and academic ranks and discovered that these award winners had an elaborate set of criteria for evaluating teaching. The award group believed in obtaining the evaluation of others about the quality of their own teaching and in considering longer-term student learning.

In her investigation of four U.S. research universities, Miller (1995) uncovered that 54% of faculty were familiar with the criteria for award selection but didn’t approve of them, and 58% believed that faculty didn’t have enough input into defining the criteria. The faculty did concur, however, that the university-wide awards carried the most prestige. Quinn (1994) found that award winners themselves in research universities had reservations about the fairness of award programs and preferred that the criteria be more specific and procedures more open.

From this literature summary, it is clear that departments and universities do not follow clearly defined, agreed-upon criteria or procedures in making teaching awards. However, institutions do tend to use the same *indicators* in teaching effectiveness for promotion and tenure, but they do so without a theoretical framework. Two large national studies (Franklin, 2001; Seldin, 1984) documented that more than 90% of all institutions in the United States use student ratings to measure teaching effectiveness for merit, promotion, and tenure reviews. Not that student ratings lack validity and reliability, but they should not be used as the sole criterion (Cashin, 1990; Cohen, 1980a, 1980b; Feldman, 1977, 1978, 1987, 1989a, 1989b, 1996; Levinson-Rose & Menges, 1981; L’Hommedieu, Menges, & Brinko, 1988, 1990; Marsh, 1984, 1987; Marsh & Dunkin, 1992).

While most researchers believe that students offer a significant and unique perspective on the effectiveness of a teacher, Gray and Bergmann (2003) contend that administrators rely on student ratings largely out of convenience and due to the “increased attention to customer satisfaction that has

developed with the move toward the corporate model in higher education and its concomitant diminishing of the role of faculty in university governance" (p. 46). These questionable reasons tempt faculty to cheat, forcing the administration "to invent demeaning procedures to prevent cheating" (p. 46). As one professor stated,

Instead of saying, "Here is a great scholar and teacher; learn from her what you can," the administration of evaluation forms says to students, "We hired these teachers, but we are not sure they can teach or have taught you enough. Please tell us whether we guessed right." (Gray & Bergmann, 2003, p. 46)

Most researchers argue that administrators should consider many sources of data in assessing teaching, such as letters from students, peer observations, evidence of teaching outside the classroom, and the many other items that go into a teaching portfolio (Centra, 1996; Kreber & Cranton, 1997; Svinicki & Menges, 1996; Zahorski, 1996). In addition, administrators should compare faculty against an absolute standard of effective teaching. As Seldin put it, "There are some folks who just think it's inappropriate to try to measure teaching. But my notion of measuring teaching is whether someone is reasonably effective, not whether they are a 4.8 on a 5.0 scale" (qtd. in Bartlett, 2003, p. A9).

A Theoretical Framework for Exemplary Teaching

Perhaps the scholarship of teaching can add a theoretical framework in which to ground the notion of exemplary teaching. According to Kreber (2001b), "the scholarship of teaching requires knowledge of the discipline as well as knowledge of how students learn, the thoughtful integration of the two resulting in pedagogical content knowledge" (p. 79). Kreber and Cranton (2000) contend that the scholarship of teaching has been misconstrued as teaching excellence in regard to outcome measures. Rather it *should* focus on both practice and research on practice, and both the acquisition of teaching knowledge and the application of that knowledge. Weston and McAlpine (2001) agree, and they describe three phases of growth that faculty experience as they pursue the scholarship of teaching. In the first phase, faculty become aware of their own teaching and their students' learning. In phase two, they exchange their knowledge about teaching and learning in their discipline with their colleagues. Finally, in the third phase, enough faculty apply their knowledge in their classrooms that they impact the institution and the field.

As presented in Table 2.1, Kreber and Cranton (1997) describe three components of the scholarship of teaching, which are combined with the levels of reflection Mezirow (1991) posited as the way individuals learn and develop: content, process, and premise reflection.

TABLE 2.1
A Model of the Scholarship of Teaching:
Content, Process, and Premise Reflection on Instructional,
Pedagogical, and Curricular Knowledge

Instructional Knowledge (Knowledge about the various components of instructional design)	
Content reflection	<i>What should I do in course design, method selection, student assessment?</i>
Process reflection	<i>How did I do? Were my course design, methods, assessments effective?</i>
Premise reflection	<i>Why does it matter that I use these designs, methods, assessments?</i>
Pedagogical Knowledge (Knowledge about student learning and how to facilitate it)	
Content reflection	<i>What should I do to best facilitate student learning?</i>
Process reflection	<i>How did I do? Am I successful in facilitating student learning?</i>
Premise reflection	<i>Why does it matter if I consider how students learn?</i>
Curricular Knowledge (Knowledge about the goals, purposes, and rationale for courses and programs)	
Content reflection	<i>What do I know about the goals and rationale for my course or program?</i>
Process reflection	<i>How did I (we) arrive at the goals and rationale for courses or programs?</i>
Premise reflection	<i>Why do our goals and rationale matter?</i>

Source. Kreber (2001b, p. 84). Reprinted with permission.

