Facilitating the Scholarship of Teaching and Learning at a RESEARCH UNIVERSITY

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"I made some changes in my class, but how do I measure their impact?"

"What's an 'IRB'? I never needed to get permission to conduct research in engineering."

"I want to study student learning in my classes, but where can I find the time?"

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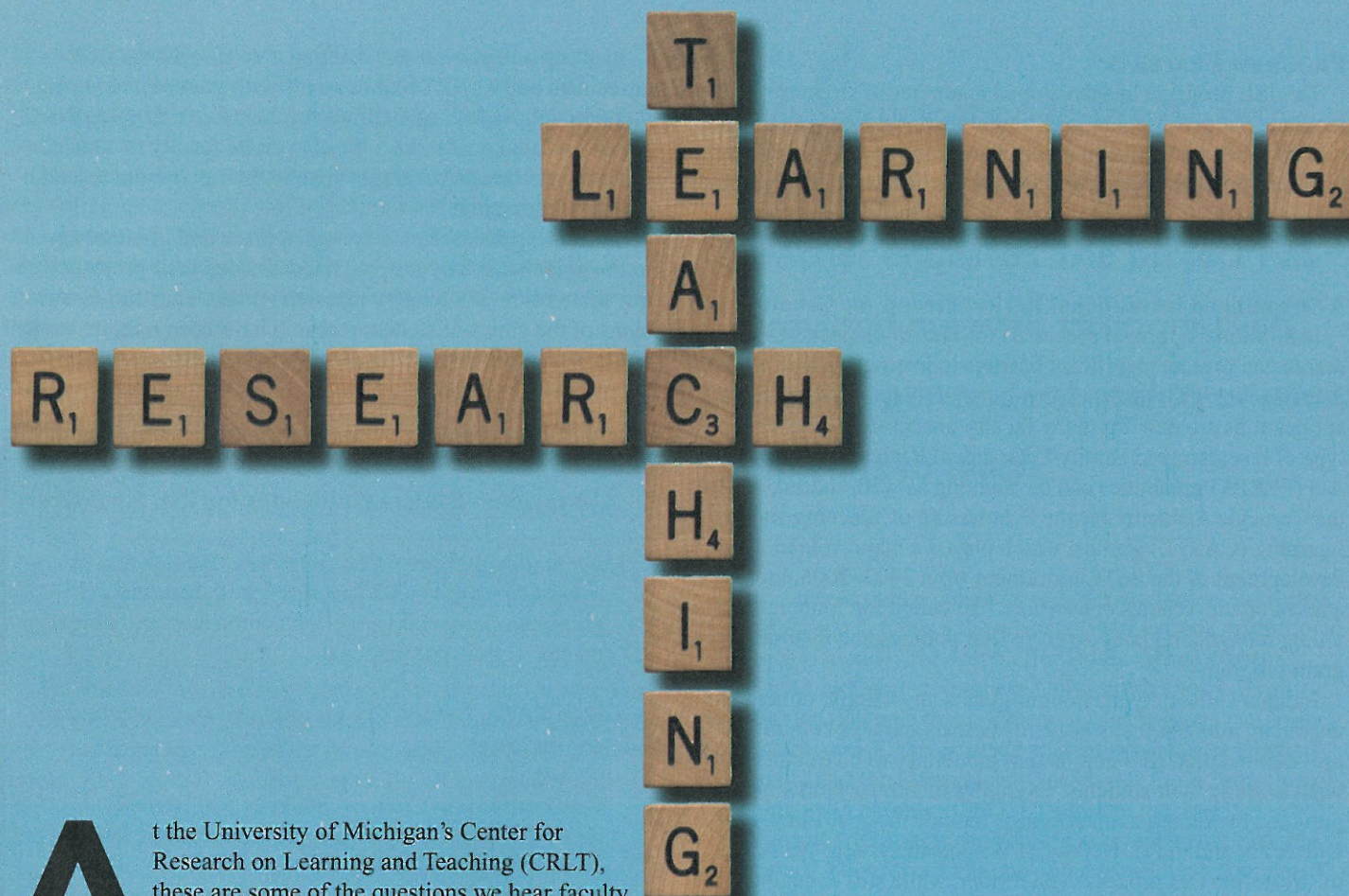
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R **E** **S** **E** **A** **R** **C** **H**

At the University of Michigan's Center for Research on Learning and Teaching (CRLT), these are some of the questions we hear faculty voice about the scholarship of teaching and learning (SoTL). Although faculty have been trained to carry out research and publish in their disciplines, they can get stuck when first embarking on a SoTL project.

