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Community College Faculty as Pedagogical Innovators: How the Scholarship of Teaching and Learning (SoTL) Stimulates Innovation in the Classroom

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ABSTRACT

Community colleges are continually faced with the challenge of meeting the learning needs of diverse students, many of who are nontraditional and often ill-prepared for college level work. These institutions are respected for furthering democracy through their commitment to educational access and criticized for falling short in supporting students' educational attainment. Community colleges must fully maximize existing resources, including their faculty, and focus on areas within their control—teaching and learning. This is a case study of 13 community college faculty who participated in a scholarship of teaching and learning (SoTL) program. It explored the extent to which classroom inquiry can support professors' pedagogical innovation and their development of knowledge of teaching and learning.

Higher education's legitimacy is eroding. Headlines questioning higher education's validity are written on a regular basis, and parents, students, and law makers wonder if students can, and should, shoulder the debt burden that comes with high priced tuition. Our traditional paradigm of higher education has worn itself out. As Scobey (2012) argued, we need to recognize we are at a "Copernican moment" (p. x). Just like the Renaissance astronomer who exposed old ideas about the universe that no longer worked, the academy is on the cusp of radical change. A major driver of this change will continue to be a fiscal environment that requires doing more with less and external demands requiring that institutions demonstrate what students learn (Kuh et al., 2015).

Community colleges are in the spotlight with President Obama and the public having honed in on the community college's role as an economic and political entity and are calling for a dramatic increase in the number of students who earn credentials (Bailey, Jaggars, & Jenkins, 2015; Levin, 2013; Obama, 2009). Yet, this segment of higher education continues to struggle to educate the most underserved students without adequate resources. Community colleges are respected for furthering democracy through their commitment to educational access and criticized for falling short in supporting students' educational attainment. With state funding continuing to decline, community colleges must fully maximize existing resources, including their faculty, and focus on areas within their control such as the teaching and learning process. However, according to Bailey et al. (2015), community college faculty have been largely excluded from recent instructional reform efforts, which have focused mostly on developmental education, tutoring, and supplemental academic support services.

In diverse community college classrooms, faculty need strategies that help reimagine how learning experiences are designed and how students engage with them. Problematizing and conducting research on teaching and learning questions through the scholarship and teaching and learning is

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one of many strategies to help community colleges with this reimagination and address the one area colleges and the faculty have some level of control over.

The purpose of this study was to explore how the scholarship of teaching and learning (SoTL) influences community college faculty. The goal of SoTL is for faculty to collect data from their own students. These data are then critically and publicly analyzed and reflected upon. The intention is to advance how faculty teach and how their students learn, and to contribute to a larger body of knowledge of how students learn. The study's purpose was to specifically investigate how SoTL contributed to community college faculty making sense of their classroom experiences, identifying what they learn about their teaching, and discerning how their SoTL experience resulted in changes to their teaching practice.

Literature Review

Community colleges are continually faced with the question of how to best meet the learning needs of a diverse group of students. Despite the importance of improving teaching and learning at the community college, faculty members are cited for lacking innovation in their teaching practices (Community College Survey of Student Engagement, 2007, 2010; Grubb et al., 1999; O'Banion, 1994). Opportunities to talk about teaching and learning can be few and far between on community college campuses. Department meeting agendas are filled with addressing the business of the department. Typical professional development activities provided by community colleges for faculty tend to be top down, inadequate, disjointed, not focused on pedagogy and not grounded in adult learning theory (Bailey et al., 2015; Cranton & King, 2003; Grubb et al., 1999; Hutchings, 2008).

The reported lack of innovation and effectiveness in instruction is understandable; however, considering community college faculty are like most educators of adults in that they have not been trained in pedagogical effectiveness but, rather, in specific content areas (Cranton & King, 2003; Grubb et al., 1999). This leaves many community college faculty with an almost empty toolkit when entering a heterogeneous classroom with students who in large numbers are first-generation, have had limited access to quality K–12 education, and enter higher education inadequately prepared for college level work (Bailey & Morest, 2006; Perin & Charron, 2006). Community colleges are not recognized as effectively supporting faculty in bridging this gap in pedagogical knowledge (Grubb et al., 1999). This lack of support results in faculty needing to drive their own development as instructors (Bailey et al., 2015) and commonly using trial and error as a strategy for pedagogical improvement (Grubb et al., 1999; Sperling, 2003). A more systematic, public, and institution-supported approach to discovering effective methods in meeting learning needs of diverse community college students is needed. The scholarship of teaching and learning is slowly becoming recognized as a professional development strategy to address the lack of pedagogical training.

Conducting classroom research through SoTL has the potential to transform community college faculty from what Cross (1989) considered naïve observers and practitioners of teaching to experts knowledgeable in the complex processes of teaching diverse students. Enhancing faculty members' abilities to further understand their teaching and their impact on students' learning can improve community college instruction. Scholars of SoTL are convinced that this systematic, reflective, and public inquiry into teaching yields positive student outcomes (Huber, 2008; Huber & Hutchings, 2005; Hutchings & Shulman, 1999; McCarthy & Duffy, 2007; Petrides & Middleston-Detzner, 2011; Tinberg, Duffy, & Mino, 2007). Empirical (both quantitative and qualitative) evidence of the impact of SoTL on community college faculty practice is limited in the literature, however.

