BUILDING Teaching and Learning Communities

Creating Shared Meaning and Purpose

EDITED BY

Craig Gibson and Sharon Mader

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Library of Congress Control Number:2019952184

Printed in the United States of America.

1 2 3 4 5 23 22 21 20 19

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Acknowledgements

We want to express our profound appreciation to the contributors to this volume, who have given generously of their time and expertise, sharing insights and lessons for building teaching and learning communities. We invited them to participate because of their standing as experts in higher education teaching and learning who have inspired us with their work and example, just as we know they will inspire our readers.

We also wish to thank Erin Nevius, ACRL Content Strategist, whose unfailing support and responsiveness throughout the publication process made this a much easier journey. We send particular thanks to Margy MacMillan, our foreword author, who also served as a tireless "unofficial" editor. Her wise insights and vision for teaching and learning illuminated our way and made a great positive impact.

And of course we would like to thank our spouses for their patience as we worked on this project. Lori continued to engage Craig in conversations about teaching and learning communities (of which she is a part at her institution) for the entirety of the project, and Rick provided constant encouragement to Sharon, along with a counterpoint perspective from his corporate world.

Finally, we recognize our unique experience together of sharing a vision with a colleague and watching it develop and evolve throughout a rewarding collaboration that has resulted in this collected volume.

Foreword

I have been extraordinarily lucky to work closely with educational developers for most of my career, and I have always been struck by the similarities in the space we occupy in the academic enterprise. We both inhabit the space where the boundaries between disciplines are at their most permeable. We both use our expertise to work with faculty to introduce students to their own disciplines' ways of thinking and knowing, not to our own disciplines of librarianship and educational development. We both have developed a facility for asking the questions that allow us to understand another's disciplinary thinking and, from our own liminal perspective, to translate those concepts so that they may be understood by novices and outsiders, whether those are students or fellow participants in a faculty learning community.

But even with all this common ground, there has been relatively little shared conversation. This became obvious to me during the introduction of the ACRL *Framework for Information Literacy for Higher Education*. In many of the discussions, librarians appeared surprised by threshold concepts and unaware of their long history in educational development circles. Similarly, much of the work on assessment of information literacy appears independent of parallel work from educational developers. The introduction of the *Framework* has been an impetus for many of us to learn new things, and in this learning we need to look beyond the library and connect to larger conversations as learners and teachers. Educational developers and librarians have much to learn from each other, and this book is a giant leap in the right direction.

The authors are international leaders in educational development, whether or not that phrase is part of their current position description. Some have formal roles within teaching and learning centres, while others drive change in their disciplines or through large organizations. The chapters they contributed to this book provide everything from road maps for changing institutional cultures to examples of particular strategies in particular contexts that may be easily adapted to our teaching. The book is effervescent with potential to transform our work in everything from our relations with students to our role in developing teaching cultures on campus. There are insights into general topics like the need to restructure reward systems and very particular considerations of teaching. The questions sparked are deep—"What is our signature pedagogy?" could be the focus of a book on its own—and each could be the nucleus of a faculty learning community either at the library level or more usefully with others in the institution.

As I was reading the book, the word that kept coming to mind was *belonging*. This is another area where there is some commonality between librarians and those involved in educational development. At many colleges and universities, we both don't quite fit the structure of the institution. In some places neither of us are quite the same as other faculty in terms of professional expectations, support, remuneration, or visibility; our work doesn't look quite the same as that of "regular" faculty. Sometimes there is an undertone of "outsiderness," of wanting to belong. This may be what makes us most effective because we can empathize more deeply with students who work their way into belonging—in higher

education, in a discipline, in a peer group. Faculty learning communities, communities of practice, collaborations, conferences are all ways that we can belong more as learners. Students as Partners, Decoding the Disciplines, and Signature Pedagogies are all part of helping students feel that sense of belonging more deeply, of becoming more active participants in their academic communities.

I have recently moved to a city where gardening is taken *very* seriously, in part because the climate supports growth and in part because there is a latent expectation that if you live here you will contribute to the community by, at the very least, having an interesting front yard. Getting to know the neighbours has often resulted from a brief pause to admire a spectacular rhododendron or a carefully composed rockery; questions are met with generous advice and occasionally cuttings or promises of seeds. Although neighbourhood walks frequently take the same route, each time the gardens look a little different and each time I see something different in them, depending on where I am in my own planning.

For me this book provokes a similar feeling. The authors, all experts in their fields, are providing us with a look into their gardens. On some visits we may be looking for particular tips, on others for ways of setting up conditions for growing, and sometimes we may just be craving the inspiration that may come from contemplating someone else's approach to a common situation. This is a book for returning to frequently under varying needs and conditions. It is a collection of "over the fence" conversations that may lead to similarly generative discussions with colleagues involved in educational development closer to home.

It is also a book that opens up pathways for librarians to contribute to wider academic discussions around learning and teaching. As I read the chapters, I saw not only where I could apply the approaches in my own work, but also where my expertise as a librarian could enrich the approaches for others. The work provides interesting glimpses as to how librarians are perceived by leaders in educational development and shows that there is ample room for us in these communities of learning and practice. Roxå, Mårtensson, and Alveteg write about the need for cluster-to-cluster communication to leverage communities of practice to change teaching culture.[1] Librarians are ideal participants in this endeavour, not only because we are adept at translating between other academic cultures, but also because we have expertise in teaching and learning to contribute. Often, we see a wider range of learners than others, we see different learning bottlenecks, and we see patterns across groups of learners that others can't. Our participation in educational development initiatives creates opportunities to change teaching culture not only in the library, but also through our interactions with others on campus, across the institution.

This book is an entry point into some of the most interesting conversations in higher education. It is an example of active learning with text, proposing questions and challenging assumptions, providing examples from parallel situations and inviting us to make them our own. Engaging with the ideas proposed by the authors may transform your thinking about learning and teaching and your teaching about thinking and learning. Enjoy!

—Margy MacMillan

Note

1. Torgny Roxå, Katarina Mårtensson, and Mattias Alveteg, "Understanding and Influencing Teaching and Learning Cultures at University: A Network Approach," *Higher Education* 62, no. 1 (July 2011): 99–111, https://doi.org/10.1007/s10734-010-9368-9.

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Introduction

The role of librarians in teaching and learning has been reexamined and reinvigorated by the introduction of the ACRL *Framework for Information Literacy for Higher Education*, which offers a conceptual approach and theoretical foundations that are new and challenging. As we become more involved with the *Framework*, we are inspired to learn more about pedagogical theories and practices, and the list is long, including topics such as threshold concepts and stuck places; the Scholarship of Teaching and Learning (SoTL); disciplinary approaches to pedagogy; the role of signature pedagogies; inclusion of student voices; metaliteracy; reflective practice; affective, behavioral, and cognitive aspects of learning; liminal spaces; and faculty as learners.

Apart from the various philosophical and theoretical discussions about the *Framework*, much of the initial work around the *Framework* has addressed the call from librarians for instructional materials to adapt for immediate practical classroom needs and for learning how to teach in new ways. These efforts have been valuable, but they have been largely by and for librarians. How can we learn more to better prepare ourselves as teachers and also to answer the call of the *Framework* for us to pursue the essential role of conversation and collaboration with faculty and students?

To expand our capacity as educators, we realized that we need to look outside the library community to learn about pedagogical innovations and join the broader discussions about teaching and learning in higher education. This has been the impetus of this collected volume, which goes beyond the library profession for inspiration and insights by inviting leading experts in higher education pedagogy and educational development across North America to open a window on the wider world of teaching and learning. In this unique collection, we have asked each of the authors to address this question: *What do we as educators need to learn (or unlearn) and experience so we can create teaching and learning communities across disciplines and learning levels based on shared meaning and purpose?*

We find that we are not alone in asking such questions. There is an increased focus on improving teaching and learning across higher education. A new focus on improved pedagogical practice means a new focus on faculty and professional development and the creation and sustainability of a culture of teaching and learning on campuses.

One of the most effective ways to improve pedagogical practice is through teaching and learning communities. Teaching and learning communities are communities of practice in which a group of faculty and staff from across disciplines come together voluntarily and regularly to discuss topics of common interest and to learn together how to enhance teaching and learning. Since these teaching and learning communities can bring together members who might not have otherwise interacted, new synergies can arise. Teaching and learning communities can take many forms to suit many purposes. Faculty learning communities (FLCs), pioneered by Milton Cox at Miami University in the 1970s, are a particular kind of community of practice, which he defines as "a cross-disciplinary faculty and staff group of six to fifteen members…who engage in an active, collaborative, year-long program with a curriculum about enhancing teaching and learning."[1] As agents of

individual and organizational development, teaching and learning communities use the strength of a collaborative approach not only to improve individual performance but also to sustain and scale change at the institutional level.[2]

Librarians have always been dedicated to creating and using professional development, but we can expand our capacity and offer contributions by participating in these larger institutional efforts to improve teaching and learning. Through that alignment, we can structurally and strategically redefine the role and recognition of librarians as educators.

