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Keywords

Scholarship of Teaching and Learning, SoTL

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The Status of the Scholarship of Teaching and Learning in the Disciplines

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Abstract

The concept of the Scholarship of Teaching and Learning (SoTL) was developed over 15 years ago. Because scholarly recognition comes from the discipline, the researchers determined to find out how a range of disciplines deal with the SoTL. In that time, how has the SoTL been integrated into and used by the various academic disciplines? What publication outlets are available to professors within each of the disciplines to present and publish on the SoTL? This survey review of current associations, conferences, and journals examines the SoTL in 20 different disciplines as demonstrated by scholarly production within these disciplines. Adoption levels range from very high in some of the Natural Sciences, to surprisingly low in other disciplinary areas.

Introduction

Over the 15 years since the original concept was introduced, the definition of the *Scholarship of Teaching and Learning* (SoTL) has been a primary topic of discussion and disagreement among scholars of college teaching (e.g., Kreber, 2001; Nelson, 2003; Richlin, 1993, 1998, 2001, 2003). It remains a pressing question as disciplines and institutions search for ways to improve student learning and to provide appropriate rewards for faculty members who do so.

Nelson's Genres of the SoTL

Craig Nelson (2003) grouped different types of writing about teaching and learning into five genres: *Reports on Particular Classes*; *Reflections on Several Years of Teaching Experience, Implicitly or Explicitly Informed by Other SoTL*; *Larger Contexts: Comparisons of Courses and Comparisons of Student Change Across Time*; *Learning Science*; and *Summaries and Analyses of Sets of Prior Studies*. His groupings move from the most specific to the most general and abstract, and each includes a range of different types of scholarship.

Within *Reports on Particular Classes*, he includes such models as qualitative and quantitative analyses of new teaching approaches, as well as a model in which only the new

result is reported, based on learning measures. *Reflections on Several Years of Teaching Experience* is a reflective evaluation across a period of time, and often has applicability beyond the original discipline. Likewise, the *Larger Contexts* group generally includes larger spans of time, looking, either qualitatively or quantitatively, at changes in students or courses over that period. Formal research into *Learning Science*, often executed as an experiment testing different treatments for a particular learning problem, makes up the next group. The final genre, *Analyses of Sets of Prior Studies*, includes summaries of key findings in the literature, and formal, quantitative meta-analyses.

Richlin's Separation of Scholarly Teaching from the SoTL

Our study used the definition of the SoTL developed by Richlin (1993). According to Richlin, the original description of the *scholarship of teaching*, first discussed in Carnegie Foundation reports (Boyer, 1990; Glassick, Huber, & Maeroff, 1997), contains within it two separate systems: *scholarly teaching* and the resulting *scholarship* that reports its results (Richlin, 1993, 1998, 2001, 2003). Because each activity is vital to the life of the academy, it has been important to clarify and operationalize them.

Scholarly teaching and the scholarship of teaching differ in both their intent and product. While the purpose of *scholarly teaching* is to impact the activity of teaching and the resulting student learning, the *scholarship of teaching* results in a formal, peer-reviewed communication in an appropriate medium or venue, which then becomes part of the knowledge base of teaching and learning in higher education.

Both elements begin with a scholarly process that depends on systematic observation of the effects of teaching on learning. By itself, this is *Scholarly Teaching*. The *Scholarship of Teaching and Learning* requires two additional steps - putting the results into the context of what others have done (the literature) and dissemination through presentation and publication. The scholarly process begins with an observation, which identifies a situation the instructor would like to improve, or an opportunity the instructor would like to seize (Richlin, 1993, 1998, 2001, 2003). A "problem" could be as simple as wanting to improve mathematics test scores on a midterm test or as complicated as wanting students to improve their critical thinking skills. An "opportunity" could present itself in the form of newly available technology or equipment.

Whatever teaching > < learning connection the professor wants to improve, the next - and most critical - step is to document a baseline of activity. For instance, what does the professor see in student behavior (poor test results, lack of class participation, etc.) that the professor wishes to change? Without this step, there is no way to ascertain later whether or not a change in teaching has made any difference.

The next important step is to study what others have done. This is an essential part of scholarly inquiry. Scholars in all disciplines begin with knowing the status of their field so that they can avoid duplicating ineffective practices and can build on what is already known:

As a scientific field, pedagogical scholarship must begin to "stand on the shoulders of giants." To accomplish this, it is essential that faculty hold themselves to the same high standards in their observations of teaching and learning as they have traditionally done in their disciplines. As the scholarship of teaching begins to develop, it seems natural that faculty will first consider methods of observation and of drawing conclusions similar to those in their disciplines. On the other hand, the natural setting - the roots - for this scholarship is in the social sciences. Unfortunately, academics in the natural

sciences and humanities are not usually familiar with the basics of social science research; even social scientists who would never commit such errors when working in their fields, often begin pedagogical studies without baselines or hypotheses, do not keep accurate records of interventions, and fail to report results past "the students liked it." (Richlin & Cox, 1990, pp., p.6)

After investigating what previously has been attempted to solve similar problems, a scholarly instructor designs the teaching experiences that have the best chance of helping students achieve the course learning objectives. Once again, experienced teachers often do this implicitly, without making explicit why they have made their choice. To be part of the scholarly process, the selection of method must be justified from what is known in the literature. It must be made explicit.