The research questions examined in this study were (a) what knowledge, if any, do community college SoTL faculty develop about instruction, pedagogy, and the goals and purposes of higher education? And (b) how and why does SoTL influence changes in their teaching practice? Specifically, how and why does SoTL influence changes in faculty members' interpretations, assumptions, and actions of their teaching and their diverse students' learning, if at all?

The conceptual framework for the study was grounded in the theories of sensemaking (Weick, 2001; Weick, Sutcliffe, & Obstfeld, 2005) and transformative learning (Mezirow, 1994, 1997); and it utilized Kreber and Cranton's (2000) Scholarship of Teaching (SoT) Model to understand the knowledge faculty gained from a SoTL experience. Sensemaking and transformative learning theory address the human condition of creating order in our understanding of how we experience the world. Sensemaking is an organizational theory and describes a process that is both individual and social and helps to organize flux occurring within the environment (Weick, 2001; Weick et al., 2005). Transformative learning stems from adult learning theory and involves a process of organizing flux in one's thinking through critical self-reflection on one's frame of reference (Mezirow, 1997).

Sensemaking and transformative learning offer frameworks for explaining how individuals understand their experiences in the world, especially when trying to create a sense of order. While sensemaking explains how individuals create order out of flux within their environment, transformative learning describes the phases an individual goes through when there is flux within their own thinking. Both sensemaking and transformative learning theory provide a foundation for exploring how SoTL influences a community college faculty member's learning about their experiences in the classroom environment.

In the complex and multifaceted community college classroom, what constitutes effective teaching that will lead to student success is not self-evident (Grubb et al., 1999). When faculty who are trained in their disciplines enter classrooms to teach students with different levels of preparation, who are diverse in terms of age, race, and socioeconomic status, and have multiple and varied goals for their education, it is expected that the faculty reflect on and try to make sense of their environment. For the faculty in this study, it is expected that they engaged in SoTL as part of the sensemaking process and identified teaching and learning questions for ongoing investigation (Bass, 1999). This exploration was expected to involve the sensemaking steps of seeking information, bracketing it, assigning it meaning through labeling and categorization, recollecting past events, and taking action (Thomas, Clark, & Gioia, 1993; Weick, 2001; Weick et al., 2005).

Using Mezirow's (1994) transformative learning theory as a foundation, Kreber and Cranton (2000) developed a Scholarship of Teaching model that provides a rubric for understanding the knowledge SoTL faculty develop about their teaching. Their intention is for the Scholarship of Teaching model to be used by faculty and faculty developers as a professional development tool with the potential to transform how faculty think about their teaching and their students' learning. Kreber and Cranton (2000) asserted faculty gain new knowledge of teaching and learning as a result of SoTL and propose transformative learning theory as a framework to understand what faculty learn through this process of classroom inquiry. They argued that through reflection, faculty actually transform their understanding of teaching and learning and demonstrate this new understanding through concrete indicators.

If community college faculty who are involved in SoTL shift to a role of pedagogical learners, it would be helpful to understand what these faculty are learning in this experience. Kreber and Cranton created the Scholarship of Teaching model to design a knowledge system of teaching and learning. The model is informed by Mezirow's three levels of reflection that an individual may use when solving a problem—content, process, and premise. Using the research literature, their experiences as teachers, and their work as faculty developers they list specific domains of teaching knowledge related to content, process, and premise reflection. Content reflection involves describing the teaching process, and Kreber and Cranton call this *instructional knowledge*. Instructional knowledge is teacher-centered and concerned with the technical aspects of teaching such as course design, instructional materials, and methods. Instructional knowledge could be demonstrated through knowing how to facilitate discussions, knowing how to sequence instruction, writing learning objectives, or constructing sound assessments.

Process reflection in teaching focuses on knowledge about how people learn and how learning is facilitated. Kreber and Cranton called this *pedagogical knowledge*, which can include understanding learning styles, group dynamics, and the cognitive process involved in learning. Premise reflection

on teaching entails questioning the merit and functional relevance of teaching and is what Kreber and Cranton referred to as *curricular knowledge*. Questions that might be asked include, "Why do we teach the way we teach?" "Why do we teach what we teach?" "How does my course fit into the goals of the program?" "How does this course contribute to my students' knowledge?" As faculty construct knowledge in each of the teaching domains through reflection, the faculty member critically examines the goals and purposes of higher education.

Within each domain of teaching knowledge (instructional, pedagogical, and curricular) faculty members may reflect on their practice. The three knowledge areas and three forms of reflection (reflection on the what, the how, and the why) create the nine components of the Scholarship of Teaching model represented in a three by three matrix. This matrix is displayed in Table 1. The nine elements of the model suggest nine different ways individual faculty can learn from their experiences with the scholarship of teaching and learning. Kreber and Cranton argued knowledge in each of the three areas can be demonstrated by concrete indicators. These concrete indicators of new knowledge developed through SoTL allows for more effective and informed faculty evaluation.