Librarians can also benefit from an expanding definition of faculty development. The Professional and Organizational Development (POD) Network states that the term *educational development* is now preferred, as it represents the breadth of this endeavor, including the levels (individual, program, and institutional) and the range of participants (teaching faculty, librarians, educational technologists, administrators, students).[3]

Teaching and learning centers have been established in many colleges and universities to support the formal implementation of teaching and learning communities, and librarians have much to gain, as well as much to offer, in becoming involved in these endeavors. In a recent large-scale study of the evolution and current state of faculty development, the broader definition of faculty development to meet individual and institutional needs was reinforced as "everyone's work." The authors concluded that "faculty development communities might include not only teaching center staff but also librarians, information technologists, and professionals in assessment and student affairs."[4] This study also provided data on collaboration with and services offered by other campus units. Libraries rank third, after technology centers and deans, assistant deans, and associate deans in colleges. However, it is noted that this level of collaboration with libraries is less extensive than expected. How can we join this institutional-level work?

The most recent revision of the ACRL standard on the role of instruction librarians includes a language shift from "instruction librarian" to "teaching librarian" to reflect a broader and more participatory approach "which is indicative of the importance of teaching and the broader educational goals held by librarians."[5] If we take advantage of the broader definition of partners in educational development, we can make progress in realizing recognition and reality for this redefined role as educators. We can also impact the creation of a campus culture of teaching and learning by insuring a critical mass of librarians participating in teaching and learning community initiatives and collaborations.

Lessons from the Chapters

To guide us along this path, let us consider what we can learn from our contributors about pedagogical theory and practice and creating and contributing to teaching and learning communities.

The first chapter, "Building a Culture of Teaching and Learning," argues that the new focus on teaching and learning cannot be sustained by innovative classroom practices alone, but that "a campus culture… that supports and sustains the *ongoing improvement* of teaching and learning" is essential for this necessary shift. The authors, Pat Hutchings and Mary Deane Sorcinelli, are two of the most recognized experts and motivators for the transformation of the teaching and learning environment and the faculty development that will push it forward. They propose a framework for thinking about a culture of teaching

and learning that has four levers: professional development, resources, incentives and rewards, and leadership. They also provide ideas and examples for the role of librarians in fostering this culture across all levels of the institution.

The second chapter, "Sit a Spell: Embracing the Liminality of Pedagogical Change through the Scholarship of Teaching and Learning," by Linda Hodges, explores pedagogical change for faculty through the lens of the Scholarship of Teaching and Learning (SoTL). Dr. Hodges was a faculty member in biochemistry for many years before making the transition to faculty development as the director of the Faculty Development Center at the University of Maryland, Baltimore County. Here, she explores faculty as learners in a community of practice and illustrates how faculty beliefs and conceptions about teaching act as threshold concepts, and that SoTL can be used to provide a sustaining environment for faculty as they move through the ambiguous and anxious liminal space of pedagogical change. She sees "the philosophy, perspectives, and practice of SoTL as providing instructors with both a new way to envision teaching challenges and the community to support the emotional upheaval associated with transforming themselves as teachers." Through SoTL, teaching can be seen as problem solving, using an inquiry approach. She also leads us through reflections on new ways to open up our teaching to student voices and to see the roles of teachers and students as complementary in forming teaching and learning communities.

Nancy Chick's chapter, "The Crossroads of SoTL and Signature Pedagogies," offers an introduction to signature pedagogies, that is, "ways of being taught that require [students] to do, think, and value what practitioners in the field are doing, thinking, and valuing." Currently the director of the Endeavor Foundation Center for Faculty Development at Rollins College, she is immersed in the Scholarship of Teaching and Learning as the editor of *Teaching & Learning Inquiry* (the official journal of the International Society for the Scholarship of Teaching and Learning [ISSOTL]) and coeditor of the influential volume *Exploring Signature Pedagogies: Approaches to Teaching Disciplinary Habits of Mind* (and the follow-up *More Signature Pedagogies*). She states that "this chapter presents what may at first seem like a paradox: that self-reflection and self-knowledge are prerequisites for collaboration and community." In this chapter, she provides a unique view of how the ACRL *Framework* can be used as a pathway for discovering signature pedagogies for information literacy instruction and how SoTL can help us collect evidence about student learning and where they get stuck and use that evidence to design and test pedagogy to improve how we teach and what students learn.

In the next chapter, "Bottlenecks of Information Literacy," Joan Middendorf and Andrea Baer team up as a faculty/librarian pair to offer a unique first-time exploration of how Decoding the Disciplines can be applied to information literacy. Joan is well known in educational circles for having co-developed the Decoding the Disciplines framework. Andrea is recognized for her valuable contributions to information literacy research and practice through her publications and professional development offerings. Decoding is a model for instructional design that begins with identifying the stuck places for student learning and offers a process for addressing these bottlenecks. In this chapter, they offer a clear and accessible description of the steps of the Decoding process as it applies to an identified bottleneck in information literacy and show how to bridge the gap between expert and novice ways of thinking and doing in a discipline.

In the chapter "Developing Learning Partnerships: Navigating Troublesome and Transformational Relationships," Peter Felten, well-known in SoTL circles, especially for his work on student partnerships, has collaborated with coauthors from Elon University—Kristina Meinking, classics professor; Shannon Tennant, librarian; and Katherine Westover, undergraduate student—in order to provide a wide-angle picture of partnerships. Since partnerships among librarians, disciplinary faculty, and students challenge the assumptions and norms about their respective roles and power differentials in higher education, such partnerships can be challenging to establish and maintain. A review of the research on partnerships provides encouragement by documenting their positive outcomes. To illustrate some of the most transformational practices, the authors outline two well-established partnership programs that engage students as consultants and cocreators for courses. They then offer a case study that delves into the reality of growing a partnership between a disciplinary faculty member, a librarian, and a student that requires the individuals to move into liminal spaces that upset their traditional and comfortable roles but that ultimately results in a rewarding relationship beyond what they could have accomplished on their own.

The chapter by Kateryna Schray, "When Teachers Talk to Teachers: Shared Traits between Writing across the Curriculum and Faculty Learning Communities," provides a historical perspective by recounting the evolution of the Writing across the Curriculum Program at Marshall University from a grassroots proto–faculty learning community into a fully developed multidisciplinary FLC program across disciplines supported by the university. Survey results of FLC participants tell a powerful story of "what can happen when a group of committed faculty come together to talk about becoming better teachers." Of special interest is the description of librarian involvement in these FLCs, with compelling comments from the librarians about "being included" rather than just "feeling included" and a recognition by the teaching faculty of how librarians can contribute. The chapter concludes with reflections on what makes for a meaningful FLC experience. Dr. Schray is a professor of English and winner of several outstanding teacher awards.

We are also fortunate to have Margy MacMillan as the author for the Foreword. Margy is a professor and librarian recently retired from Mount Royal University in Calgary, Alberta. She has been active in SoTL for a number of years, and her work in this area has significantly influenced information literacy thinking and practice. She has worked closely with her institution's Academic Development Centre on various initiatives supporting teaching across the disciplines. Her research and practice have drawn her into a number of the discussions outlined in this book, and she has the broad perspective to pull these strands together.

Themes across the Chapters

We see a number of themes across the chapters of this collected volume that reflect the title: *Building Teaching and Learning Communities: Creating Shared Meaning and Purpose*. The development of partnerships and communities is described, along with the role and nature of professional development in fostering conversations and communities. The impact of pedagogical practices—most notably the Scholarship of Teaching and Learning, Decoding the Disciplines, and signature pedagogies—on community building is explored and

expanded through the application of these approaches to information literacy. Multidisciplinarity as an essential component of collaboration and community is emphasized. And perspectives on the current and potential contributions of librarians to teaching and learning communities are presented by our higher education authors.

Partnerships, Professional Development, and Community Building

First we see that building partnerships and communities takes time and effort and that it is not just librarians who find this a daunting and difficult undertaking that requires going up against expectations of roles and power structures in higher education. We can see this especially clearly in Schray's case study of the years of grassroots development that led to the successful faculty learning communities at Marshall University and in the description by Felten et al. of an evolving faculty-librarian partnership (which will ultimately involve students). These endeavors must be conscious, intentional, reflective, and truly collaborative. Hutchings and Sorcinelli remind us that "good conversations about teaching and learning do not happen automatically." The *Framework* document affirms that it "focuses attention on the vital role of collaboration and its potential for increasing student understanding of the processes of knowledge creation and scholarship."[6] So the *Framework* sounds a call for collaboration and indeed really works only in this context, but this means that librarians will have to move beyond the one-on-one relationships with teaching faculty to become part of larger teaching and learning communities, not only to improve as educators, but also to become recognized as such and to exert influence at the institutional level.