The application of the new method must be observed and recorded in a systematic way. Classroom assessment processes (Angelo & Cross, 1993) do exactly that. The materials and reflections collected from observation and student work should be systematically documented in a course portfolio, followed by reflection and analysis of the results (Richlin & Manning, 1995). At this point the first of two peer evaluations needs to take place: assessment of the course focused on student achievement of learning objectives. This is followed by a comparison of the results to the baseline, to see whether or not the new method resulted in an improvement in student learning. The application of new knowledge about teaching and learning to the professor's future courses is the end product of scholarly teaching.

Having completed the process to the point of evaluating the results of the learning experience, it is then the decision of the instructor whether or not to proceed to turning the findings into the scholarship of teaching. This would depend on the significance of results and, unfortunately, on whether or not the extra effort to write up the material, subject it to another peer review, and disseminate the resulting manuscript would be worth the time required in terms of faculty rewards. Although an argument can be made that it is the responsibility of scholars to share the results of their investigations, the sad truth is that many departments, disciplines, and institutions do not count "pedagogical scholarship" as part of a faculty member's scholarly production.

The scholarship part of the SoTL process involves composing selected portions of the scholarly investigation and findings into a manuscript to be submitted to an appropriate journal or conference venue. The second peer review, this time of the manuscript or presentation proposal, by experts in both the discipline and the methods used, is necessary, just as it is in disciplinary scholarship. If accepted for publication or presentation, the results and conclusions enter the knowledge base for others to consult for their teaching challenges.

This is not to mean that all scholarly publication regarding teaching and learning in higher education must be research studies. Other types of scholarship include integration of the findings of others and inspiration in the form of reflection from experienced teachers. And, this basic social science research model includes qualitative research where deeper observation of teaching and learning behavior contributes to knowledge of the teaching <learning connection.

The SoTL vs. "Teaching Tips"

As described, Richlin's definition of the SoTL requires scholarly process and the placement of findings into the context of what has already been reported in the literature. Peer reviewed journals apply the same high standards to the SoTL manuscripts as to other categories of scholarship. On the other hand, the bulk of articles published about teaching still fall into the category of "teaching tips," advice provided based on personal experience: "This is what I did and everyone liked it." This is not to say that the advice is not useful - it could be - but there is no way to know whether it is or not.

The *Journal on Excellence in College Teaching (JECT)* has been the most active peer-reviewed, multi-disciplinary venue for publishing the SoTL since 1990. *JECT* grew out of the Lilly Conference on College Teaching, which has been held annually at Miami University for more than 25 years. Major scholars of teaching and learning in higher education gather each year at the Lilly Conference, as well as its regional conferences, to share their current research and to hear from new and veteran faculty members. Conference presentation categories considered are: research, integration, application, and inspiration. These are mirrored in the submission categories for *JECT*.

Over 80% of the manuscripts submitted to the *Journal* since it began have been returned by the editors to their authors without further review because there was no information on why the study was undertaken, what the baseline of activity was that the instructors planned to improve, and, of course, no comparison of results to the baseline. Most were quasi-studies that included student satisfaction information collected at the end of the term, and/or pre- and post-tests that showed the changes during the term but did not compare them to changes that occurred using other methodology.

Other conferences focused on the SoTL include the SoTL Commons and the annual meeting of the International Society for the Scholarship of Teaching and Learning (IS-SoTL). The SoTL Commons hosts its inaugural meeting in 2007, while the annual meeting of the IS-SoTL has been held since 2004, with attendees from a broad range of countries in Asia, Europe, and the Americas.

The Reason for This Study

One reason that faculty members do not take the time to move from conducting scholarly teaching to producing the scholarship of teaching and learning is the absence of support and reward for doing so. Because scholarly recognition comes from the discipline, the researchers determined to find out how a range of disciplines deal with SoTL. Are disciplinary journals publishing the SoTL? Is the SoTL being presented at disciplinary conferences? Are there alternate disciplinary journals and conferences specifically designed for the SoTL? Is what is published and presented actually the SoTL or is it "teaching tips"?

Methodology

This research was conducted by a team of 15 advanced graduate students and their instructor in a year-long Preparing Future Faculty Fellows program. The Fellows were selected for the program through a competitive application process. After initial research by cross-disciplinary pairs into the status of the SoTL in individual disciplines, the full team divided into four groups representing disciplines in the Humanities, Natural Sciences, Professions, and Social Sciences:

Humanities – English, Ethnic Studies, History, Language and Linguistics, Philosophy, Religion

Natural Sciences - Biology, Chemistry, Mathematics, Physics

Professions – Higher Education, Information Systems, Law, Management, Medicine, Nursing

Social Sciences: Economics, Political Science, Psychology, Sociology.

One team member in each group was responsible for organizing and analyzing the material and writing the summary of disciplines in the group.

A variety of approaches were used to identify venues for SoTL in each discipline. The first round of investigation focused on computerized searches and consultations with faculty members to find professional organizations in each field, focusing initially on North American organizations. Then, organizational web pages were searched for conferences and publications, and, as identified, conference programs and journals were searched for possible SoTL content. Finally, articles and presentations were evaluated as being either the SoTL or “teaching tips.”