Through reflection on a classroom research project, their overall classroom experiences, and their underlying assumptions about their teaching, their students, and their students' learning, it was expected that SoTL faculty would change their meaning structures by developing new instructional, pedagogical, and curricular knowledge. It was also anticipated that faculty would make sense of their classroom experience and gain enhanced comprehension and knowledge about their teaching and the learning of their diverse students, and they would demonstrate their new knowledge through concrete indicators.

Methodology

This study used a multiple case study approach where 13 community college professors from different community colleges around the country. The professors participated in the Carnegie Academy for the Scholarship of Teaching and Learning (CASTL) program between 2000 and 2009 and were the unit of analysis. The CASTL program was launched by the Carnegie Foundation for the Advancement of Teaching and was a significant contribution to the development of SoTL at the national level. The CASTL program provided faculty from a broad range of higher education institutions structure, resources, accountability, and support to carry out a classroom research project. Carnegie Foundation staff and other SoTL experts were consulted to identify community college campuses recognized as having a long standing involvement with SoTL, having an infrastructure to support SoTL that required sustained involvement by faculty for at least a year, and

Table 1. The nine elements of Kreber and Cranton (2000) Scholarship of Teaching Model.

	Instructional knowledge (instructional techniques)	Pedagogical knowledge (how people learn)	Curricular knowledge (goals & purposes of higher education)
Reflection on *The What*	Articulating what one knows about the instructional strategies one uses; e.g., What should be included in my course? What materials should I use?	Articulating what one knows about how students learn; e.g., What do I know about how students learn? What should I do to best facilitate learning?	Articulating goals; e.g., What do I know about the goals for my course?
Reflection on *The How*	Regularly collecting feedback from students on how well they liked the approach used; e.g., How did I do? Were my materials effective?	Collecting data from students on how well they are learning; e.g., Am I successful in facilitating learning?	Discussing goals with colleagues; e.g., How did I arrive at the goals for my course?
Reflection on *The Why*	Experimenting with different instructional strategies and keeping track of the results; e.g., Why does it matter how I design my course?	Experimenting with different instructional strategies, keeping track of how well they help students learn, and making changes if results so suggest; e.g., Why does it matter if I consider how students learn?	Aligning curricular goals with needs of employers; e.g., Why do our goals matter?

being known in the SoTL community. These conditions were necessary to ensure the faculty members selected to participate in this study had a significant SoTL experience.

After approval from appropriate Institutional Review Boards, data were collected using a two-interview, semistructured interview protocol and document analysis. Interview questions were adapted, with permission, from a protocol developed by Kreber (2005). The first interview was approximately 30 minutes and focused on developing a clear understanding of the participant's SoTL experience. The first interview was followed by a second 90-minute interview. There, further details on the SoTL experience were explored and the subject reflected on the meaning of the experience in terms of knowledge developed and if sensemaking and transformative learning occurred. Twelve professors participated in the interviews, which were conducted between May 2009 and October 2010, resulting in 24 interviews. Sixty-nine documents were collected from 13 participants and analyzed. Documents included SoTL applications, reports and products, journal articles, presentations, publications, and curriculum vitae. For the faculty member who declined to be interviewed, the data gathered from extensive documentation that outlined a multiyear SoTL project offset the loss of insight that would have been gathered from the research questions.

The faculty represented a range of disciplines. Seven of the faculty were male and six were female. Six had doctoral degrees and the remaining had earned master's degrees. On average, the participants had been teaching full-time at a community college for 20 years with a range of 4–37 years.

All data were managed and analyzed using NVivo software. Analysis began with descriptive coding (Richards, 2005) by examining the characteristics of the study participants. The second level of analysis involved topic coding (Richards, 2005) by dividing the data into three areas for analysis based on the study's research questions and conceptual framework. Topic codes were revised during the coding process, and data were recoded as new topics emerged. The last round of coding consisted of pattern coding (Miles & Huberman, 1994) which involved reviewing the topic codes and searching for more detailed categories rising from the conceptual framework as well as patterns emerging from the data.

Findings

The SoTL experience provided an oasis of time and space amidst faculty's daunting workloads to think about teaching and learning. Conducting classroom inquiry provided an opportunity to think, reflect, and improve upon their teaching. Specifically, faculty engaged in SoTL to investigate a teaching and learning problem they encountered in the classroom. For each of the faculty, the SoTL experience involved examining a disorienting dilemma presented to them in their classroom, making sense of their classroom experience, classroom-based inquiry through a SoTL project, and developing teaching and learning knowledge resulting in changes to their pedagogy. All of the disorienting dilemmas and teaching and learning problems centered on issues of student learning. These problems—how to get students to become more thoughtful readers or how to get students to incorporate evidence into their thinking, for example—are teaching and learning problems experienced by many faculty across the country.