Defined as the systematic study of teaching and learning made public, SoTL has drawn increasing attention from faculty members and institutions in recent years, perhaps as a response to rising demands for accountability and evidence-based teaching practices. However, the process of setting up a SoTL project, carrying it out, and converting the resultant data into meaningful findings can keep even the most accomplished faculty from embarking on the task—or, if they do, succeeding at it.

Many have described the reward-based challenges of facilitating SoTL in a research university, "the paradox of creating the conditions for SoTL without the incentives" (Walker, Baepler, & Cohen, 2008, p. 188). However, other challenges are less frequently identified, including some faculty members' difficulties navigating institutional approval processes for human-subjects research, finding others with whom to discuss their research, locating literature on teaching and learning, discovering dissemination outlets, and simply getting assistance to do the work. Because changing a faculty rewards system can be a long-term endeavor, particularly at a research university, what are other ways to encourage instructors to do SoTL in the meantime?

The Investigating Student Learning (ISL) program (<http://www.crlt.umich.edu/grants/islgrant.php>) began at the University of Michigan in 2008 to fund faculty and faculty/postdoc/graduate-student teams to pursue SoTL research on courses and curricula. In designing a comprehensive program to support this activity, we drew on the experiences of other campuses' SoTL initiatives, as we describe below.

The ISL program is coordinated by the University of Michigan's teaching center, the Center for Research on Learning and Teaching; funding is provided by the provost's office and the College of Engineering. The core of the ISL is a competitive grant program. Faculty members apply for grants, which are awarded through a process of peer review; this process resonates with many research university faculty. (See Weblinks for the application process.) Thus far, ISL has funded 33 teams (59 individuals) to carry out their SoTL projects, with grants of $3,000 for individual applicants and $4,000 for faculty/postdoc/graduate student teams. (See Box 1 for examples of projects.)

Box 1
Sample ISL Grant Projects

- Using Screencasts to Enhance Student Learning in a Large-Lecture Material Science and Engineering Course

- Teaching the Central Dogma Using Physical Models in an Active-Learning Biology Classroom

- Policy Students' Experience of Learning by Doing Case-Study Wikis

- Social Work Students' Understanding of Their Future Roles and Functions as Mental Health Service Providers

- Fostering Critical Engagement and Cross-Cultural Comparison in History

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PROGRAM FEATURES

The ISL program has developed a number of structures to facilitate the process for SoTL researchers, adapting practices that have been effective at other institutions and consolidating them into one grant program. Below, we discuss these features, other university models for them, and the reasons they were developed.

A Streamlined Institutional Review Process for Grantees

Institutional approval processes for human-subjects research can present significant barriers to instructors who wish to engage in SoTL projects. Institutional review board (IRB) applications are new for many faculty unaccustomed to this type of research, and Family Educational Rights and Privacy Act (FERPA) guidelines can be daunting as well. Indeed, the Carnegie Academy for the Scholarship of Teaching and Learning (CASTL) groups, which played a major role in the development of the SoTL movement from 2002–2006, included a research universities consortium that called for "policies providing recognizing [sic] SoTL in IRB policies and institutional grant programs."

Indiana University at Bloomington is an example of how one university addresses this issue: its human-subjects committee provides detailed IRB application guidelines to instructors who wish to study their students. Examples of similar guidelines provided by human-subject boards include those at Illinois State University and the University of Wisconsin system. We sought to streamline this process even further, while still engaging investigators in reflection on the possible ethical and FERPA issues embedded in SoTL research.

At the start of the program, the CRLT initiated a campus collaboration with the university's IRB and legal counsel's office that greatly simplified the research-approval process for ISL grantees. To establish this arrangement, a CRLT staff member consulted with the IRB about the best approaches for developing a blanket approval process. Center staff then submitted an IRB proposal that gave faculty broad latitude in research design options and worked with the IRB to resolve outstanding questions. The IRB granted an exemption from further review for all funded projects (assuming that grantees followed certain guidelines). CRLT staff also met with the university counsel's office to resolve any potential issues with FERPA guidelines.