The researchers also surveyed faculty members and administrators at the first annual meeting of the International Society for the Scholarship of Teaching and Learning (IS-SoTL) in Bloomington, Indiana, in October 2004. Attendees were asked to identify organizations, publications, and conferences in their own discipline. To assure the most inclusive coverage, these were compared to lists of venues identified by other means.

Results

A full description of each journal and conference listed below can be found at <http://robles.callutheran.edu/~pwitman/SoTLIndex.htm>.

Humanities

The Humanities have a long tradition of teaching and learning. For this study, six specific disciplines were investigated, ranging from the oldest to the newest constituents: English, Ethnic Studies, History, Language and Linguistics, Philosophy, and Religion.

English. The SoTL has a strong foothold in the English discipline. It is highly regarded in composition studies but is less accepted in the literature branch of the discipline. While recent editions of many important disciplinary journals do not have content about the SoTL, most have published articles reflecting the SoTL. The National Council of Teachers of English (NCTE) Conference has included presentations advancing the SoTL, and NCTE presidents have articulated objectives about the SoTL. The Modern Language Association conferences seem directed towards other topics even though they have promoted the SoTL at some meetings. The Two Year College Association Regional Conferences promote the SoTL, but Writing Program Administrators conference workshops and presentations have little representation of the SoTL.

The foremost publications in the English discipline include: *College Composition and Communication*, *College English*, *Journal of Teaching Writing*, *Research in the Teaching of English*, *Teaching English in the Two-Year College*, and *PMLA*. Although most English

publications are supportive of the SoTL, the scholarship varies from one publication to another.

Ethnic Studies. The discipline of Ethnic Studies gained acceptance in universities during the student movements of the 1960s. The study of the SoTL is slowly gaining acceptance in the field. Founded in 1972 as an interdisciplinary forum, the National Association for Ethnic Studies is the discipline's primary association, and it organizes the foremost Ethnic Studies conference. Other conferences are held by the Popular Culture Association/American Culture Association, the American Literature Association, and the Association for Asian Studies. The major publications for the Ethnic Studies discipline are the *Ethnic Studies Review* and the *Ethnic Reporter*. These publications do not give a clear picture of how the SoTL is promoted. Highly regarded publications that are more likely to publish the SoTL are *Ethnic Racial Studies*, *Identities-Global Studies*, *Race & Class*, *Journal of Black Studies*, *Black Scholar*, and *Patterns of Prejudice*.

History. There is relatively little representation of the SoTL in the discipline of History. Recent editions of many of the discipline's important journals do not have articles including the SoTL. Most journals within the field that address the SoTL are exclusively focused on teaching. The Organization of American Historians and the American Historical Association (AHA) are two of the main professional organizations (Calder, III, & Kelly, 2002). There is some attention to the SoTL at their conferences, which include the occasional panel on or reference to the SoTL. The organizations usually refer to these panels as teaching workshops. Other associations, such as The World History Association, History Teacher's Association, International Conference of Medieval Studies, and The Historical Society, infrequently include the SoTL at their annual or biannual gatherings.

The disciplinary publications *The History Teacher* (mostly K-12, but some post-secondary) and *Teaching History: A Journal of Methods* are moving from teaching tips to the SoTL content. *AHA Perspectives* publishes the SoTL inconsistently. Other journals including *The American Historical Review*, *Journal of the Historical Society*, and *Journal of American History* have significantly more teaching tips than content representing the SoTL.

Languages and Linguistics. Although logically connected, the disciplines of Languages and Linguistics have very different foci. Linguistics is primarily concerned with theory and pure research, and very little with the application of teaching strategies. Language scholars are almost universally concerned with teaching, and exchange teaching tips freely; however, there is little of the SoTL. The main professional associations for Linguistics are the Center for Applied Linguistics (CAL) and the Linguistic Society of America. CAL offers workshops about the design and development of instructional materials. Distinct from Linguistics associations are several Language umbrella associations. The American Council on the Teaching of Foreign Languages, and the National Federation of Modern Language Teachers Associations are principally for teachers of modern foreign languages. The Modern Language Association (MLA) recognized the lack of scholarly dialogue about teaching and recently issued a report endorsing the goals of the SoTL (MLA Ad Hoc Committee on Teaching, 2001). Most of these organizations hold national and local meetings. There also are annual regional conferences, such as South West Conference on Language Teaching (COLT), and North East COLT.

Overall, linguistics publications are concerned with research into the nature of language itself; the term 'applied' is usually understood to mean that scholarly research is applied to a particular language, not its pedagogy. There is a great deal of anecdotal sharing of teaching tips, etc., and of ways to entice students into choosing a particular language,

especially in language-specific publications. Much of the teaching-oriented literature is content-based: offering cultural and historical information to the teacher. Despite these shortcomings, many publications recognize the need for the SoTL and are moving in that direction.