For example, one faculty member wrestled with the idea of having to teach students how to read complex texts. According to his original frame of reference, he wasn't supposed to have to teach reading to college students. This was his disorienting dilemma. This frame of reference was in conflict with the reality of the classroom where students were experiencing difficulty reading complicated texts. This was the aspect of the classroom environment this faculty member bracketed. Participation in a Carnegie SoTL program gave him the opportunity to conduct systematic inquiry into this dilemma. He aimed to understand how students were reading and how could he structure his course to help students become more thoughtful readers. The new knowledge resulting from his SoTL project was a taxonomy of how students read complicated texts in the particular genre of literature he was using in his course. As a result of this SoTL experience, this professor now regularly uses a reading journal assignment that reveals students' understandings of complicated texts and

their ability to conduct critical analysis. He believes his students have an increased level of clarity when they talk about the reading. He also discovered that silence can be a valid response to reading the course texts.

The first research question explored what knowledge, if any, community college faculty develop about instruction, pedagogy and goals and purposes of higher education. The knowledge faculty developed aligned with the knowledge domains of Kreber & Cranton's (2000) Scholarship of Teaching Model. The professors in this study strongly demonstrated reflection on instructional, pedagogical, and curricular knowledge. Faculty in the study reflected on: (a) what they know about instruction and how they know they have been effective in the classroom (reflection on instructional knowledge); (b) how students learn, how they know they are effective in facilitating learning, and why it matters that they consider how students learn (reflection on pedagogical knowledge); and (c) what they know about the goals and purposes of higher education and how those goals and purposes were derived for their courses and programs (reflection on curricular knowledge). Reflection on why it matters what instructional methods are used (the why of instructional knowledge) was demonstrated by 58% of study participants. Why the goals and purposes of the curriculum matter (the why of curricular knowledge) were demonstrated by only 8% of the study participants. Seventy-five to 100% of the faculty demonstrated reflection on *the what* and *the how* of their teaching. Reflection on *the why* of their pedagogy was less prevalent. Table 2 displays the number of coded references and percentages of participants demonstrating the nine elements of Kreber and Cranton's SoT Model.

Table 3 provides evidence of concrete indicators of the nine elements of the SoT model. In Kreber's (2005) study of science instructors' reflection on their teaching, she found faculty would say they reflected on their teaching but not always provide concrete indicators that they actually reflected. In this study, the faculty spoke or wrote of reflection on numerous occasions. All faculty in this study demonstrated concrete evidence of reflection in at least one, and usually more, of the nine elements of the SoT model.

The second research question addressed how and why SoTL influences changes in professors' teaching practice, if at all. All faculty interviewed for this study spoke of changes in their actions in the classroom and in their interpretations of their teaching and their students' learning. Half of the faculty interviewed also spoke of changes in their assumptions (this does not mean only half of the participants changed their assumptions, just that half spoke of change).

Each faculty member took what they learned through their SoTL project and changed their teaching practice. The faculty interviewed spoke of making changes to their pedagogy as a result of their SoTL projects. They easily described how they applied their new knowledge in their classrooms. This supports other studies' findings that community college faculty who engage in SoTL change their pedagogy (Douglas, 2008) and that university faculty who engage in SoTL take pedagogical risks to deepen student learning (Willingham-McLain, 2015). Some participants dramatically changed how they taught their courses as a result of their SoTL projects. One professor, for example, completely redesigned his introductory course to include an intentional focus on basic skills needed in the profession. Another professor incorporated documentation of student learning into his

Table 2. Number of coded references and percentage of participants demonstrating the nine elements of Kreber and Cranton (2000) Scholarship of Teaching Model.

	Instructional knowledge (instructional techniques)	Pedagogical knowledge (how people learn)	Curricular knowledge (goals & purposes of higher education)
Reflection on *The What*	129 references 100% participants	81 references 85% participants	42 references 100% participants
Reflection on *The How*	17 references 75% participants	285 references 100% participants	22 references 75% participants
Reflection on *The Why*	16 references 58% participants	26 references 92% participants	2 references 8% participants

Table 3. Evidence of concrete indicators of the nine elements of the SoT model (Kreber, 2005; Kreber & Cranton, 2000).