How do we begin to build these communities and partnerships? One of the key levers is professional development, as shown in Hutchings and Sorcinelli's "Framework for Change" graphic (figure 1.1). And the importance of professional development (or faculty development or educational development) is not only that it can strengthen the capabilities of educators, but also that ample research shows that professional development impacts student learning.[7] And with the growth of centers for teaching and learning and faculty learning communities, a third reason is that the resulting group identity and commitment contribute to an institutional movement to a culture of teaching and learning.

From the lively debates and explorations that accompanied the launch of the *Framework*, it was evident that professional development was essential for helping librarians make the transition to a more conceptual way of thinking about and practicing information literacy instruction, and along with a multitude of workshops and presentations, we now have a full-blown ACRL Roadshow, "Engaging with the Framework," for intensive pedagogical engagement, reflection, and improvement. Now that more than three years have passed and adoption and adaptation of the *Framework* are widespread, we have moved into a new phase where we need to look to joining other teaching colleagues in a transdisciplinary approach to teaching and learning.

Hutchings and Sorcinelli tell us that "the most powerful forms of professional development start with good conversations." And these conversations take us outside of our own disciplines. Linda Hodges tells us about how faculty become learners in a community of practice, thus taking on the role of students. They enter into a liminal state, that uncomfortable transitional place where learning takes place that Meyer and Land described as a condition of crossing a threshold.[8] The Montserrat Program at the College of the Holy

Cross, as described in the *Chronicle of Higher Education,* reported as an outcome that "the experience of learning from colleagues often reminds faculty members what it's like to be a student again, as they learn about one another's areas of expertise and see their own through fresh eyes."[9]

For the "good conversations" to take place, we must create safe environments where we can experiment and make mistakes in the presence of supportive colleagues. This is something new for faculty used to Shulman's "pedagogical solitude" of the classroom.[10] As Schray notes in her narrative on the nascent faculty learning community at her institution, "Coming together with fellow teachers to talk about *teaching*, to *learn about teaching*, to *reflect on one's teaching*, was something new." The *Framework* gives us a conceptual approach to teaching and the vocabulary of the core concepts of our discipline that give us entrée into these conversations and that match what is happening in other disciplines.[11]

Adopting New Pedagogical Practices in a Community Context

The Scholarship of Teaching and Learning (SoTL), along with signature pedagogies and Decoding the Disciplines, form a current throughout the chapters as powerful tools for initiating conversations and improving pedagogical practices. These chapters can help us address the question of how we can use these approaches to reflect on and apply the *Framework*'s core concepts of information literacy to our pedagogy and to identify and address students' stuck places.

Hodges sees SoTL as a lifeboat in the liminal learner state, providing "the framework, focus, and community to lead instructors through to new understandings of 'the self that teaches'." In the spirit of Randy Bass, who asked "How might we think of teaching practice, and the evidence of student learning, as problems to be investigated, analyzed, represented, and debated?"[12] she tells us that "the SoTL mindset allows a reversal of the faculty frame of reference—from blame (either themselves or their students) to inquiry." A challenge here for librarians is to learn to reframe teaching as problem solving in a positive sense. But we see from these chapters that we are not alone in the need to change pedagogical perceptions.

Nancy Chick reminds us of the most frequently cited taxonomy of SoTL work, by chapter coauthor Pat Hutchings, one of the leading voices of SoTL. In her introduction to *Opening Lines: Approaches to the Scholarship of Teaching and Learning*, Hutchings presented the four kinds of questions that can frame SoTL projects:

- What works—to evaluate the effectiveness of a learning activity;
- What is—to document and describe moments of learning;
- Visions of the possible—to experiment with new approaches;
- Theory building—to formulate "a new conceptual framework for shaping thought about practice"[13]

We could say that the *Framework* has formulated a new conceptual key to information literacy, which has opened new doors and new questions for us. Now, as we embark on SoTL projects, we can consider Nancy's advice to start with a "thoughtful exploration" of "what is" questions, in collaboration with disciplinary faculty.[14] SoTL goes beyond conversations about good teaching: it centers on inquiry learning in a specific context, it is evidence-based, and, like all good scholarship, it leads to public sharing and critique.

Applying the reflective lens of signature pedagogies to information literacy can help us identify how we can change our teaching to map the ways of knowing, doing, and valuing that will create information-literate learners. The frames and their prompts reflect the head, hand, and heart apprenticeships that Lee Shulman posits for moving students from novices to experts.[15] We need to examine how the traditional ways we are teaching affect what students are learning. By using this approach, we can address the question of what signature pedagogies can replace the one-shot or the database demonstration for more authentic and effective instruction that will teach students the distinctive habits, practices, and values of information literacy. Nancy Chick suggests that research consultations may be a unique signature pedagogy for librarians, and this reflects an earlier proposal by James Elmborg in his article "Teaching at the Desk," where he says that "the reference desk is perhaps the most natural constructivist teaching environment in our schools."[16]

The Decoding the Disciplines process, developed by Joan Middendorf and David Pace at Indiana University, can be a powerful tool for using the *Framework* in the disciplines, since both are based on threshold concept theory and identifying stuck places, or bottlenecks, in student learning as they progress along the continuum of learning from novice to expert. As Joan and Andrea Baer state in their chapter, the Decoding process looks back across the threshold to "uncover the mental moves of experts in order to make those moves available to students" through modeling, motivation, and assessment, followed by sharing of results and feedback from pedagogical peers.

The "Introduction for Faculty and Administrators" in the *Framework* document notes how the threshold concepts of information literacy can create a "community of conversations" with disciplinary faculty, teaching and learning center staff, and others.[17] Because information literacy is "both a disciplinary and a transdisciplinary learning agenda,"[18] it is at home both within and across disciplines. The Decoding process can be especially beneficial when it involves colleagues from different fields who help each other understand their own field's epistemologies and practices and gain fresh insights. In fact, Joan reported that as she and Andrea began to work on the chapter¸ coming from two different fields, they entered a kind of liminal state as they sought to understand each other's perspectives.

Multidisciplinarity and Community

What do the chapters tell us about the role of multidisciplinarity in collaboration and community? All of them emphasize that this breaks down the silos and is an essential element of teaching and learning communities. Chick says that "in multidisciplinary teaching and learning communities, sums are greater than parts, and solutions are at the intersections of differences." In the role of novices, faculty ask questions of each other that colleagues in their own disciplines might not ask, and they see their own disciplines through fresh eyes. And the idea of multidisciplinarity extends to bringing in the student voice. Felten et al. outline partnerships with students as consultants and cocreators of curriculum, and Hodges illustrates how the interplay of teacher and student can change how we teach and what we know about how students learn. And the *Framework* document "emphasizes student participation and creativity, highlighting the importance of these contributions."[19]

Learning to think within a discipline actually creates a "metadisciplinary awareness" that crosses boundaries and paves the way for the transfer of learning: "As students

gradually and metacognitively recognize the different yet overlapping ways of thinking, knowing, and doing within their different courses, they begin to see a conversation among their courses, allowing them to situate themselves within that conversation and shift from one perspective to another."[20]

Librarians in Teaching and Learning Communities

And the multidisciplinary community includes librarians as well. What are the ways we can contribute to teaching and learning communities? The authors responded to our invitation to consider how librarians and the *Framework* fit into the work of teaching and learning communities, and these chapters present an encouraging perspective not only on the role of librarians as educational partners, but also on the unique contributions that we can bring. A common theme across the chapters is the recognition that librarians can move across disciplinary divides, and, as a result, make valuable partners. Hutchings and Sorcinelli say that "libraries and librarians are beautifully positioned—at the intersection of all kinds of institutional strands—to help weave a robust, more holistic culture of teaching and learning." Middendorf and Baer echo this view: "Because librarians have to work across disciplinary silos so often, getting insights into different disciplines can better enable them to cross divides and to build more collaborative relationships." They also suggest that librarians are likely leaders for multidisciplinary Decoding groups working on bottlenecks in the research process. Schray notes the organizational role of librarians suits them for building bridges: "Librarians, by the nature of their work, are more inclined to want to collaborate with faculty than faculty are inclined to want to collaborate with one another when it comes to teaching." So a question for librarians to ponder is how can we take advantage of this ability to cross divides to build collaborative relationships?