Philosophy. Despite Philosophy's status as one of the most consistent and well-established fields of study, few Philosophy journals promote and publish the SoTL. Nevertheless, Philosophy seems to be poised to further incorporate the SoTL within the academic field. Philosophy's main professional organization is the American Philosophical Association (APA), founded at the University of Delaware in 1900, and dedicated to the exchange of ideas, scholarship, and the teaching of Philosophy. The APA believes that these activities will assist in promoting the discipline of Philosophy. The APA has three annual meetings, which coincide with the organization's geographic divisions, the Eastern, Pacific and Western conferences. Sub-specialty meetings are held in conjunction with all three regional meetings, but the Eastern meeting is considered the *de facto* national meeting. The APA also is the home base for the Committee on the Teaching of Philosophy. The main publications reside within the APA, which publishes *The Journal of Philosophy* and *Teaching Philosophy*. However, *The Journal of Philosophy* does not publish the SoTL. *Teaching Philosophy* and *Metaphilosophy* remain the only two Philosophy journals that do publish the SoTL.

Religion. The American Academy of Religion (AAR) is the main organization for professors and scholars of Biblical Studies. Founded in 1909 at Syracuse University, the AAR has grown to 9,000 members (Jaring, Krikhaar, & Bosch, 2004). The American Theological Library Association (ATLA), established in 1946, provides programs, products, and services in support of theological and religious studies libraries and librarians with more than 1,000 individual, institutional, and affiliate members (ATLA, 2004). *The Journal of the American Academy of Religion* is the field's top academic journal, with a circulation of over 10,000. The Wabash Center for Teaching and Learning in Theology and Religion is the leading organization that deals with the SoTL in the discipline of Religion. It co-sponsors publication of *Teaching Theology and Religion*, which contains articles on teaching and learning theology and religion (Wabash Center, 2001). The bi-annual *Spotlight on Teaching* also examines pedagogy in Religion.

Natural Sciences

This section presents four different disciplines from the Natural Sciences: Biology, Chemistry, Mathematics, and Physics.

Biology. In Biology, the main conferences and publication outlets provide numerous opportunities for publication of the SoTL. There are education segments in mainstream publications, and several publications devoted to Biology education, as well as journals aimed at the broader topic of science education. Key associations include the American Institute of Biological Science, the Society for Experimental Biology, the Institute of Biology, the Society for Integrative and Comparative Biology, and the Federation of American Societies for Experimental Biology (FASEB) (DMOZ, 2004). Each association hosts an annual conference, and several of these include education tracks. Other conferences not specific to Biology education tend to be more specialized in a particular segment of Biology, and generally do not include the SoTL. Education-specific conferences include the American Biology Teacher Conference, hosted by the National Association of Biology Teachers, and the NARST Annual Meeting, hosted by the National Association for Research in Science Teaching (NARST), both of which include papers covering the SoTL.

Key disciplinary publications, ranked by ISI influence, include *BioScience*, *FASEB Journal*, and the *Annual Review of Cell Biology*. Only the first of these includes any significant education research in their articles. Additional journals focusing on Biology and general science education, and publishing a mixture of the SoTL and teaching tips, include *American Biology Teacher*, *Journal of Biological Education* (in publication nearly 40 years), *The Journal of College Science Teaching*, and *Instructional Science*.

Chemistry. There is a moderate level of interest in the SoTL in this discipline, and significant support among those who focus on chemical education. However, the bulk of Chemistry's general publication outlets carry little of the SoTL. There are a good number of general science and Chemistry-specific journals and conferences that provide outlets for publication of the SoTL, at the secondary, undergraduate, and graduate levels. Key Chemistry associations include the American Chemical Society, American Institute of Chemical Engineers, and The Institution of Chemical Engineers (Coulange, 1998). Education tracks are presented in each of the societies' annual conferences, and some of the material in these tracks includes the SoTL. Other conference forums include the Biennial Conference on Chemical Education, which dedicates much of its content to presentation of the SoTL.

Primary publication outlets in the discipline, based on ISI rankings (Popescu, 2001a), include *Chemical Reviews*, *Accounts of Chemical Research*, *Chemical Society Reviews*, and *Abstracts of Papers of the American Chemical Society*. The *Journal of Chemical Education* and *The Chemical Educator* are peer-reviewed journals, focusing exclusively on chemical education – an indicator of the level of energy and research devoted to teaching in Chemistry. Other science journals which publish some articles related to Chemistry, and all of which publish some combination of the SoTL and teaching tips, include the *Journal of Research in Science Teaching*, *Journal of Science Education and Technology*, *Research in Science Education*, *Journal of Science Teacher Education*, *Science Education & Technology*, and the *International Journal of Science Education*.

Mathematics. Although Mathematics education programs have only been created within the last several decades, they have a great deal of visibility and importance within the discipline. Mathematics education research tends to fall into two separate camps. The first group is more formal, and tends to develop theoretical research on Mathematics and Mathematics education. The second group bases their research on individual teaching practices, and is very concerned with practical classroom techniques. They also use a research structure similar to Psychology or Education programs, which is uncommon and unfamiliar to Mathematics researchers. Even with this divide, the discipline as a whole views the SoTL favorably, and is very concerned with its development (Banchoff & Salem, 2002).