	Instructional knowledge (instructional techniques)	Pedagogical knowledge (how people learn)	Curricular knowledge (goals & purposes of higher education)
Reflection on *The What*	*Articulating what one knows about the instructional strategies one uses* "We would do seminar once a week for about an hour to an hour and 15 minutes out of a regular class week. And we'd have it every time at the same time so it's basically you're designating the class schedule as part of this process. So the students knew what to expect and knew how to prepare and they had to write a one page or so response to the text that they can use as material to bring to the seminar discussion."	*Articulating what one knows about how students learn* "It's made me do a lot more work on trying to begin with helping students identify what their initial understanding of an issue is, to link into that, to do something in class that really then contests that understanding and then to do some reflection afterwards."	*Articulating goals* "Well, we have institutional learning objectives that are related to some of the skill goals, but I think our college in general is very much about supporting student success and building student confidence, helping them to get the skills they need to be successful college students and learners. That environment pervades the college, I think."
Reflection on *The How*	*Regularly collecting feedback from students on how well they liked the approach used* "I've always been interested in student feedback so I've always had my little evaluation type thing that I was doing by myself. I would put a list of everything they had done and ask students to rate them and ask them why they liked it or they didn't like it. And then if there was a majority of an exercise or activity that they didn't like then I'd kind of rethink it or not use it the following semester."	*Collecting data from students on how well students are learning* "I started this phase [of the SoTL project] with a review of the literature on how experts and novices approach problem solving in general and specifically in [discipline]. Next, … I investigated how experts and novices approached problem solving tasks and how they proceeded to solve problems."	*Discussing goals with colleagues* "Because … the department decides whether these are the goals that we should be focusing on, and when we put objectives on a syllabus is this exactly what we want. What kind of message are we sending the students by putting these particular objectives? Do we want to reflect, rethink these, are we giving the wrong message? As an example, at one point we had a lot of grammar as grammar rules, as things that would reflect rules on the objectives. And we decided that we would sort of make a general statement about grammar but not identify them step by step, because it was giving students the message that that was too important."
Reflection on *The Why*	*Experimenting with different instructional strategies and keeping track of the results* Survey results— "90% retention rate—44 students at start/40 students remained at end of course. In post-survey results, all said they understood that their grading destiny was in their hands—in their control—and they had the responsibility to do well, or not. The grading system was looked to as a positive, motivating influence by all students except two…"	*Experimenting with different instructional strategies, keeping track of how well they help students learn, and making changes if results so suggest* SoTL project on interdisciplinary learning— "I think the big difference is they take control of their own learning and more often than not, deep learning occurs… it's interesting to me to see how individual students articulate new knowledge or new understanding. And to be able to capture it, represent it, feed it back to the students, then have them use that to build on—it's just—I can't tell you what a great pedagogy it is… students who came in almost kind of dull in terms of critical thinking and that, only superficial reading of the text and barely probing in their writing have totally transformed. The growth has been incredible in those students."	*Aligning curricular goals with needs of employers* "Because in [discipline], it is so important. I worked in [discipline], I worked in a lot of other things and I've seen really good cases go out right the window because somebody couldn't write a report."

pedagogy. Other faculty received validation that the pedagogical strategies they were already using in the classroom were effective.

Other examples of how faculty in this study changed their pedagogy included paying more attention to certain aspects of students' learning (such as reading), attempting to make student learning more visible, examining the skills required in assignments and then intentionally scaffolding those skills into the course, and moving from summative assessment to more formative assessment. One faculty member talked about taking into consideration the knowledge students bring to a course, an approach considered learner-centered in the literature (Bransford, Brown, Cocking, Donovan, & Pellegrino, 2000).

> It's made me do a lot more work on trying to begin with helping students identify what their initial understanding of an issue is, to link into that, to do something in class that really then contests that understanding and then to do some reflection afterwards.

As a result of new knowledge generated from SoTL projects, the professors in this study changed their interpretations of their teaching and their students' learning. Some faculty gained confidence in trying new things in the classroom, and others were validated that their pedagogical approaches work. One professor became more comfortable in the role of learner with his students as a result of his analysis of how students felt about being in a learning community. Some faculty realized they cannot assume one way of teaching is effective for all students. All faculty demonstrated in interviews and/or in their SoTL documents that their SoTL projects resulted in new explanations of the teaching and learning dynamics in their classrooms.

Half of the professors interviewed for this study indicated changes in their assumptions. These professors assumed that their students knew how to read, assumed that students read very little of the material or not at all, assumed that if students didn't respond to the reading it was because they didn't read it, assumed that if lectures were clear then students would understand the content, assumed that students tackled the big issues in small group discussions, and assumed that all learning styles were being addressed in their presentations of material. In all of these instances, their assumptions were proven to be incorrect by the results of their SoTL projects. All students didn't know how to read academic texts. Some students read the material but were unable to verbalize their reactions. Not all students understood brilliantly delivered lectures, and students often struggled with the mechanics of a concept rather than the bigger issues in small group work. These assumptions were directly related to the professors' disorienting dilemmas where they experienced a disconnect between what they believed was happening in their classrooms and what they observed as they taught. Their classroom research allowed them the opportunity to examine these dilemmas, discover new knowledge about their pedagogy and their students' learning, and innovate in the classroom.

The findings of this study led to the development of a Model of SoTL at the Community College that shapes our understanding of the community college professor's experience of SoTL and the impact it has on teaching.