In group and one-on-one meetings, we discuss the IRB agreement and FERPA requirements with grantees, requiring that they follow basic guidelines for their research. (See Box 2 for abbreviated guidelines.) We also invite faculty to consider other ethical issues that might arise in their particular research on student learning.

Once these discussions have taken place and grantees agree to the guidelines, they are free to commence their projects without submission of a lengthy research review. Thus far, discussions of the ethics of student research have been rich, no student issues have been raised, and the university's IRB continues to support this arrangement.

Box 2
Abbreviated Ethical Guidelines for ISL Grantees

- *Interaction with the CRLT:* Research teams will meet at least twice with CRLT staff to learn about the IRB exemption, consult on research approaches, and discuss the presentation of findings.

- *Focus of the Project*: The projects will study postsecondary student learning.

- *Notification and Consent:* Students will be notified (e.g., via a syllabus paragraph) when research is done in the course of "normal work expectations"—that is, using exercises instructors would typically ask them to complete for their courses (regardless of their participation in ISL). Consent will be obtained for research that goes beyond normal work expectations, such as focus groups or surveys.

- *Grades:* Students' participation in the research will be voluntary and have no influence on their grades or their standing in a program.

- *Presentation of Findings and Storage of Records:* In public presentations of the findings in this research, student identifiers will be removed. If records are kept of the research, they will be kept in a secure environment.

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Graduate Students and Postdocs as Co-Investigators

In the busy lives of research university faculty, it may be difficult to make time for SoTL, which is just one more thing on a crowded plate. Therefore, the ISL grant creates a structured role for graduate students and postdoctoral research fellows as co-applicants and co-investigators with faculty. This participation benefits both the projects and the students, for as Bernice Pescolido and her colleagues at Indiana University note, to develop future faculty, "no better vehicle exists...than the scholarship of teaching and learning."

Preparing Future Faculty programs at Vanderbilt University and the University of British Columbia support graduate students as they engage in SoTL in individual courses and graduate teacher certification programs; so does the National Science

Foundation-funded Center for the Integration of Research, Teaching and Learning (CIRTL). Additionally, some SoTL grant programs encourage graduate student/faculty teams, such as the one at Indiana University.

Michigan's ISL goes further than other programs in explicitly rewarding intergenerational collaborations with extra funding, an additional $1,000 for a team that includes a graduate student and/or postdoctoral scholar. The Center also helps to connect potential faculty grantees with graduate student/postdoc co-investigators.

Interestingly, the degree of "intergenerational" collaboration has increased over the years. In the ISL's first year (2008–9), only a third of the 12 teams were partnerships, but in the third year (2010–11), all but one of the teams included such collaborations.

A Kick-off Symposium to Bring Resources to Grantees

Another barrier to getting SoTL research done involves the difficulty of locating resources within decentralized universities. For example, consider an actual ISL project that investigates how screencasts enhance student learning in a large-lecture engineering course. An education librarian might offer useful information about background literature, an IT specialist could provide expertise about lecture-capture technologies, and CRLT staff could advise about project design. Yet, like at many universities, all of these people work in different places within the University of Michigan.

Therefore, at the start of each grant year, all grantees are required to attend a one-day ISL symposium to kick off their projects. Many other universities sponsor SoTL-themed events, but we deliberately structure the ISL program to meet the needs of faculty at a busy, decentralized research university.

Half of the session is designed to bring the dispersed university resources—including librarians, IT staff, and CRLT consultants—to the participants. This part of the day's program is tailored according to the project needs of each year's cohort; sessions have included workshops about survey design, using the university's course-management software for research purposes, and doing educational literature searches.

The rest of the day is designed to bring the whole cohort together so they can serve as resources for each other. It features interactive sessions about methodology (how might you measure student learning?) and ethics, including an extended discussion of the CRLT guidelines for classroom research negotiated with the IRB. In addition to helping participants start their projects, these discussions provide an opportunity for networking among participants.

A Concluding Poster Session for Intra-University Dissemination of Key Findings

Most proponents of SoTL stress the importance of sharing findings in order to make projects open to evaluation and to encourage others to build on the findings. However, a research university culture generally does not value pedagogical research for promotion and tenure, so it can be difficult for faculty to justify the time needed to do, never mind publish, SoTL research.