The two major Mathematics societies are the Mathematical Association of America and the American Mathematical Society. Both examine research and teaching, but the former focuses on teaching and the latter on research. Each has over 25,000 members, and 7,000 mathematicians are members of both organizations. The major organizations in Mathematics hold annual meetings, with tracks dedicated to the SoTL research. Most major Mathematics publications have very positive attitudes towards the SoTL articles. In particular, the *American Mathematical Monthly*, *Mathematics Magazine*, and the *Collegiate Mathematics Journal* all publish articles on pedagogy. Journals strictly dedicated to Mathematics education also exist, and include *Educational Studies in Mathematics*, *Journal for Research in Mathematics Education*, and *Research in Collegiate Mathematics Education*.

Physics. Physics researchers have a longstanding history of working to improve their discipline's teaching. They have tended to take a "teaching tips" approach, but in recent

years have attempted to build a genuine understanding of how students learn Physics (Redish, 2003). There is a heavy emphasis on helping K-12 teachers teach Physics in an effective manner, and there are a multitude of online resources and societies disseminating material. The largest American organization is the American Institute of Physics (AIP), which is a conglomeration that includes the American Physical Society (APS) and the American Association of Physics Teachers. The latter has existed since the 1930's, and is heavily involved in the SoTL. Most Physics conferences are extremely specialized. However, society meetings of the AIP, APS, and others, are broader in focus, and frequently have a "Teaching Physics" track. Aside from these meetings, there are a few Physics SoTL conferences. One of the largest is the *Inter-American Conference on Physics Education*, which meets every three years.

The *American Journal of Physics* and the *Journal of Science Teacher Education* are the major journals publishing the SoTL for Physics. The former has a fairly broad dissemination, and was ranked 59th in citations by the 2001 ISI rankings (Popescu, 2001b). *The Physics Teacher* and *Physics Today* publish teaching tips articles, and some of the more accessible SoTL. Most Physics SoTL research is published in these journals, although some appears in the broader science education journals.

Professions

This section includes the fields of Higher Education, Information Systems, Law, Management, Medicine, and Nursing.

Higher Education. The discipline of education addresses several constituencies, including K through 12, teacher education and higher education. Although organizations oriented to teaching typically promote tools and techniques, the SoTL increasingly has become a focus area. Divisions of major organizations and specialized groups, such as the International Alliance of Teacher Scholars, sponsor journals, annual conferences, and training to promote the SoTL. Numerous organizations address issues within the branches of education as well as the application of teaching and learning in specialized areas. Key associations for Higher Education are the American Association for Higher Education, the Association of American Colleges, and Universities, the Association of the Study of Higher Education, and the American Council on Education. These organizations hold annual conferences, but the focus is typically on policy issues rather than the SoTL.

There are numerous education publications; over 140 publications are specialized by academic fields, while over 40 journals address higher education. Key journals in higher education include *Journal of Higher Education*, *Journal on Excellence in College Teaching*, and *Review of Higher Education*. Although the majority of these journals focus on policy and pragmatic issues in education, there is an acknowledgement that the SoTL is an important aspect of education today. *The Journal on Excellence in College Teaching* does focus solely on the SoTL, and new electronic publications, such as the *International Journal for the Scholarship of Teaching and Learning* and *MountainRise*, also address the SoTL in Higher Education. In addition, many of the specialized academic journals, such as *Journal of Teacher Education* and *Theory into Practice* incorporate the SoTL in their articles.

Information Systems. The discipline of Information Systems has promoted teaching tips through professional conferences and specialized publications, but major publications have not made the SoTL a focus area. There are numerous professional organizations in the field of Information Systems organized around practitioners, academicians, and consumers of information technology. The largest professional organization is the Association for Computing Machinery (ACM) with more than 80,000 members worldwide. Neither the ACM,

nor the other major professional organizations, have developed a specific focus on the SoTL. The main disciplinary conferences are the International Conference on Information Systems, Americas Conference on Information Systems (AMCIS), and ACM Special Interest Group on Management Information Systems Conference. While the AMCIS conference has a non-IT specific education track, the other major conferences do not have SoTL-specific tracks planned.

The major U.S. publications in the field of Information Systems are the *Management Information Systems (MIS) Quarterly*, *Communications of the ACM*, *IS Research*, *Journal of Management Information Systems*, and *Management Science*. The major publications generally do not include the SoTL, but *MIS Quarterly* and *Communications of the ACM* are more likely to publish both teaching tips and the SoTL. Publications that focus on teaching tips and the SoTL are the *Journal of Information Systems Education*, *Journal of Information Technology*, and *Computer Science Education*.

Law. The SoTL has not been a major area of focus within the academic discipline of Law. Some interest in teaching Law is evidenced at major professional conferences, and in a few publications, through focusing on teaching tips and skill building exercises. However, the majority of material on the SoTL is found in a small set of specialized publications. There are many professional organizations in Law; however, the American Association of American Law Schools is the largest organization that focuses on strengthening Law education and serving Law teachers with the necessary skills to better their teaching craft. Although the organization does not focus specifically on the SoTL at their annual conference, there are workshops on teaching techniques.