The chapter authors recognize that librarians can be vital contributors to teaching and learning communities. Our role as educators encompasses a broader scope, as we bring unique abilities for identifying resources and creating guides to support SoTL investigations and pedagogical innovations, and we have the technological infrastructure and skills to develop institutional repositories to collect and make available pedagogical research and resources or to host faculty or student journals. And we provide the learning space outside the classroom, a space in which, as Nancy Chick notes, we have unique access to student thinking that may not be shared elsewhere as we consult with them. Schray quotes librarian Eryn Roles as saying that, for the Marshall University faculty learning communities, librarians are "willing to 'provide materials, insight, practice, sources, and tools,' and to work with faculty in integrating these elements into their teaching."

Becoming Part of the Whole

From the lessons and reflections presented in these chapters, we can see that faculty are moving out of their disciplinary compartments to experience the benefits of collaboration for themselves, for their students, for their institutions, and ultimately for higher education as a whole. And we need to heed the invitation and imperative to move from our own disciplinary space to become part of the whole. It's not easy and it's not painless, but then that's the nature of learning. Hutchings pointed to the "transformational agenda" of SoTL and said it can be defined "as scholarship undertaken in the name of change, with one measure of its success being its impact on thought and practice."[21] Bernstein

and Bass encouraged us to imagine "an entirely different developmental model" for the scholarship of teaching and learning—not just in terms of the individual but in terms of the group: "to cultivate a faculty motivated to join collaborative efforts around teaching and learning problems."[22]

> Work done under the banner of the scholarship of teaching and learning may not be, in the end, quite like any other kind of work in the academy: it is a hybrid between teaching and research, it is both local and cosmopolitan, and it is both individual and collaborative. Accommodating ourselves and our institutions to the scholarship of teaching and learning (by whatever name) may require our coming to terms with this uniqueness and finding new structures and practices for it.[23]

The chapters in this collection are grappling with "finding new structures and practices," and we are inviting readers to join this exploration, using the pathway provided by the *Framework* to expand our capacity as educators and partners in building a culture of teaching and learning on our campuses.

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Chapter 1

Building a Culture of Teaching and Learning

Pat Hutchings and Mary Deane Sorcinelli

With growing pressures for accountability, reduced funding, competition from alternative providers, and serious questions about how to meet the challenges of a changing workforce, these are difficult times for higher education. But there is good news as well, as the focus on teaching and learning assumes a much more prominent place on the academic landscape.

Many colleges and universities today have established centers for teaching excellence that support the work of faculty looking to improve their students' learning.[1] A growing number of campuses have embraced the assessment movement and are actively gathering evidence of student learning to guide innovation and improvement.[2] Higher education organizations and scholarly societies are sponsoring initiatives to improve what happens in classrooms and other settings that shape the student learning experience.[3] Meanwhile, many campuses have worked to reshape rewards and incentives in ways that encourage faculty to spend time and intellectual effort improving the learning experience of their increasingly diverse students.[4] And all of this work has taken on greater urgency as higher education confronts the social and ethical imperative to support the success of *all* students—especially those that have not traditionally been well served by this nation's colleges and universities.[5]

The two of us have had the good fortune to hold a ringside seat on many of these developments. We are heartened by them, certainly, and by the growing body of research that points to increasing use of more active, evidence-informed teaching approaches.[6] But we're aware, as well, that new classroom practices, though critical, are not enough to meet the challenges facing higher education. What's also needed is a larger context—a campus culture—that supports and sustains the *ongoing improvement* of teaching and learning.

We come to this theme of campus culture from more years of experience than we wish to count as leaders of, or participants in, work in faculty and professional development, student learning outcomes assessment, the scholarship of teaching and learning, and organizational change. This chapter draws on our own efforts,[7] but also on the many lessons we have learned from educators across the country (and beyond) who have generously shared not only their successes but also their struggles.

We begin by proposing a framework for thinking about a culture of teaching and learning that we have found especially helpful in identifying what it takes to strengthen such a culture—through professional development, resources, incentives and rewards, and leadership. All of these are huge topics. We do not presume to "cover" them but rather to suggest promising possible approaches in each of the four areas. Given the genesis of

this volume, we have included examples along the way that illustrate the roles that library faculty can play—and we come back to this theme at the end of the chapter.

A Framework for Culture Change

Anthropologist Clifford Geertz famously defined culture as "webs of significance" that "man himself [*sic*] has spun."[8] It's a metaphor that nicely captures both the challenges and the possibilities of cultural change. On the one hand, webs can be sticky things, traps that immobilize and isolate. But if those webs are indeed of our own making, the possibility of weaving them differently comes more clearly into view. The image of weaving also evokes the idea of a culture of teaching and learning shaped by interlacing different strands in a connected whole. The question, then, is what are the key elements, layers, and mechanisms of that whole? Who are the weavers, the agents of change? What strategies are needed to deliver on the promise of a new culture of teaching and learning?

The framework in figure 1.1, initially conceptualized by Ann Austin and then built upon by others, answers these questions in ways that we find especially promising.[9] In brief, its message is that broad, systemic change needs to happen at multiple layers, that all of the layers matter, and that the influences acting on faculty and other stakeholders are many and, like a web, interconnected. It also suggests that change is complex.

We especially like this framework because it puts students in the center—it's about teaching focused on student learning and success—a sine qua non for a culture of teaching and learning. This is a powerful place to begin. Thanks to several decades of theoretical, empirical, and practice-based research, much is now known about how students learn. We also know that good teaching matters and that students learn more from faculty who invest in their development as teachers. Finally, we know that students learn more when engaged as active participants in their learning.[10]

The next layer, the faculty member, reminds us that instructors' teaching practices may be influenced by factors such as their academic preparation, discipline, career stage, and interest in students and their learning. And then, moving outward through the circles, we see that faculty members' choices and actions are embedded in and shaped by their department, college, and institution. In all of these contexts and levels, there can be barriers that discourage or scaffolding that supports teaching improvement and innovation. This suggests that faculty and students need a strong set of scaffolds or supports to learn about new pedagogical practices, to try them out, and to experience success. Finally, the outer layer of employers, government, and accreditation agencies brings their own varied interests in student success. A culture of teaching and learning depends on how all of these shaping influences are aligned with one another across levels and with the central, core mission of educating students.

Four Levers

We like Austin's framework, as well, because it provides a manageable way to think about the scaffolds needed to build and sustain a culture of teaching. The four boxes in figure 1.1 show four key levers of change: faculty professional development, resources, incentives and rewards, and leadership. Importantly, each of them intersects all of the circles, pointing

to the value of approaches to culture change that break down higher education's typical silos and build communities across disciplines, roles, and functions—an outcome that librarians and library faculty, because of their centralized location in the institution, are particularly well positioned to support and advance.

1. Professional Development

Perhaps it's a no-brainer for readers of this volume, but if you want a culture that really supports teaching and learning, you have to have people—from all sorts of roles and institutional contexts, including libraries—talking together about their work as educators. Indeed, the most powerful forms of professional development start with good conversation.

What is also true is that good conversations about teaching and learning do not happen automatically. Teaching has traditionally been a private activity, one that occurs behind closed doors—both literally and metaphorically. What's needed then is time and space—and a sense of permission—in which educators can share what they do as teachers, what they care about, hope for, worry about, and maybe sometimes find painful or disappointing. The importance of these conversational spaces is a lesson both of us have observed up close. Even on campuses that are, by most measures, clearly focused on undergraduate education, regular opportunities to have open, honest, and sustained conversations about teaching and learning can be few and far between.[11]

Consider, for example, a scene witnessed by Mary Deane when she first began work at the University of Massachusetts Amherst. A group of early career teaching fellows were meeting with their mentors, one of whom was a senior, distinguished scholar and teacher who had garnered the campus's highest research and teaching awards, as well as national awards in both arenas. He began to talk about his teaching and then paused, tearing up. He had lost count of the times he'd been asked to talk about his research, he told the group, but this was the first time he'd ever been asked to talk about his teaching.[12]

A first step toward a culture of teaching and learning, then, is to create occasions where people can talk about their work as educators. Good things happen where that is possible. But the odds that good things will happen go up as participants begin to ask questions about their students' learning: Why do students stumble over some concepts? What might motivate them to engage more deeply with challenging subject matter? What classroom approaches can help them make connections between theory and practice, between skills learned in one setting and their application in another? Through questions like these—which can be challenging and even unsettling—good talk about good teaching can become even more consequential as faculty seek out information and evidence to illuminate those questions, seeing them not as signs of failure but as opportunities for inquiry and innovation.[13] In short, a culture of teaching and learning is one where people seek out, value, and use evidence for improvement, be it from research about how students learn, from the scholarship of teaching and learning, or from student learning outcomes assessment.[14]

And this is a space in which librarians can play an important role, helping to inform faculty exploration of these questions, supporting inquiry and innovation, and connecting people across departments, roles, and responsibilities. For example, the UMass Amherst Libraries lead a yearlong interdisciplinary learning community, the Sustainability Curriculum Fellowship, established to cultivate teaching excellence in sustainability.[15] Partners

include the chancellor's office, the School of Earth & Sustainability, and the teaching center. Each year, up to ten instructors are selected to join the SCF. Fellows receive a range of support services along with a modest grant; they attend monthly meetings to discuss pedagogy and course redesign and to learn about library and campus sustainability resources. Each fellow creates or revises a course syllabus or curriculum to include or augment student learning outcomes related to sustainability; presents a brief teaching demonstration to the group; and deposits a lesson, unit, or course resource in the library's SCF repository.