Discussion

The resulting Model of SoTL at the Community College (Figure 1) is based on the conceptual framework described above and the findings from the study. The model demonstrates the sense-making and transformative learning process faculty experienced during their classroom inquiry. It acknowledges the shifting conditions of the community college environment that includes demands for accountability, competing missions, and limited resources, among many other challenges. Engaging in SoTL meant faculty wrestled with a disorienting dilemma that they faced in the classroom. They then bracketed, or isolated, an aspect of the classroom environment to identify a teaching and learning problem to explore. All of the disorienting dilemmas and teaching and learning problems focused on an aspect of student learning. Faculty then explored these teaching

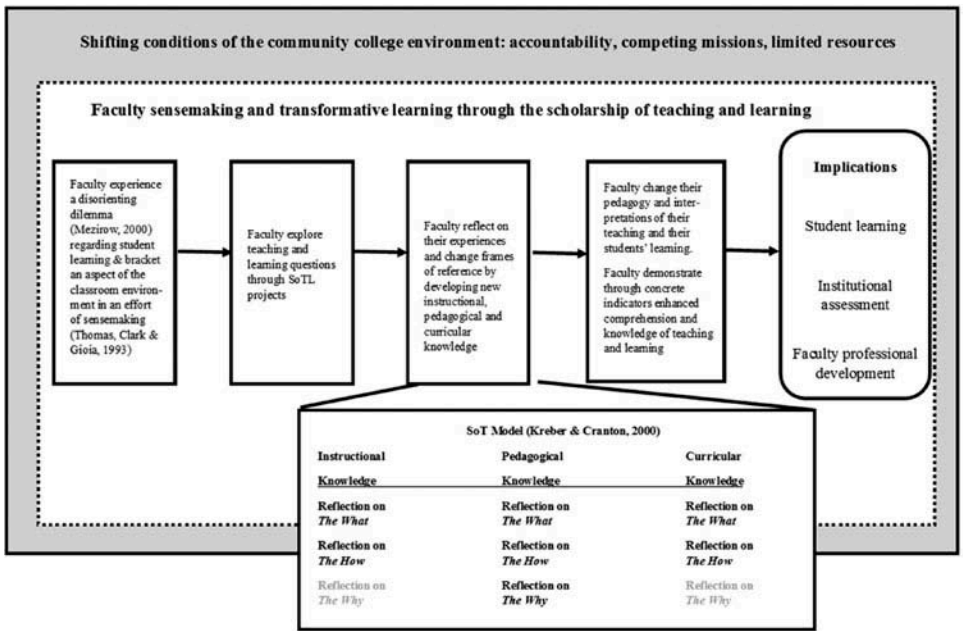

Figure 1. Model of SoTL at the Community College.

and learning questions through SoTL projects. Faculty members changed their ways of thinking about teaching and learning by developing knowledge of instruction, pedagogy and the goals and purposes of higher education. Faculty demonstrated reflection on all three of Kreber and Cranton (2000) domains of knowledge with different levels of reflection on the what, the how and the why with an emphasis on the what and the how. Overall, faculty demonstrated a narrow focus on their students. What this study does not address is whether reflection on the why of instructional and curricular knowledge is occurring but is not articulated or if the professors' hyper focus on students is a barrier to articulating this level of reflection.

Evidence of reflection on why it matters to consider the teaching strategies they use was demonstrated by slightly more than half of participants who were interviewed. Reflection on why it matters to faculty that they consider how students learn was demonstrated by almost all of the participants who were interviewed for this study. Based on these results, faculty who wrestle with a disorienting classroom dilemma and investigate it through classroom inquiry may have more of a propensity to think about why it matters to consider their instructional strategies and why it matters to think about how students learn more than the overall goals and purposes of higher education.

These instructors' knowledge of instruction, pedagogy, and larger curricular issues is in sharp contrast to the faculty studied by Grubb et al. (1999) who could not articulate knowledge of pedagogy. While it is unlikely the faculty developed knowledge solely through their SoTL project, evidence of reflection on these areas of knowledge indicate a propensity to think deeply about issues of teaching and learning.

All of the faculty who interviewed changed their actions in the classroom and changed their interpretations of their teaching and their students' learning. Analysis of the data revealed a consistent pattern of faculty changing their practice based on knowledge they developed through their SoTL project. These faculty collected data, developed new knowledge and innovated in their classroom. The implications of faculty sensemaking and transformative learning through SoTL are related to the advancement of student learning, the enhancement of institutional assessment, and the elevation of faculty professional development.

The criticisms of community colleges giving lip service to teaching and faculty development were supported by faculty who indicated the SoTL groups were an oasis of opportunity to talk about teaching and learning. The CASTL structure included embedded support as well as mechanisms for accountability and access to resources. The fact that the professional development these SoTL groups provided was exceptional and not the norm supports the argument that community colleges are weak in supporting the teaching and learning process.

In institutions where faculty have a narrow focus on students and are working within a somewhat flexible work environment with a bent towards the practical, the idea of scholarship was met with the expectation that the experience would enhance teaching and learning. In other words, faculty did not pursue scholarship with the goal of developing a career-focused research agenda; rather, they engaged in classroom inquiry to address a teaching and learning dilemma they were faced with in the classroom. Faculty engaged in inquiry to generate data about their pedagogy in order to spark innovation in their teaching.

The professors in this study moved beyond their typical community college faculty role of relating knowledge to students. Through their scholarship, they created knowledge about community college teaching. Teachers taking on the role of learners and engaging in lifelong learning in their practice shifts our thinking of community college faculty from consumers of knowledge to producers of knowledge. Hutchings, Huber, and Ciccone (2011) proclaim SoTL offers a

> developmental trajectory for faculty in their role as teachers: one that includes attention to emerging pedagogies and serious work on curriculum and assessment, but which also means continuing to develop as a learner. . . . More important, perhaps, organizing faculty development in this way sends the message that learning in higher education is not just for students (p. 65).