Within the field of Law, there are numerous publications that are geared toward serving various sub-disciplines such as criminal, civil, marriage and family, and so on. Some of the major U.S. publications in the field are the *Harvard Law Journal*, *Stanford Law Review*, and the *Yale Law Review*. A review of the major Law publications reveals a few articles on the SoTL. The majority of SoTL articles are being published in what are considered minor publications, which focus mainly on the SoTL. These include *Journal of Legal Education*, *Learning and the Law*, and *Continuing Legal Education* (Indiana University Bloomington Libraries, 2004). Each publication focuses on the shifting methods of education and provides helpful and practical advice on how to confront issues such as legal scholarship, improving the profession, and curriculum development.

Management. There has been an ongoing focus on the SoTL in the discipline for the past 30 years. Specialized groups, such as the Organizational Behavior Teaching Society, sponsor journals, annual conferences, and training specifically to promote the SoTL. The Academy of Management (AOM) has a Management Education & Development Division that focuses on the SoTL, and, since 2002, has published the Learning & Education journal. This is the first journal dedicated to the SoTL published by a major Management association, not a teaching-specific organization. Although there are numerous professional organizations in the discipline, the AOM is the largest scholarly Management association in the world with approximately 15,000 members in over 90 countries. It also has regional affiliates, such as the Western Academy of Management. The AOM, its affiliates, and other disciplinary organizations hold annual conferences. The AOM meetings incorporate teaching tips and techniques as well as the SoTL.

Hundreds of publications address business and management issues. Highly ranked management journals, including the *Academy of Management Journal*, *Academy of Management Review*, *Administrative Science Quarterly*, *Human Relations*, *Industrial and*

Labor Relations Review, Industrial Relations, Journal of Applied Psychology, Journal of Management, and Organizational Behavior, typically do not include the SoTL. The management journals that specifically focus on the SoTL include the *Academy of Management Learning & Education, Delta Pi Epsilon Journal, Journal of Education for Business, Journal of Management Education* and *Journal of Marketing Education*.

Medicine. The SoTL is growing in importance in the field of Medicine. Divisions of medical associations have begun to sponsor research that would qualify as the SoTL, although their primary focus remains on teaching tips and continuing medical education. The majority of the SoTL research is being published by a small collection of specialized journals. The largest professional association for physicians is the American Medical Association and the largest association focused on improving medical education is the Association of American Medical Colleges (AAMC). The AAMC, along with other organizations, has annual conferences and workshops that focus on continuing medical education. The divisions of various medical associations, including the AAMC, have joined together to sponsor a web-based repository for curriculum and some assessment materials that are based on the SoTL.

The major U.S. publications in the field of Medicine are the *New England Journal of Medicine* and the *Journal of the American Medical Association*, both of which publish a small amount of the SoTL articles. The majority of the SoTL articles are published in a collection of minor publications that focus on medical education such as *Medical Education, Academic Medicine, Medical Education Online, Medical Teacher, and Teaching and Learning in Medicine*.

Nursing. There are national and state organizations as well as special interest, educational, and lobbying groups that serve subgroups of the greater Nursing community. The American Nursing Association is the largest professional organization, and broadest in scope. However, it is the American Association of Colleges of Nursing (AACN) that has been a sponsor of the majority of the SoTL in the field of Nursing. The main disciplinary conferences for Nursing are sponsored by the AACN and the American Academy of Nursing, which holds an Annual Meeting and Conference. Both include the SoTL in their programs. Additionally, there are several smaller conferences that directly address issues of teaching and learning in Nursing.

The major Nursing journals are *Journal of Nursing Education, Nurse Educator, and The Journal of Continuing Education on Nursing*. Other publications include *Nurse Education Today* and *International Journal of Nursing Education Scholarship*. Lifelong learning and continuous professional development are commitments of many Nursing publications. Unfortunately, this notion of lifelong learning has not been fully integrated with the SoTL.

Social Sciences

This section includes Economics, Political Science, Psychology, and Sociology.

Economics. As a market-based discipline, there seems to be less of an emphasis on the SoTL in Economics than in some of the other disciplines. The American Economics Association (AEA) is the major professional body in Economics. Of its 18,000 members, 50% are associated with educational institutions, 15% with business and industry, and the remainder with the public and non-profit sectors (AEA, 2004). The AEA has a link to teaching resources on its website, but the information listed is related to copyright, distance learning, and software packages, rather than the SoTL. The AEA Annual Meeting is the major conference in the discipline, but the SoTL does not play a major role – of the approximately 450 sessions least year, only two were dedicated to the SoTL. The AEA Committee on Economic Education coordinates teacher (K-12) education workshops, and

collaborates in the publication of *The Journal of Economic Education*. Each year at the annual AEA conference, the Committee on Economic Education sponsors two panels that are devoted to the SoTL.

The AEA publishes three quarterly journals: *The American Economic Review*, *Journal of Economic Literature*, and *Journal of Economic Perspectives*. While these journals include research and discussion of economic issues, none include any reference to the SoTL. The Western Economic Association International is a non-profit educational organization dedicated to economic research and analysis that publishes two quarterly journals: *Economic Inquiry* and *Contemporary Economic Policy* - neither includes the SoTL. The major forum for the SoTL in Economics is *The Journal of Economic Education*.