2. Resources

In higher education (as in life), no resource is as precious as time, and both of us have been struck by how almost universally the *lack* of time is identified as the first and biggest obstacle to greater attention to teaching and learning. This is not a surprise: learning new pedagogies takes time and often requires learning new tools. Studying resistance to reform among faculty in the sciences, Fairweather reported that a significant barrier to adopting new teaching strategies is the amount of time needed to learn and implement them.[16] Faculty time spent in professional development, then, needs to be efficient and functional.

One powerful approach in this regard is the course design institute (CDI) offered on a number of campuses. A CDI can be best described as an intensive, multiday, hands-on seminar that provides instructors the opportunity to experience the scholarly process of learning-focused course design. For example, during a CDI hosted by the Center for Teaching Excellence at the University of Virginia, an interdisciplinary group of instructors spend two or three days designing or substantially redesigning courses in ways that promote significant, long-term learning. Participants explore learner-centered design principles in a large-group setting and then work on their individual course designs in small discipline- or pedagogy-focused learning teams. The learning teams provide opportunities for brainstorming, individualized feedback, and ongoing support. At the end of this time-compressed program, instructors leave with concrete, useful products—learner-centered syllabi, student assignments, assessments, and teaching practices.

Other strategies that incorporate attention to time and resources include emphasizing evidence-based practices that are easy to use (e.g., classroom assessment techniques like the "minute paper"); allocating time in teaching schedules for learning, planning, and experimenting with new pedagogies (e.g., assigning minimal course preps, a service-free semester); or investing in easily accessible learning tools (e.g., personal response system "clickers"). At Washington University, the teaching center and university libraries partnered to provide iClickers for undergraduate courses. With clickers, instructors can ask their students questions during class, then display and discuss the results in real time. To encourage take-up by faculty, students can check out a clicker, free of charge, at the library circulation desk, thus streamlining the process for teachers and learners.

Additionally, some campuses have found creative strategies for setting aside dedicated time for work on teaching. Alverno College, famous for its pioneering work on student learning outcomes, long ago set aside Friday afternoons for colleagues to meet to design, refine, and study students' progress toward crosscutting curricular goals. More recently, a college in the Mid-Atlantic region is experimenting with rescheduling its day-long fall

and spring professional development programs into a series of eight two-hour sessions to encourage more regular collaboration and shared reflection among instructors.

3. Incentives and Rewards

One important indicator of a culture of teaching and learning is the adoption of approaches that have been shown to increase student learning and success. But, as noted earlier, what happens in the classroom is only part of the picture. Also essential are institutional structures and policies that support and encourage more effective instruction. And this brings us to the topic of incentives and rewards.

One place to begin is with what might be called low-hanging fruit—forms of incentive and reward that are already familiar and valued. For many faculty, grants are an example. Their value often lies not so much in the amount of money involved but in the fact that awards are made on the basis of peer review—the gold standard in academe.

But attention to incentives and rewards also brings us to "high-hanging fruit," most notably the policies and practices that shape faculty promotion and tenure. These vary, certainly, by institutional type and even by discipline, but it seems safe to say that the faculty reward system, with its growing emphasis on research (even on campuses that have traditionally been focused on undergraduate education), has often worked against sustained attention to the quality of teaching and learning.[17]

That said, many campuses have now revised promotion and tenure policies to bring greater value and weight to pedagogical work. In some settings this means making a place for the scholarship of teaching and learning, be it as an aspect of teaching excellence (a commitment to ongoing innovation and improvement) or as an emergent area of disciplinary research.[18] Work on student learning outcomes assessment is now showing up in personnel documents as well; we know of one department chair who listed her report on her program's assessment activities on her CV as scholarship. And a growing number of campuses are now experimenting with new kinds of teaching-focused career tracks that come with rigorous expectations and the prospect of movement through the ranks to full professor or its equivalent.[19]

A number of campuses also are making space for or requiring new kinds of evidence about teaching effectiveness. For example, some have added a section to the annual faculty review that encourages faculty to include evidence of innovative teaching, pedagogical risk taking, and reflective practice. Others, like the University of California Irvine, are requiring that all faculty annual reviews have two forms of evidence of teaching effectiveness (prior to this requirement, faculty typically submitted only student ratings). Campus stakeholders developed guidelines to help faculty in preparing materials for this new initiative, such as a reflective teaching statement, peer evaluation from a colleague, or an award that demonstrates deep impact of instructional activities.[20]

We see library faculty raising similar issues about incentives and rewards, especially given their deepening involvement in teaching and learning. For example, the Association of College and Research Libraries (ACRL) has recently revised standards and statements for librarian faculty status to better address librarians' roles in the multiple missions of their institutions.[21] A new document, *Roles and Strengths of Teaching Librarians*, has been created to address the need to more fully describe the expanding nature of work for librarians in

teaching and learning,[22] especially in the context of the *Framework for Information Literacy*. In addition, many academic libraries are adding and enhancing learning spaces and multimedia production facilities and staff, signaling an increased integration of librarians and libraries into the pedagogical goals of colleges and universities.[23] These developments suggest new opportunities for library faculty to gain recognition and reward for their role in improving and innovating teaching and learning.

4. Leadership

In a culture of teaching and learning, leaders look for opportunities to bring visibility to pedagogical innovations and improvement. They tell stories and share data; they understand the value of rituals and symbols that highlight the institution's commitment to student learning. In turn, faculty members need to see that institutional leaders—presidents, provosts, deans, and chairs—are committed to student-centered teaching through their words and actions. Research on faculty motivation concludes that one of the characteristics of a supportive teaching culture is strong and perceptible support for teaching that comes from leaders at all levels of the institution.[24]

In our experience, the leadership sweet spot occurs when faculty-led and administrative-led goals and initiatives converge. For example, a provost we both know led an initiative to create and pilot two active learning classrooms in the main library. In turn, the campus teaching center, libraries, and academic computing unit formed a partnership to help faculty increase their skills in using the rooms. At the same time, early career faculty in a STEM department created a grassroots "mutual mentoring" teaching community through an internal grant offered by the teaching center. The team (lecturers to full professors) convened once a week over the lunch hour to discuss appropriate pedagogy for the new classrooms, how to assess student preparation, how to use new technologies, and how to make more effective use of undergraduate and graduate teaching assistants in the new classrooms. The grant extended over an academic year, but the team is still going strong three years later, with lunch now funded by the department chair.[25]

Finally, students can provide powerful leadership in a culture of teaching and learning.[26] Students may at first find today's evidence-informed classroom strategies off-putting, but once accustomed to more active approaches, they can be effective advocates for change. In one department we know of—a department participating in the Carl Wieman Science Education Initiative—students put pressure on a faculty member who neglected to indicate course learning outcomes in the syllabus.

Indeed, the idea of tapping into student experiences as learners has become a major theme in the scholarship of teaching and learning movement and, increasingly, in student learning outcomes assessment.[27] At Elon University, for instance, small student teams partner with a faculty member to study and revise a course in which they were previously enrolled. At the University of California Merced, students work with faculty to identify ways to improve the learning experience. And at North Carolina A&T State University, students work as "provost's scholars," conducting focus groups and interviews with peers to better understand the student experience and to supplement what is learned through more traditional assessment. As research on learning makes clear, these kinds of roles are powerful in another way as well, for when students are given the opportunity to become more aware of their own learning process, they learn more and better. "I had a class where