Integrating the roles of learner and classroom researcher into the community college faculty's professional identity has the potential for improving the faculty's capacity to advance the teaching, learning, and assessment occurring at the community college.

The Model of SoTL at the Community College captures the sensemaking and transformative learning experience and the changes in practice that professors experienced through the scholarship of teaching and learning within the context of the community college. The implications of this model are considered next.

Implications

This study was confined to community college faculty who engaged in SoTL through participation in a CASTL program. Focusing on community college faculty may prevent generalization to how faculty experience SoTL at baccalaureate colleges and universities. While each campus-based CASTL program is different, participation in a CASTL program provides a basic level of understanding of the parameters in which faculty members experienced SoTL. Despite these limitations, there is still much to learn from this group of faculty who problematized a disorienting dilemma in their teaching and developed new knowledge and understanding as a result.

Implications for Professional Development

The scholarship of teaching and learning as an approach to professional development is by far more sophisticated and purposeful than the typical trial-and-error method (Sperling, 2003). Engaging in the thinking and reflective work of SoTL produced gains in faculty learning about their pedagogy and their students' learning. SoTL is a substantive, worthwhile professional development endeavor for faculty in that has the three main tenets of what Hutchings (2008) considers important—sustained over time, encourages sharing among faculty, and results in evidence of student learning.

In this study, individual faculty pursued a classroom research question particularistic to their own course. This approach can be resource heavy for resource poor institutions such as community colleges. To the extent possible, community colleges should support professors who are interested in pursuing specific areas of interest through SoTL, especially for faculty with previous research experience who may not need extensive support in carrying out inquiry. For the community college administrators scratching their heads trying to find stipends or reassigned time for faculty interested in pursuing this work, collaborative SoTL projects conducted by groups of faculty may be a cost-effective solution. Community college faculty, who usually don't have research experience or expertise, are not required to conduct research to earn tenure and have heavy teaching loads, may benefit more from a group-led inquiry than one conducted individually. This idea of collaborative classroom inquiry is supported by professional development research indicating the importance of interaction among faculty (Woodhouse, 2010).

Collaborative SoTL projects also address one of the tensions addressed by Hutchings et al. (2011) between individual faculty priorities and those of their institutions. Whereas faculty's need to grow as scholarly teachers does not appear to be out of synch with institutional priorities, community college administrators are faced with the predicament of using their limited resources on the larger issues of accountability for student learning and achievement. SoTL can ease these pressures by providing faculty with an avenue to pursue scholarly inquiry while providing community college leaders with evidence of practices and results specific to their institutions' needs. Bailey et al. (2015) proposed taking collaborative inquiry a step further to not only develop solutions to teaching and learning challenges, but to create fundamental changes in how community colleges structure their academic programs and student support services.

Community colleges could identify cohorts of faculty to engage in SoTL within communities of practice. For instance, new faculty and faculty teaching developmental courses are two groups of professors who could benefit from the support of their peers and experience gains from a collective inquiry into teaching and learning issues. Community college faculty do not enter the profession from one clear pathway. They are not socialized through graduate programs like PhD candidates (Levin, 2013). If their socialization is complex and inconsistent (and nonexistent for part-time faculty), then community colleges must create the socialization for them. Communities of practice can orient professors with minimal experience to engage in collective inquiry to address the disorienting dilemmas they face in the classroom; thus, this socializes them to transform their teaching and their students' learning through reflection and action.

Community colleges that do not yet have a center for pedagogical development should consider dedicating resources to ensuring professors at all levels of career development and their part-time instructor colleagues have the training and support to maximize their effectiveness in the classroom (Ochoa, 2011); contribute to the improvement of student learning; and promote collaborative inquiry and pedagogical innovation (Bailey et al., 2015). Providing dedicated support and recognition to the pedagogical development of faculty sends a clear message that quality instruction is valued, an important message for institutions dedicated to teaching.

The professors' hyper focus on their students and pedagogy balanced by a lack of attention to the underlying premise of why their instructional strategies and the goals and purposes of higher education matter may resonate with academic leaders. Charged with translating the meaning of external pressures, such as funding and accountability, to the college community, academic deans and vice presidents must be poised to both recognize and support the faculty's narrow concentration on their students and harness it to create meaningful change.

Implications for Advancing Student Learning

The increased knowledge of student learning generated through SoTL helps faculty to manage the increasing complexity of teaching and learning as well as create frameworks for understanding teaching and learning problems in meaningful ways. For instance, two professors in this study

generated taxonomies of how students learned their course content. One faculty member discovered when students read a particular genre of literature their responses could be categorized, and some of the categories that emerged from the data analysis surprised him. Another professor created a taxonomy of learning outcomes, behaviors, and attitudes related to the students' developing knowledge of the course content. These professors were addressing the complexity of their classroom experience (i.e., the disorienting dilemmas) and created frameworks to understand their students' learning based on evidence from the classroom. The taxonomies that were created as a result of these SoTL projects can be shared in the emerging teaching commons to help us understand and assess how students learn these subjects and how to further advance their learning. The professors' taxonomies can be viewed as tools that can help educators understand how students learn specific disciplinary content.