The ISL program encourages the local sharing of ideas through a required poster session at a large university event on teaching. Grantees are asked to design and present posters on their projects and share the findings with an interdisciplinary au-

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dience. Later, a public online record of these posters is created.

This format combines the advantages of various institutional approaches, namely the scope afforded by virtual poster sessions, such as Georgia Southern University's "SoTL Expo," and the rich dialogue that in-person poster sessions can foster, such as the ones at the graduate student symposia at Howard University and the International Society for the Scholarship of Teaching and Learning (ISSOTL)'s annual meeting.

If needed, CRLT staff can provide assistance with creating the posters. Thus far, all but one of the teams have completed posters at the end of the year-long grant—and the remaining grantee presented his six months later. (A link to the posters can be found in "Useful Weblinks.")

At the most recent poster fair (May 2010), there were over 160 attendees from across the university. The success of this event is probably best described by an attendee who wrote afterwards that he appreciated "the opportunity to talk with others, to view the posters, and to hear about innovative projects. I am always grateful for the chance to meet colleagues across the College. We are too often isolated by disciplinary and other boundaries."

EVALUATION

Another important feature of our ISL program is that it incorporates extensive formative and summative evaluation, including both participant-satisfaction data and analyses of work products. Tools for this evaluation include participant surveys after the kick-off symposium, as well as surveys given at the completion of the year-long grant regarding the perceived impact of the program on the researchers' professional development, instructional practice, and plans for dissemination. (See "Useful Weblinks" to view these survey instruments.)

Currently, two groups (2008–9 and 2009–10) have gone through the year-long ISL cycle, while one cohort (2010–11) is partway through its projects. Of those who have completed the ISL year, nearly all (21 of 23) teams gave feedback on their experience. All respondents agreed that, "overall, the ISL program was valuable for helping me to complete my research on student learning."

Most (17/20) teams agreed that their experience with their project would change their approach to teaching. (Two participants felt it had a neutral impact, and the sole instructor who

disagreed indicated that it "didn't change my teaching but it certainly affirmed it." Three teams did not respond to the question.) One grantee's comment is typical: "My participation in the ISL project has influenced my work as a teacher educator. The project has provided me with stronger skills and deeper understanding of what it means to teach."

Given the success of their posters, nearly all grantees planned to continue their project in some form past the duration of the ISL grant. Some planned to present their work at disciplinary conferences or to publish their findings, and others used the ISL as a "seed grant" to apply for NSF funding. When asked to report on the number of students affected by the grant project in their own courses and departments, grantees estimated the impact at nearly 3,000 undergraduates and about 100 graduate students just over the course of the grant year.

As another metric of the success of the program, we created a rubric for analyzing the posters. Using literature on defining and assessing SoTL, the rubric measures such aspects as engagement with existing knowledge, communication of results to the public for critical review, systematic study of the learning process, and application of the findings.

Analysis of the first cohort's posters indicated that ISL participants successfully communicated their results and developed instructional implications from their findings, but many faculty

(58 percent of the posters) struggled to connect their project to existing knowledge (Table 1). We made a more deliberate attempt to point the second cohort toward the literature on teaching and learning.

The 2009–10 posters indicated that this effort paid off, with fewer (45 percent) of the posters demonstrating this difficulty. However, because we would like all posters to have these scholarly linkages, we will continue to focus on this area with grantees.

A second area that the poster evaluation revealed as a challenge was participants' systematic documentation of the learning process and its results. A few grantees' posters documented only the pedagogical techniques used rather than their impacts. More commonly, participants fulfilled the expectation to some extent by describing some findings but provide limited information about their methods.

In the most recent year (2009–10), we disseminated the rubric in advance of the poster-construction process and recommended that participants describe their methods, their research questions, how the questions were answered, and issues remaining for future inquiry. We did see some improvement: only a third of the 2008–9 posters did this effectively, while the vast majority (73 percent) of 2009–10 documents mastered this criterion.

TABLE 1. ANALYSIS OF FINAL ISL PROJECTS: RUBRIC FOR POSTER EVALUATION

Does the poster include evidence of...