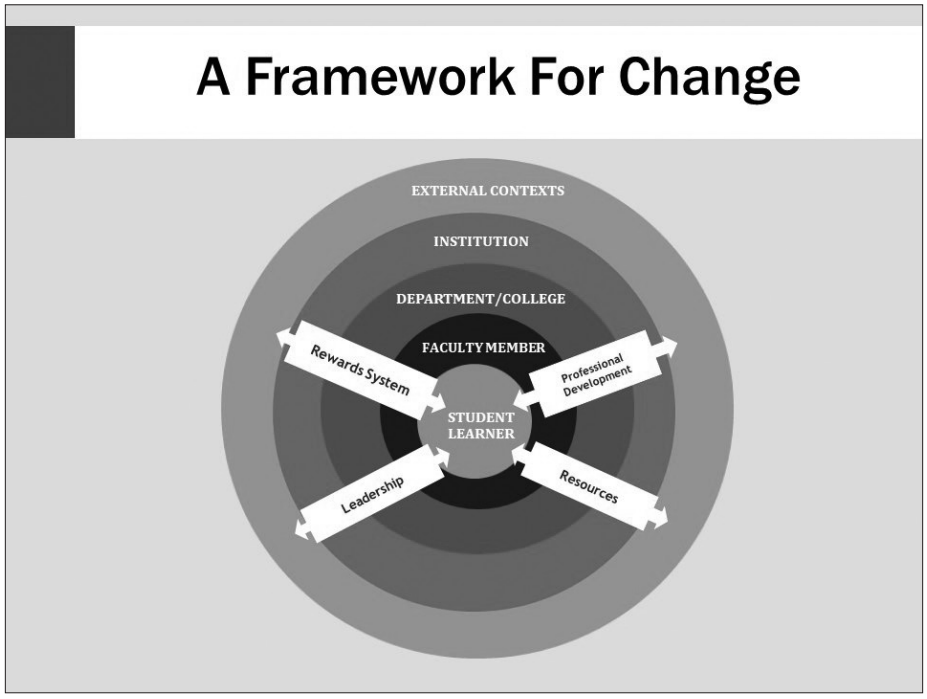

Figure 1.1
A framework for change.

we studied how we learn," one undergraduate reported in a scholarship of teaching and learning project. "It flipped a switch, and once it's flipped it can't be turned off."[28]

The Role of Library Faculty in Fostering a Culture of Teaching and Learning

The framework we have chosen to employ in this chapter is useful, we believe, because it is both flexible (allowing for approaches to culture change that align with different institutional cultures) and broad (covering a wide range of stakeholder groups, roles, and functions). But given the purpose of this volume, it seems appropriate to conclude with reflections about the special role that library faculty can play.

Librarians inhabit an especially generative space when it comes to supporting faculty interest in pedagogical innovation and improvement. At Gonzaga University, a faculty member from the library participated in a multidisciplinary faculty learning community on the scholarship of teaching and learning facilitated by the teaching center. She contributed by pursuing her own inquiry project (investigating more effective ways to help students develop research skills). But additionally, she developed LibGuides to help other members of the group find resources to support their own investigations and outlets for finished projects.

Librarians are also well positioned to work with departments and programs working on course and assignment design. For instance, in Purdue University's IMPACT program

(Instruction Matters: Purdue Academic Course Transformation), librarians work as part of faculty teams to redesign courses or address instructional challenges across disciplines.[29] Another example of this kind of collaboration emerged through the work of the National Institute for Learning Outcomes Assessment (NILOA) initiative to develop an online collection—a "library"—of effective assignments.[30] One of the entries is an assignment from Utah State University, where the history department worked with library faculty to design tasks and activities to develop (and assess) students' disciplinary research skills.[31] This kind of role builds on the ACRL *Framework for Information Literacy* in ways that ripple out far beyond the library.

Of course, there are always collaborations to be made as we seek to build a culture of teaching and learning. For example, libraries and centers for teaching and learning have similar goals of developing student learning and faculty teaching skills. Yet in a recent large-scale study of the field of faculty development, directors of teaching and learning centers reported collaborating with libraries only to a moderate extent (2.7 on a 4-point Likert scale)[32]—less than we expected, frankly, given our experiences. A case in point is Oberlin College, which has a librarian on the teaching center's board of advisors, and includes librarians—particularly those who advise students, provide classes on research, or act in a teaching capacity—in all of their activities. At Mississippi University for Women, the teaching center is housed in a new wing of the library, which has led to collaborations on projects, planning of spaces, and programming. Going forward, teaching centers and libraries, with their overlapping purposes, are ideal candidates for collaborative work that would allow them to reach new audiences, increase the visibility of innovative student-success and faculty-development initiatives, and maximize available resources.

This in turn points to the critical role that library faculty can play in creating new and more robust ways to build knowledge about teaching and learning and to give greater visibility to the Scholarship of Teaching and Learning. This can mean sponsoring or supporting digital repositories of pedagogical work and resources (as in the UMass Sustainability Curriculum Fellowship program, mentioned earlier), be they local or broader in reach. An example we uncovered in working on this chapter is the ACRL Framework for Information Literacy Sandbox, an interactive repository for instructional resources related to the use of the ACRL *Framework*.[33] It might also mean sponsoring and publishing open access pedagogical journals. At the University of Calgary for instance, the library's Digitization and Repository Services office hosts *Teaching & Learning Inquiry*, the flagship journal of the International Society for the Scholarship of Teaching and Learning.[34] Looking toward the ways these kinds of collaborations may be structured in the future, the libraries at George Washington University (GW) have become the campus hub for integrating teaching, learning, and research throughout the university. GW's Libraries and Academic Innovation initiative encompasses faculty development, student learning, access to resources, and learning spaces.[35] Through tools, spaces, consultation, and collaboration, the unit helps the university community explore, create, and share information in new ways.

As these examples suggest, librarians can play a critical and distinctive role in creating and sustaining a culture of teaching and learning: providing resources to guide faculty work; working with departments and programs to design powerful assignments; partnering with centers for teaching and other units; creating online repositories and hosting open access journals and resources that include scholarly work on teaching and learning; and

bringing people together across departments, roles, and responsibilities to collaborate in ways that create more purposeful pathways to learning for students. To reinvoke Geertz's metaphor of culture as webs, libraries and librarians are beautifully positioned—at the intersection of all kinds of institutional strands—to help weave a robust, more holistic culture of teaching and learning that supports ongoing improvement.

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Chapter 2

Sit a Spell

Embracing the Liminality of Pedagogical Change through the Scholarship of Teaching and Learning

Linda C. Hodges

In recent years, the idea of threshold concepts has become important in higher education. These are concepts that are central to students' developing deep and lasting learning in a discipline. Defined and described by Meyer and Land, threshold concepts are discursive ideas and skills that transform an individual's view of a subject, catalyze an integration of ideas within one's understanding of the field, differentiate one field from another, and often prove troublesome to understand deeply.[1] Once truly grasped, threshold concepts are hard to forget. Threshold concepts in essence are ideas that force us to question our understanding of what is (ontology) and how we know it (epistemology). Learners faced with threshold concepts are said to enter liminality—an in-between stance in one's understanding, beliefs, or identity. This liminal state has been likened to a labyrinth or a tunnel, metaphors that capture its disorienting and anxiety-producing characteristics.[2] Thus, moving through this state requires both cognitive and emotional resilience. Identifying such disciplinary "troublesome knowledge" allows educators to determine the key obstacles to students' developing expertise in the discipline and then design strategies to move students beyond their "stuckness." Townsend, Brunetti, and Hofer brought this theory into information literacy discussions, and subsequently threshold concepts were used as a consolidating theme of the ACRL *Framework*.[3]

In this chapter I explore proposed threshold concepts in the field of higher education pedagogy as they relate to faculty beliefs and approaches to teaching. If we seek to shift faculty conceptions around teaching, we must recognize that key to the process is the ability of faculty to "sit a spell" and inhabit that liminal space of change. Transitioning in one's ontology and epistemology of teaching takes patience, philosophical flexibility, and psychological and emotional stamina—a capacity to exist and reflect in the face of uncertainty and angst. I offer perspectives from the Scholarship of Teaching and Learning (SoTL) as a way to bolster faculty in the liminal space of pedagogical change. SoTL engages faculty in inquiry about their own teaching practice—encouraging them to ask questions about how teaching relates to learning, collect data and analyze it to answer those questions, and then share the results to add to the base of evidence-based practice.[4] SoTL can provide the framework, focus, and community to lead instructors through to new understandings of "the self that teaches."[5]

Pedagogy as a Field of Learning

Threshold concepts by definition are key elements of a field of study. Thus, if we posit that there are threshold concepts in teaching itself, then we must first recognize pedagogy as a

discipline, or a field of learning. This statement may sound simplistic, given that teachers who work in K–12 education go through a structured curriculum and practicum designed to develop their understanding of learning and pedagogy as a field and a practice. In higher education, however, all too often we treat disciplinary knowledge as commensurate with pedagogical knowledge and assume that anyone who has received an advanced degree in a discipline can teach. Thus, one threshold concept for faculty is recognizing that teaching is a field of knowledge in and of itself—one with a research base and a body of literature rather than existing as a set of anecdotal practices. As Laurillard notes, "Teachers need to know more than just their subject. They need to know the ways it can come to be understood, the ways it could be misunderstood; they need to know how individuals experience the subject."[6]

Shulman first described the idea of pedagogical content knowledge that tied the specific content in a discipline to a specific pedagogy that addressed it, thus highlighting the dynamic and inquiry-based nature of teaching.[7] Threshold concepts as originally described are key elements in pedagogical content knowledge because they capture pivotal prerequisite knowledge needed to transform disciplinary novices to experts. Providing faculty with this new perspective on challenges in student learning can open a door to growth in their pedagogical content knowledge.[8]

Threshold concepts, however, are not limited to the content of our disciplines. Pedagogy as a field also contains constructs that are fundamental to what and how we understand the practice. These beliefs about pedagogy shape our actions and even our view of self. Thus, as we seek to engage faculty in professional development around teaching, aspects of instructors' overall conceptions of teaching and learning can act as threshold concepts.