Political Science. The American Political Science Association (APSA) has recently started promoting the SoTL within the discipline. Current collaborations with the American Council of Education, the American Association of Colleges and Universities, and the Council of Graduate Schools indicate a new focus on preparing graduates to teach and strengthening teaching within Political Science. With 15,000 members in 80 countries, the APSA is the leading professional body focusing on the study of Political Science. The APSA sponsors two conferences each year: the Annual Meeting held in August and the Conference on Teaching and Learning held in February. Although the conference showcases research, there are two divisions at the annual meeting dedicated to the SoTL: Teaching and Learning in Political Science, and Undergraduate Education. In addition, eight of the twenty-two short courses in professional development offered at the 2004 conference directly addressed the SoTL. The Annual Teaching and Learning Conference, now in its second year, is a much smaller event that addresses models of teaching and learning as well as the broad themes and values affecting Political Science education. The SoTL dominates the conference agenda, which also includes issues such as civic engagement and diversity within the discipline.

The APSA has three quarterly publications: *American Political Science Review*, *PS: Political Science* and *Politics*, and *Perspectives*. None of these systematically addresses the SoTL. Within the discipline, the National Association of Schools of Public Affairs and Administration has taken the lead with the SoTL. It sponsors an annual conference, now in its 27th year, as well as a quarterly journal dedicated to issues of teaching and learning.

Psychology. The discipline of Psychology is quite fragmented. Due to the variety of ways one can partition the study of human behavior (e.g., cognitive, social, etc.) the discipline has formed several different professional organizations - each with corresponding journals - to address the various topical areas of Psychology. Thus, the approach to the SoTL is handled primarily by the establishment of another sub-discipline, teaching of Psychology. In fact, the American Psychological Association (APA), the primary professional organization for psychologists, dedicated one of its first divisions, Division 2, to the SoTL, called the Society of Teaching Psychology. This division meets annually at the national APA convention and publishes a quarterly journal dedicated toward Psychology's approach and contributions to the SoTL. Another very influential professional organization, the American Psychological Society has devoted an entire section of its monthly magazine to "teaching tips," which frequently incorporates the SoTL. Both of these organizations hold an annual conference, during which the SoTL can be presented. Two major journals, *Teaching of Psychology*, and the *Observer*, consistently publish the SoTL, as do other journals, such as the *Educational Psychologist* and *Journal of Instructional Psychology*. Moreover, there are smaller organizations that take an active role in the SoTL.

Sociology. The discipline of Sociology has a solid grounding in the SoTL and, given its cross-disciplinary linkages, is poised to become a strong proponent in advancing the agenda for the SoTL. Overall, the discipline of Sociology appears to be committed to the emerging focus on the SoTL. The top ranking disciplinary professional organization for Sociology is the American Sociological Association (ASA). The ASA has paid significant attention to the SoTL through its journal publications and its Annual Meeting, which is the main disciplinary conference. The meeting, which is open to academic sociologists, including U.S. and international faculty, has several sessions dedicated to education in general, and significant attention is given to the SoTL in particular (Benbasat, Goldstein, & Mead, 1987). ASA's main publications include *American Sociological Review*, *Contemporary Sociology*, *Sociological Methodology*, *Sociology of Education*, *Teaching Sociology* and *Footnotes. Teaching Sociology* features most prominently on the SoTL. It is a journal that has (since the mid 1980's) shifted from articles that emphasize teaching tips to articles that are more empirically grounded.

Discussion

Humanities

The Scholarship of Teaching and Learning in the Humanities has been inconsistent and slow to develop. It may seem at first surprising that it has not been a central focus within the well-established disciplines, yet perhaps because of their long traditions of teaching and learning, they are slower to incorporate this contemporary meta-conceptual concentration. Similarly, the discipline of Language and Linguistics, whose scholars are in large part concerned with the issues and practicalities of teaching, gives little attention to the SoTL. In a very noticeable way, the discipline of History has segregated any study of the SoTL to separate programs at major conferences and separate sections within scholarly journals. While the discipline of English promotes publications on the SoTL, major journals do not consistently publish related issues. Cultural, Ethnic, and American Studies declare their willingness to publish the SoTL; however they are slow in making the SoTL a priority. Overall, Humanities disciplines are slowly beginning to acknowledge the value of the SoTL in raising the standard of teaching, and increasing students' success. There is an identifiable, but irregular, movement towards the inclusion of the SoTL in conferences, publications, and scholarly discourse. The next step will be to translate this discourse into widespread practice.

Natural Sciences

The natural sciences have several traits in common in their involvement in the SoTL. First, several of the more established disciplines have long-established "Teaching of..." programs. In particular, Physics and Chemistry have had PhD programs and fields of study in education for decades. However, there can be a cultural disconnect between the faculty who do full-time study in very conceptual research, and teaching faculty who are more concerned with applicable findings. Even so, there is a great deal of activity, and large programs disseminating findings to both college and K-12 levels. Second, these disciplines have some similarities in where education-related research can be found. The general conferences put on by the field's large associations typically have a "Teaching Of..." track, but specialized conferences usually do not even consider the SoTL.