	Aggregate (23 posters)			2008-2009 (12 posters)			2009-2010 (11 posters)		
	Yes	Some what	No	Yes	Some what	No	Yes	Some what	No
Engagement with existing knowledge / literature	9	2	12	4	1	7	5	1	5
Communication of results to the public for critical review	22	1	0	11	1*	0	11	0	0
Systematic study / analysis of the learning process	12	8	3	4	6	2	8	2	1
Application and use of findings	23	0	0	12	0	0	11	0	0

*Note: This grantee presented a poster six months later, at another university-wide event.

Rubric developed from Hutchings & Shulman (1999), McKinney (2007) and Theall & Centra (2001).

INSTITUTIONAL IMPACT

Beyond the effects on individual faculty members and their students and departments, it is also clear that ISL has an institutional impact. In the university's most recent accreditation from the Higher Learning Commission, the ISL and ISL-sponsored projects were mentioned as evidence of effective assessment practices that helped to demonstrate that the University of Michigan is fulfilling its educational mission.

The University's individual schools and colleges offer important support to the ISL program. For example, to signal the importance of engineering-education research, the College of Engineering (one of the university's largest units) doubles the funding for any engineering ISL grant recipient. A dean at the College of Engineering described the impact of the program as follows:

We've seen increased creativity in how our engineering faculty approach their teaching. Not only are they adopting best practices like active learning, but they are more willing to try novel approaches, like the use of storytelling to enhance engineering lecture classes. These experiments in teaching are occurring because the environment created by faculty engaged in ISL make it "OK" to treat teaching like engineering research — a growing, vibrant field with new techniques validated through measurement, rather than a fixed set of practices treated as received wisdom from the ancients.

In addition to engineering, grant projects have been important components of curricular assessment projects in education, medicine, nursing, social work, dentistry, and fifteen departments in the university's largest unit, the College of Literature, Science and the Arts.

RETHINKING THE BARRIERS TO SoTL

While it may be true that many postsecondary institutions do not adequately reward SoTL activities, faculty have many other motivations for doing what they do. Indeed, in our surveys of ISL grantees, the most frequent reasons instructors give for pursuing an ISL grant are to answer a "burning question" about teaching and learning, to enhance their teaching, and to get some funding for their projects (Table 2). Relative to other motivations, career advancement is an infrequently named reason for faculty participation, although it does play a role for graduate students and postdocs.

Therefore, to encourage SoTL, it may be more effective to focus on the barriers we can immediately lower: the time it takes to complete a project, the hurdles that have to be cleared in getting approval for research on student learning, isolation, and insufficient expertise in designing SoTL research and getting it done effectively. Drawing from effective practices in other SoTL initiatives, the ISL program at the University of Michigan is one comprehensive model that lowers these barriers for faculty, encourages SoTL, and communicates that

TABLE 2. WHY DO INSTRUCTORS APPLY FOR AN ISL GRANT? RESULTS FROM 2008–2010 GRANTEES

	Faculty *(22 respondents)*	Graduate Students and Postdoctoral Scholars *(17 respondents)*
To answer a "burning question" about teaching or learning	14	7
To enhance instructional practice	14	3
To get the funding	11	5
To meet others at the University who share interests	7	6
To build a foundation for future grant applications	7	5
It would be useful for career advancement	5	7

Note: Grantees could select more than one response to the question, "Which factors played a role in your decision to pursue an ISL grant?"
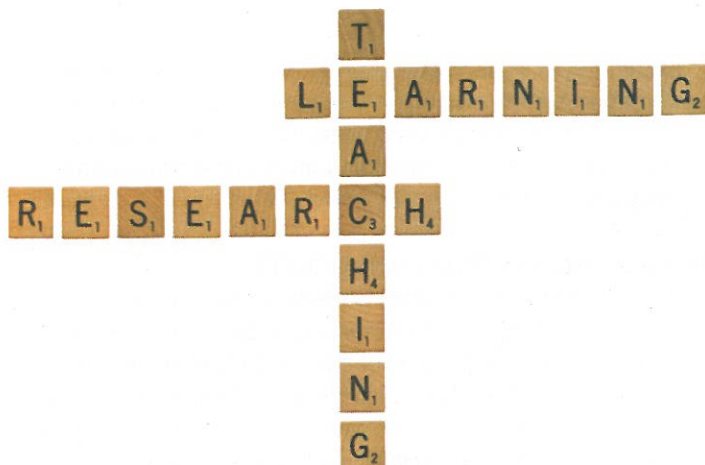
teaching is valued at the university. Of course, this model may require modification at other institutions, based on the particular barriers faculty identify in these contexts. However, as the following ISL grantee describes, this model works well for our research university.