Faculty Belief Systems around Teaching

When we think of challenges to faculty changing their practice of teaching, lack of pedagogical training, time, and incentives are obvious. But a number of complex ideas arise in the research literature when we think about transforming faculty mindset about teaching and learning—a key prerequisite to change. These factors include philosophical, psychological, and emotional constructs, such as disciplinary conventions, professional identities, and fear.[9] Threshold concepts in the discipline of pedagogy may nest under the beliefs faculty have about teaching. Research in the field of faculty beliefs often looks at such descriptive facets as instructors' perspectives on their role in, or their approach to, teaching. For example, faculty may view their role as teachers as providing the circumstances for learning, as easing the path to learning, or as bringing about learning.[10] Other work described five perspectives of teaching: transmission, apprenticeship, developmental, nurturing, and social reform.[11] Another area of research looked at whether faculty approached teaching more from a teacher/content focus or a student/learning focus.[12]

Schwieler and Ekecrantz propose an interconnected heuristic model of faculty belief systems around teaching. This model includes descriptive beliefs that capture faculty ontological and epistemological stances of how things are; normative values that express how things should be; faculty emotions associated with teaching; and practices faculty actually employ.[13] They argue that models of faculty beliefs about teaching, such as those mentioned earlier, often focus solely on descriptive beliefs. The models may neglect to consider how

faculty views of what *should* be—for example, how students should behave, what students should already know, what is fair—figure into their choices in practice. Similarly, faculty feelings around teaching—enjoyment, frustration, satisfaction, or dissatisfaction—also factor into practice and receptiveness to change.

Thus, inherent in the approach an instructor takes in teaching are certain assumptions about the learner and learning, certain expectations of the norm, and a myriad of feelings that all interact with and affect practice. As with other life situations, if our ontological and epistemological assumptions about teaching are called into question, we can experience feelings of insecurity, anxiety, and loss. Robertson, for example, proposed that faculty moved through three phases in their descriptive beliefs: a teacher-centered view; a learner-centered view; and lastly, an interconnected, dynamic view of teacher and learner.[14] He suggested that teaching challenges can force faculty to question their stance on teaching and either catalyze transition to a new perspective or a reversion to a familiar earlier view. The choice faculty make depends on how well they cope with the disequilibrium and feelings of loss that accompany the change. Drawing on his development model, some of these challenges can highlight threshold concepts in pedagogy, and how faculty enter liminality as they face change.

Threshold Concepts in Pedagogy

A number of authors have proposed various threshold concepts in faculty views of pedagogy. Many of these center on the teacher/content or student/learning belief system dichotomy. For example, Moore proposed teaching for transfer, and McGowan posited using technology to enhance student learning as threshold concepts for instructors.[15] Other possible threshold concepts reflect a shift in the content-to-learning focus and include recognizing the reciprocity involved in the partnerships in service learning and acknowledging students as partners in pedagogy or as co-inquirers with faculty.[16] Student-centered learning itself has been argued to be a threshold concept.[17] Some researchers, however, focus on specific aspects of student learning as sticking points for faculty conceptions of pedagogical practice. For example, Boyd proposed growth mindset as a pivotal concept for faculty.[18] Others have explored how faculty struggle to understand the variations in student learning or the structural transformations necessary for student learning.[19]

Threshold Concepts and SoTL

Disciplinary threshold concepts connect to faculty pedagogical content knowledge and can trigger an engagement in SoTL.[20] The practice of SoTL as a new field of research, however, can introduce new threshold concepts for faculty. In this regard, Webb identified three threshold concepts as faculty learn about SoTL: transitioning in ideas about research, broadening views across institutional culture, and moving from expert in disciplinary work to novice in this form of scholarship.[21] Similarly, Bunnell and Bernstein proposed two threshold concepts within the practice of scholarly teaching: the shift in faculty perceptions to inquiry-based teaching and the recognition of teaching as community property.[22]

But the mindset and principles of SoTL can provide solace and sustenance for faculty in their daily teaching, especially as they face portals of pedagogical change. In my work

in faculty development, I see the philosophy, perspectives, and practice of SoTL as providing instructors with both a new way to envision teaching challenges and the community to support the emotional upheaval associated with transforming themselves as teachers.[23] As we look at threshold concepts in the discipline of pedagogy, characteristics inherent in SoTL can provide a scaffold for liminality and a framework and focus for the cognitive and affective work necessary to move through it. Within the SoTL "doorframe," we can pause and view teaching through a new lens—one that addresses our ontological and epistemological challenges to change. SoTL perspectives can inform not only the descriptive beliefs faculty have about teaching, but also the normative values faculty bring with them. The SoTL community provides a sustaining environment as faculty struggle with the emotional discomfort and uncertainty inherent in these changes and also provides insights for bringing all these elements into a holistic practice (figure 2.1).

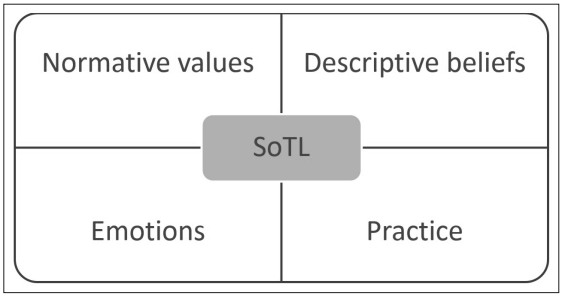

Figure 2.1
SoTL informs the teacher's belief system of Schwieler and Ekecrantz, supporting the liminality of pedagogical change (adapted from Schwieler and Ekecrantz).[24]

Specifically, SoTL provides informed guidance for faculty reflections on threshold concepts in the field of pedagogy—helping them productively confront how they view their role as teachers and their students' role in learning and teaching—in a community of practice. I expand on these ideas below.

Reflecting on the Role of Teacher—Content Provider versus Learning Facilitator

As we think about how faculty view their role as teachers, a driving ontological and epistemological principle behind many teachers' approach is content coverage. As scholars we thrive in our content, and we have developed the mental skills necessary to process it and work with it in creative ways. These skills are now so ingrained that they are implicit, and we no longer recognize how difficult novice learners may find them—a problem known as *expert blind spot*.[25] We find it hard to accept that not only may our students not be as motivated to engage with our content as we are, but they are also often ill-equipped to do so. This misalignment between our beliefs about learning as experts and our students' capabilities as novices can set us up for failure and disappointment. The SoTL mindset opens up questions that help us reflect both on what we want our students to learn and how they learn compared to us.

When I work with instructors on their syllabus and course design, I always begin by asking them, "What do you want students to come away with from the course?" Inevitably, faculty need to pause and reflect on my question. Faculty often do not think first of what disciplinary skills and habits of mind they expect their students to acquire as they journey through content. They struggle to transfer the scholar's stance they bring to their disciplinary research to their work in teaching—to begin their teaching with the end in mind.

The SoTL framework of intentionality affirms course design practices that encourage us to ask, "What do we want students to achieve, how will we know they have achieved it, and how will we cultivate that achievement?"[26] For many faculty, these questions resonate with their research and creative work—having a defined goal and developing an argument or a method to achieve it. Not only is this approach more time-efficient for faculty, it also acknowledges the deliberate, reflective nature of course design and illuminates key connections between design and student learning outcomes. Thus, course design becomes less of a fuzzy, trial-and-error process and more a purposeful, iterative scholarly endeavor—one that is generative and results in data that can be used to inform future choices.