In Kreber and Cranton's (1997) view, "pedagogical knowledge stands at the core of teaching scholarship" (p. 7), and this study adopts their model as its theoretical perspective. But do institutions widely recognize pedagogical knowledge in their award standards?

Kreber and Cranton (2000) also provide a list of criteria and indicators for rewarding exemplary teaching awards on three dimensions: instructional, pedagogical, and curricular knowledge. Instructional knowledge reflects the strategies used in teaching, curricular knowledge addresses *why* we teach the way we teach, and pedagogical knowledge involves how students learn. Table 2.2 lists the indicators for each dimension.

This theoretical framework is one used in this study to compare and assess the way mathematics departments in the United States conferred teaching awards.

Methodology

The 149 institutions in this study of teaching award criteria were selected using *The Carnegie Classification of Institutions of Higher Education, 2000 Edition* (The Carnegie Foundation, 2001) to identify doctoral universities and the National Science Foundation (2003) listing of science and engineering doctorates awarded for 2002 to identify research-productive doctoral universities. During fall 2003, mathematics department chairs of these universities were contacted via email and/or phone to answer questions about the teaching awards programs in their departments, specifically those in which *faculty* award *faculty*. Those who served on the award selection committee during the 2002–2003 academic year were identified and contacted for a tape recorded phone interview. They were also asked to submit the procedures and criteria for award selection. Surprisingly, only three departments had such documents. The semi-structured interviews asked a short list of open-ended questions that allowed for in-depth probing.

Findings

Of the 149 mathematics departments surveyed, only 23 (15%) offered faculty teaching awards conferred by other faculty. Ten members of the award committees, representing eight different mathematics departments, agreed to participate in interviews. Thus, the sample represents 34.8% of mathematics departments that offered teaching awards to faculty.

The transcripts were coded first according to a preassigned coding system that corresponded to the research questions (Bogdan & Biklen, 1998), but subsequent themes emerged from the data, and each was given a unique code. Every coded segment was linked to its corresponding participant and institution. Occasionally themes were consolidated into categories.

TABLE 2.2
Indicators of the Three Dimensions of Knowledge Involved in the
Scholarship of Teaching

	Content Reflection	Process Reflection	Premise Reflection
Instructional Knowledge	<ul style="list-style-type: none"> • Discussing materials and methods with students or colleagues • Reading articles on "how to" teach • Keeping a journal or log of methods and materials used 	<ul style="list-style-type: none"> • Collecting data on students' perceptions of methods and materials • Asking for peer review of course outline • Comparing results of research on teaching to results in own classroom 	<ul style="list-style-type: none"> • Experimenting with alternatives and checking out results • Writing critiques of methods, articles, or books • Challenging the departmental or institutional norms or values regarding teaching methods
Curricular Knowledge	<ul style="list-style-type: none"> • Reviewing goals of the session, course, or curriculum • Reading articles and books about the goals of higher education • Including a rationale and goals in course outlines 	<ul style="list-style-type: none"> • Conducting a review of curriculum goals including a comparison to current practices • Tracing the history of program goals • Reading books on the goals of higher education and comparing these goals to those underlying the programs offered in the department 	<ul style="list-style-type: none"> • Checking with employers, business industry, etc. to find out their expectations and goals for graduates of the program • Writing an article envisioning what higher education without curriculum goals may look like • Initiating or joining a committee on program goal review
Pedagogical Knowledge	<ul style="list-style-type: none"> • Administering learning styles or other inventories to students • Reading articles or books on learning theory, critical thinking, self-directed learning • Writing an article on how to facilitate learning in the discipline 	<ul style="list-style-type: none"> • Gathering feedback from students on their learning the concepts of the discipline • Conducting an action research project on student learning • Comparing classroom experience to formal research results on student learning 	<ul style="list-style-type: none"> • Writing a critique of an article on student learning in the discipline • Seeking out literature that questions the importance of learning styles, self-directed learning, etc. • Participating in philosophical discussions on student learning

Source. Kreber and Cranton (2000, p. 488). Reprinted with permission.

One key question was the extent to which these mathematics departments used award selection criteria consonant with Kreber and Cranton's (2000) indicators of the scholarship of teaching (as shown in Table 2.2). Table 2.3 displays the answers: All departments used ad hoc procedures for operationalizing selection criteria. Few indicators corresponded to those suggested by Kreber and Cranton (2000), and these focused more on curricular knowledge than on pedagogical or instructional knowledge. In fact, all but one department cited curriculum involvement as an award criterion. This involvement translated into service on committees dedicated to curricular reform and other curricular work both inside and outside the department. In terms of the types of reflection valued, departments mentioned indicators of process reflection most often, followed closely by premise reflection, and then content reflection. This ranking reflected the faculty's emphasis on curricular reform, curricular development, and student evaluations.