I am sure there are a number of teaching staff at the university who would be interested in investigating their own students' learning but feel reluctant to actually carry it out, since it is seen as something extra and less valuable. Once this "something extra" is presented to them in a more feasible and meaningful way, as CRLT does so very well, I am sure many of them would care to step in, just as I did. It is good to know that teaching, as well as classroom research, is very much valued at this higher education institution. [C]

USEFUL WEBLINKS

■ Department of Health and Human Services. (1991). *Protection of Human Subjects*. Code of Federal Regulations, Title 45, §46.101–102. http://www.hhs.gov/ohrp/humansubjects/guidance/45cfr46.htm

■ Investigating Student Learning Program, Center for Research on Learning and Teaching, University of Michigan.
  • Requests for Proposals and Posters: http://www.crlt.umich.edu/grants/islgrant.php
  • End-of-ISL program participant evaluation: http://www.surveymonkey.com/s/ISLProgram
  • End-of-symposium participant evaluation: http://www.surveymonkey.com/s/ISLSymposium

■ US Department of Education. *Family Educational Rights and Privacy Act* (FERPA). (1974). (20 U.S.C. § 1232g; 34 CFR Part 99) http://www.ed.gov/policy/gen/guid/fpco/ferpa/index.html

■ Georgia Southern University, SoTL Expo http://academics.georgiasouthern.edu/cet/VirtualExpo/2010/textTOC.html

RESOURCES

■ Burman, M.E., & Kleinsasser, A. (2004). Ethical guidelines for use of student work: Moving from teaching's invisibility to inquiry's visibility in the scholarship of teaching and learning. *The Journal of General Education, 53,* 59–79.

■ Hutchings, P., & Shulman, L.E. (1999). The scholarship of teaching: New elaborations, new developments. *Change, 31*(5), 10–15.

■ Hutchings, P. (2002). *Ethics of inquiry: Issues in the scholarship of teaching and learning.* Menlo Park, CA: Carnegie Foundation for the Advancement of Teaching and Learning.

■ Hutchings, P. (2003). Competing goods: Ethical issues in the scholarship of teaching and learning. *Change, 35*(5), 26–33.

■ McKinney, K. (2007). *Enhancing learning through the scholarship of teaching and learning: The challenges and joys of juggling.* San Francisco, CA: Jossey Bass.

■ Pecorino, P.A., Kincaid, S., & Gironda, B. (2008). Research and experimentation in teaching effectiveness: The ethical review process and the IRB. *International Journal for the Scholarship of Teaching and Learning, 2,* 1–11.

■ Pescosolido, B.A., Loftus, J., Scherr, S., Fingerson, L., Hadley, K.G., Stuber, J., & Namaste, P.R. (2004). The three faces of SOTL: The contribution of the Summer Freshman Institute Project to service, teaching and research. In W.B. Becker & M.L. Andrews, (Eds.). *The scholarship of teaching and learning in higher education: The contribution of research universities* (pp. 143–160). Bloomington, IN: Indiana University Press.

■ Pritchard, I.A. (2002). Travelers and trolls: Practitioner research and institutional review boards. *Educational Researcher, 31,* 3–13.

■ Research Universities Consortium for the Advancement of the Scholarship of Teaching and Learning (RUCASTL) (2005). *Policies and procedures supporting the scholarship of teaching and learning in the research university.* Available: www.indiana.edu/~sotl/rucastl_keep/Policies-SoTL10-10-05.pdf

■ Theall, M., & Centra, J.A. (2001). Assessing the scholarship of teaching: Valid decisions from valid evidence. *New Directions for Teaching and Learning, 86,* 31–43.

■ Walker, J.D., Baepler, P., & Cohen, B. (2008). The scholarship of teaching and learning paradox: Results without rewards. *College Teaching, 56,* 183–189.