As campuses wrestle with how to act on quantitative student performance data, SoTL can provide qualitative data on teaching and learning that can supplement quantitative data available from standardized measures. For institutional and state-level policy makers, providing community college faculty with the flexibility and the time necessary for reflective practice and to dig deeper into teaching and learning challenges is key to harnessing its potential to advance student learning and educational achievement. While reducing the workload of community college professors would not be cost-effective, efficient, or realistic, considerations of policies and programs at the state and institutional levels that allow faculty to step out of the din of teaching five courses a semester and think, reflect and conduct inquiry could open up new paths to deeper understanding of how to improve teaching and learning.

Implications for Institutional Assessment of Student Learning

In this study, participants' emphasis on using evidence in making pedagogical decisions was striking. SoTL promotes the idea that educational decisions should be evidence-based and brings "a new attention to data as a key to improvement" (Hutchings Huber, & Ciccone, 2011, p. 75). SoTL is not the only initiative to drive the point home about the benefits of evidence-based practice and decision making, but it is an important contributor. The knowledge and frameworks generated from classroom inquiry can help community colleges assess their effectiveness at the institutional and program level as well as aid faculty in understanding student learning at the individual course level. According to Hutchings et al. (2011):

> teaching has had pitifully few mechanisms to improve itself. What's needed is a set of practices that have traditionally been missing, and that the scholarship of teaching and learning is now bringing much more widely into play: habits of inquiry, analysis, exchange, and knowledge building that can be harnessed to campus agendas for improvement and woven into the institutional fabric in ways that make a difference for teachers and learning (p.41).

The scholarship of teaching and learning can assist in bringing a greater focus on the results of assessment of student learning. Assessment efforts have been criticized for having too much emphasis on the process rather than a focus on what to do with the evidence of student learning for improvement (Kuh et al., 2015). Collaborative inquiry can be a critical strategy for faculty for designing assessments that measure student learning outcomes and thinking through how to use the results to improve instruction (Bailey et al., 2015). SoTL produces data that is the kind of actionable, embedded, meaningful evidence shaped by professors' classroom dilemmas that is needed for the assessment of student learning that institutions need to improve outcomes and meet external demands for accountability.

Implications for Future Research

The findings of this study lead to interesting questions that can be further explored in future research. The methodology used in this study relied on faculty reflecting retrospectively on their SoTL experience and what they learned from it. A study that looked at the impact of a SoTL experience using a pre- and postsurvey or interview would put a clearer spotlight on the changes faculty experience at the conclusion of the classroom inquiry because the data would be from real-time and not the faculty member's retrospective description.

What actually occurs during the learning process when a faculty member engages in SoTL? A study that documents the metacognition of a professor conducting classroom inquiry would reveal the learning process faculty go through and demonstrate how assumptions and understandings of student learning are changed over time. Particular attention to the faculty member's reflection would reveal important insights regarding the relationship between SoTL and faculty reflection. Additionally, if the faculty member was new to SoTL and had not previously self-selected to be involved in SoTL at his/her institution, the findings may address the self-selection effect most likely influencing the findings of this study.

The model of SoTL at the community college is based on data collection from 13 faculty. This model needs to be tested with additional studies of SoTL faculty from other community colleges with different types of SoTL experiences. It could also be applied to SoTL faculty at baccalaureate colleges to test its relevancy to faculty from other segments of higher education.

The participants in this study taught full-time at community colleges. How can community colleges bring this valuable professional development experience to the vast number of part-time instructors at these institutions? For part-time faculty who participate in SoTL, what is the influence of this experience on them? Is the influence different? A study of part-time SoTL faculty could equip community college leaders with additional tools for influencing the teaching and learning process at their institutions.

Douglas (2008) found community college SoTL faculty as changing their pedagogy in one of three ways (revising teaching strategies, revising course content, and regularly collecting or incorporating student data into their decision making). This study found that regardless of the level of rigor of their SoTL project, each faculty member changed their pedagogy. Does self-selection for participation in SoTL indicate a propensity for continuous improvement? Do SoTL faculty teach differently than non-SoTL faculty? High-impact educational practices (Kuh, 2008) are practices that have been widely tested and have shown to be effective and benefit students. A study that goes beyond self-report and looks at the teaching practices of SoTL faculty to examine the presence of high impact practices would make connections between the knowledge faculty gain through SoTL and their actual practices in the classroom.

Conclusion

Imagine a community college of the future where faculty are widely sought out experts in teaching diverse students and their classroom research data are a main tenet of institutional reform and accountability efforts. This reimagination of the future does not comprise of new resources, but rather a new way for institutions and their faculties to think about approaches to discovering effective methods in meeting diverse students' learning needs. Problematizing and conducting research on teaching and learning questions through the scholarship and teaching and learning is one of many strategies to help community colleges with this reimagination and address the one area colleges and the faculty have some level of control over—teaching and learning.

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