The major disciplinary journals typically do not publish many education articles, and the more focused "Teaching of..." journals are usually less well known. On an encouraging note, there is a good deal of collaboration on general science-related education journals. Although these are not as well regarded as the mainline journals, they disseminate a lot of practical material and advice to college and K-12 teachers. As a whole, natural science professors are

usually very focused on a particular sub-field area. This can make it difficult for them to do both their subfield and the SoTL research. However, there is a definite level of interest in education articles and programs, and many broad-based cross-disciplinary "Teaching Science" journals. As a whole the Natural Sciences have made a concerted effort to improve teaching quality, and are well positioned to increase involvement in the SoTL research.

Professions

The SoTL has become a growing area of concentration in all of the professions. Even Management, which has made the SoTL an area of focus for the past year 30 years, is increasing its emphasis on the SoTL. Higher Education, Information Systems, Law, Medicine, and Nursing traditionally have focused their attention on the "teaching of" the profession, trying to keep practitioners up to date on the most current tips and techniques. This has slowly started to change. The major annual conferences in the respective disciplines tend to promote a "teaching of" track. Depending on the discipline, the SoTL can be found in some of these "teaching of" tracks, but the majority of topics at the conferences fall under the category of teaching tips. Similarly, some major publications have begun to publish the SoTL. However, the bulk of the SoTL still resides in specialized journals devoted to the SoTL in the professions.

Social Sciences

Although the Social Science disciplines incorporate the SoTL, they are very different in their commitment and approach. Sociology has an enormous number of associations and publications, but only the American Sociological Association (ASA) covers the SoTL. The ASA devotes one journal and one track in their annual conference to the SoTL. Everything else in the field appears to be discipline-oriented. Economics is more market-oriented than scholarship-oriented. However, the Committee on Economic Education, sponsored by the American Economics Association, had two panels on the SoTL at its annual meeting in 2004 and *The Journal of Economic Education* is a major outlet for the SoTL. Political Science has a new commitment to the SoTL, evidenced by the Conference on Teaching and Learning, which began in 2004. The American Political Science Association (APSA) has direct links with Preparing Future Faculty programs at four universities, with partner universities numbering an additional 22 (APSA, 2005). Psychology is so varied that it has created a sub-discipline, the teaching of Psychology, to explore the SoTL. This sub-discipline is moving forward in contributing to the knowledge base of the SoTL. The next decade should see an increase by the Social Sciences in their use of the SoTL to prepare and develop their faculty.

Conclusions, Limitations of This Study, and Directions for Future Research

We believe the primary value in this research is to provide visibility of the SoTL to faculty in a wide variety of disciplines, and to evaluate the level of acceptance of the SoTL in various disciplines. The research has identified disciplines in which the SoTL is broadly accepted (and by implication, is probably valued as scholarship), and others where the SoTL is not yet as broadly accepted. This information should be of value to educators and researchers as they plan their research agendas.

The SoTL has achieved varying levels of acceptance across the disciplines. As a group, the Natural Sciences and Professions seem to have most firmly adopted the SoTL, while the Social Sciences and the Humanities are somewhat less attached. The adoption by the Natural Sciences can perhaps be explained in part by the science phobias that are found among some students, creating a need to more rigorously find ways to effectively teach those students (Science Professor, 2006). Similarly, in the Professions, there is a need for

continuing education, along with a need in many cases to certify the mastery of knowledge for a particular skill or subject area. In contrast, the relatively lower and less consistent levels of adoption in the Social Sciences and Humanities are perhaps due in part to the absence of the student phobias of these topics, to the continued evolution and discussion of the content of the fields, and perhaps also to “gatekeepers” – senior faculty who have editorial control of journals and conferences, and may not have seen the need for or value of the SoTL (History Professor, 2005).

These explanations are, at this point, the conjecture of the authors and of academics in these disciplines. Further research is warranted to understand the cause and evaluate the impact that the SoTL is having in the areas in which it is being adopted. It would also be valuable to have the perspectives of department chairs, deans, and provosts as to their perception of the scholarly value of the SoTL, across a wide range of disciplines.

The first limitation to this study is the number of disciplines included. We have attempted to make sense of entire categories of disciplines without covering all of the constituent fields. Areas such as Fine Arts, Engineering, and other specialized sub-fields in the disciplines should be reviewed to determine whether they support our conclusions.

Next, the survey was limited to publications we identified through the primary associations, recommendations of available faculty members, and our own efforts. Further search may identify other forums for the SoTL. Also, we did not include the multi-disciplinary journals, such as the *Journal on Excellence in College Teaching*, which publishes work across the disciplines. It may be that some disciplines are publishing the SoTL without doing so in specific disciplinary outlets.

Our review was limited to the availability of sample articles either online or in local libraries. At times we had to work from abstracts to determine whether articles were the SoTL or “teaching tips.” We recommend a more extensive collection of disciplinary journals and conference programs to produce a full set of materials for analysis, including international journals and associations.

We also recommend identifying exemplar articles of the SoTL in various publication and presentation venues, representing the best scholarship in each discipline (Olson, Abramson, & D'Arct, 2005). In addition, this should be combined with the publication or presentation review criteria for each venue.

And, finally, we recommend a survey by discipline across institution types to determine how production of the SoTL is used in determining faculty hiring, tenure, and promotion.

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