TABLE 2.3
Number of Mentioned Indicators from
the Eight Interviewed Departments (Out of 23 Offering Awards)
Using Kreber and Cranton's (2000)
Indicators of the Scholarship of Teaching

Combined Results	
Instructional knowledge	13
Curricular knowledge	21
Pedagogical knowledge	5
Content reflection	9
Process reflection	17
Premise reflection	13

All eight departments that were interviewed considered student evaluations among the award criteria, an indicator corresponding to Kreber and Cranton's (2000) process reflection under instructional knowledge (collecting data on students' perceptions of methods and materials). Only one department asked its award nominees about their students' opinions of their teaching methods and materials. This atypical department also used five of Kreber and Cranton's indicators in defining exemplary teaching: conducting action research on student learning, administering learning styles or other invento-

ries to students, experimenting with and assessing alternative methods, challenging the departmental norms (periodically reviewing procedures), and comparing one's classroom research results to those in the literature. One other atypical department drew on four of these indicators to reward faculty for "doing innovative things in class." These two departments defined exemplary teaching at a level of sophistication that set them apart from the rest.

Another interesting finding of this study is that the mathematics faculty used the term *scholarship* only to refer to research in the discipline. When asked about the value of teaching in their departments, respondents stated that disciplinary research received more weight than teaching. Even in the case of one professor's calculus reform project, which required extensive research on teaching, the respondents used the term *research* only to refer to research in mathematics rather than in teaching or mathematics education. This type of thinking is hardly unusual (Kreber, 2001a), and it reflects the disciplinary research-based standards for promotion that exist in all fields (Cahn, 2004; Gray, Froh, & Diamond, 1992; Ralph, 1998).

Discussion

This study finds that research-oriented mathematics departments in the United States prioritize curricular knowledge, followed by instructional knowledge, in selecting faculty for teaching awards, *if they use any formal documented criteria at all*. Pedagogical knowledge is relatively unimportant. The degree of reflection about goals or rationale involved in a faculty member's curricular knowledge does not seem important either. However, selectors do look favorably on a colleague's membership on a program review committee, which suggests at least some premise reflection on the curriculum.

Chism (2006) also finds little formal documented criteria in a study of teaching awards programs of many different types of institutions with teaching centers. In many cases, only global statements were made which referred to teaching excellence, and some seemed to believe teaching excellence is not definable. Chism states,

Many awards programs seem to assume that it is not important to specify particular characteristics or to define teaching excellence for purposes of identifying and discriminating among candidates. By contrast, they list very specific requirements for such things as whether the nomination materials are to be bound or unbound, how many copies are needed, and what font and margin sizes are to be employed. (p. 592)

Programs either imply that criteria are ephemeral, obvious, or make apologetic statements about the criteria they do name. These findings are consistent with those of the present study. Although some departments list criteria, evidence does not match as indicators for criteria. Overall, Chism states there seems to be confusion about the use of the terms *criteria*, *evidence*, and *standards*. Chism's reasons for this may also explain the reason for the findings of the present study. That is, teaching awards may serve as a symbol of a focus on teaching, rather than as a function of the individual reward system, teaching excellence is difficult to define or identifiable when one sees it, and there is a lack of knowledge and/or trust of the literature on teaching. Another important thought is that program administrators may view the obscurity and vagueness as room for freedom in the selection process, and that "this freedom is worth more than credibility" (Chism, 2006, p. 602).

As the literature pushes for clear guidelines for awards procedures, Kreber and Cranton offer theoretically grounded indicators based on the scholarship of teaching to help faculty identify exemplary teachers among their peers (Cranton, 1998; Kreber 2001a, 2001b; Kreber & Cranton, 1997, 2000). Truly exemplary teaching incorporates the types of knowledge that comprise the scholarship of teaching, and teaching award procedures should seek evidence of this knowledge in nominees. For example, if a search committee valued process reflection in instructional knowledge, it would ask nominees the extent to which they sought student feedback about their methods and materials, solicited their colleagues for advice on course design, and compared their student outcomes to those reported in the literature (Kreber & Cranton, 2000). Virtually none of the mathematics departments in this study considered such indicators of exemplary teaching. Most likely the faculty in these departments had never heard of Kreber and Cranton's model.

Kreber (2001b) recommends evaluating teaching primarily on the basis of the instructor's pedagogical knowledge—that is, knowing how to teach creative thinking, effective verbal and oral communication, critical reflection, collaborative learning, mathematical reasoning, self-directed learning, and self-regulated learning. Specifically, she stated, "Opportunities for university teachers to learn about how to teach these skills [should] be included as an integral part of programs intended to foster the scholarship of teaching" (p. 86). Many researchers agree that institutions shouldn't expect all faculty to conduct scholarship on teaching, but they should expect all faculty to be scholarly in their teaching (Paulsen, 2001; Richlin, 2001; Smith, 2001; Theall & Centra, 2001; Weimer, 2001; Weston & McAlpine, 2001).

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