This step can be a first tentative venture in the transformation of instructors' views of their role—helping them move from thinking of themselves primarily as content providers to something more creative. Essentially, SoTL sets up teaching as problem solving—an epistemological shift. Randy Bass eloquently captured the transition in a teacher's thinking between viewing teaching challenges as problems—troublesome and unwelcome perturbations—to *problems*—intriguing and important areas for intellectual inquiry: "My journey that had begun with a crisis had *progressed* to a problem.… The ending had become a new beginning where the broad set of questions that had been raised in the process of rethinking my courses was now coming into focus as clear lines of inquiry that I wanted to investigate over the next several years, in the context of my teaching."[27]

With the SoTL focus on teaching as scholarly inquiry, our teaching "failures" become opportunities—thus normalizing failure as an essential step to insight. This view helps dispel the normative myth of the born teacher, one who knows innately how to engage and motivate students and lead them effortlessly across all learning hurdles. The analogy of teaching to the familiar areas of research and creative endeavors allows teaching improvement to be approached from a perspective of strength rather than of deficit and scaffolds the liminal uncertainty associated with confronting various threshold concepts in our practice.[28]

SoTL provides a new way to view teaching, prompting faculty to move from thinking of teaching as a commonplace exercise to a creative exploration. SoTL formalizes the problems we encounter in teaching and encourages faculty to embrace them as intellectual pursuits. It helps shift the focus of our teaching from descriptive or normative views of "what is" or "what should be" to questions of "why is that?" and "how can we?" A key next step, then, is rethinking the role of students in learning and teaching.

Reflecting on the Role of Students in Learning and Teaching

One traditional belief in teaching is that the instructor's responsibility is primarily to provide an opportunity for learning—the rest is up to the student. Although it is true that no one can force anyone to learn anything, it seems a lonely and rather inefficient perspective on the process. If no one is learning, why should we waste our time? Teaching is not a solitary endeavor—it is a reciprocal, social dynamic.

The SoTL perspective highlights this interplay between teacher and student in a number of ways. Central to SoTL is the desire to know what students are learning, how they learn, what they think. Faculty are invited to engage with these questions through exploration of the literature, discussion with colleagues, and the gathering of evidence from students themselves via their work and their voices. This knowledge can allow faculty to reframe

student failures and student complaints, providing ballast for the emotional turbulence of teaching.

Often student comments on course evaluations, for example, are reflective not of a teaching failure, per se, but of the struggle of a novice learner.[29] When faculty come to me to discuss disappointing course evaluations, I can help them past the hurt and frustration they feel by turning to the SoTL question "What is this a case of?"[30] We talk together about what the research tells us about challenges in student learning, such as proposed threshold concepts. We identify known differences in learning between novices and experts. These emotional moments can also catalyze confrontations with threshold concepts in their pedagogical practice. When that happens, the SoTL mindset allows a reversal of the faculty frame of reference—from blame (of either themselves or their students) to inquiry. This shift of perspective can comfort and invigorate faculty, opening up space for productive reflection and making them more receptive to discussions of the research on learning. The SoTL emphasis on pedagogy as a field of learning, one that draws on and contributes to a body of research, then can provide specific guidance to inform changes to practice.

Faculty often face a stumbling block to change in how they view students' role in their teaching as well. Instructors often ask me, "How do you think students will like *x*?" And I respond, "Ask them." For some faculty, the idea that students have any voice in their teaching other than the dread end-of-term evaluations is novel—and scary. Yet if students are denied a voice until the end, their comments can be filled with frustration and sometimes anger, making them even harder for faculty to "hear." The SoTL focus on inquiry and its emphasis on students as partners in the teaching-learning interplay encourages faculty to check in with students regularly, setting up a different dynamic. This check-in includes systematically gathering information both on student perceptions of their learning and on student achievement of goals. In such an approach, teaching becomes an intentional improvisational exercise—a master class writ large. In this environment, performance and feedback are regularized, for both students and instructor.

For some faculty, this approach initially may seem daunting, because they either face the tyranny of content coverage or fear the "judgement of the young."[31] But this approach can also address the isolation of teaching. When our students are active players in the teaching-learning process, our teaching can be invigorated by their energy and optimized by their input. No longer do we have essentially just one chance to plan a performance that will garner positive reviews in that final judgement. Normalizing a back-and-forth with our students about our teaching choices and their perceptions of those choices opens up teaching as an intellectual, creative process. Anonymous online surveys, one-minute papers, or questions posed via personal response systems or polling software are all easy, low-risk ways to gather feedback on student perceptions or student learning. The very act of reaching out to students sends them a strong signal that we consider teaching in partnership with learning and recognize it as a social endeavor involving a diverse audience. It lets students know that we are receptive to their needs and their fears and open to a dialogue about options—thus enhancing their motivation and improving the class climate for both instructors and students.

This approach can also help students recognize the complexity of learning and encourage them to be more self-reflective. One student who had participated in a university-wide initiative to promote co-inquiring of faculty, students, and staff captured some of the

benefits of this partnership in his observations: "If we gave students the opportunity to investigate how they are learning rather than simply giving them answers, wouldn't they come up with more thoughtful questions, exercise more neurons through problem solving and critical thinking, build more confidence in their knowledge, and gain deeper understanding in the material?"[32]

As faculty find courage to open up their teaching to student voices, they can begin to see their fields with new eyes. For example, one faculty member participating in a study on a campus-wide pedagogy initiative noted: "I don't know how I did it, but I began to realize something about my discipline that I had never realized before and that was the complexity of it. I created the problem not knowing what it was going to do, and then the first time I did it with students I started seeing all these questions coming up that I had never thought before."[33]

These revelations can be invigorating, but they can also add to confusion and anxiety by calling into question normative values faculty hold. The SoTL reliance on community thus adds essential support for liminality.

Reflecting on Teaching in a Community of Practice

Woven throughout the fabric of SoTL is the idea of teaching as a community of practice.[34] This community includes both our students (as noted above) and our colleagues. In the right circumstances, the SoTL community helps ameliorate the feelings of isolation common in academia and can behave similarly to a faculty learning community. Such sustained, organized gatherings of faculty to discuss a topic of mutual interest in teaching have been shown to draw faculty focus to teaching and learning and support them in pursuing inquiry around their teaching.[35]

In their seminal work on threshold concepts in disciplinary fields, Meyer and Land discussed ways for faculty to support students in navigating threshold concepts. One of their suggestions advocated that faculty provide a "holding environment" to enable the necessary shift in perspective that might permit further personal development."[36] We can also view this idea as meaningful in helping faculty work through pedagogical threshold concepts.[37] A holding environment as adapted in psychoanalytic practice implies maintaining a consistent analytic frame and supportive space for thinking through difficulties and change. Robert Kegan extended this idea to personal evolution.[38] He posited that such an environment must acknowledge where the person is in his or her development without coercing change, allow and engender transition to more complex ways of knowing, and provide steadiness and community during the process of change.[39] In an ideal setting, a SoTL community acts as a holding environment in which faculty speak freely about their teaching frustrations, fears, and failures and receive informed, collegial feedback to point the way to more productive reflections. SoTL can provide a reassuring congregation for the sharing and questioning of descriptive and normative beliefs, a safe haven for reexamining emotional challenges and doubts in light of the research on student learning, and a practice arena for implementing our work.

Pausing to explore our ontological and epistemological assumptions about teaching in community can stabilize the liminality of transitions and point the way to productive reflections. Two faculty members captured the value of such a community in these thoughts:

> If I did not have an audience… where I could come back and talk about what happened, then sometimes trying something new would be just that. That's it. There isn't any opportunity to share, to think about it, to dissect and to analyze.… SoTL provides a forum for understanding what I'm doing at a much deeper level and understanding what my students are doing when they entered into unfamiliar territory.[40]

> It also, I think, works around the loneliness of teaching.… And, so I think it's nice to be able to get together with other faculty and say, "So, how did you do this, and how did it work for you?" And it sort of makes it more of a collaborative enterprise, and I think that's a real [*sic*] healthy thing.[41]

Conclusion

Transforming our deeply held beliefs about what teaching is and should be, navigating through the myriad emotions around our identity as teachers, and having the courage to put what we believe into practice require us to be willing to sit for a spell in a liminal space—a space of dismay, disequilibrium, and doubt. Such transformation requires us to question the familiar and embrace ambiguity. The SoTL framework of evidence-based practice points to productive approaches as we reflect on our teaching choices and course design. The SoTL focus on inquiry encourages us to embrace the confusion we experience in the face of students, often so unlike ourselves, and use it as inspiration to interrogate our practice. The SoTL regularization of collaboration guides us as we question our assumptions and emboldens us as we reach out to our students for their perceptions and insights on their learning. Finally, the SoTL community sustains and revives us as we face difficulties, seek answers to troublesome questions, and slog our way through our "stuckness."

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Chapter 3

The Crossroads of SoTL and Signature Pedagogies

Nancy L. Chick

The title of this book identifies its overarching goals as building community and sharing meaning and purpose. It aims to break down the ubiquitous academic silos that result in separations, tribes, and factions that create highly specialized research that can lack relevance to others, reinforce a "pedagogical solitude" that prevents educators from supporting each other and sharing solutions,[1] and inhibit the integrative thinking that's necessary for students in the twenty-first century.[2] In multidisciplinary teaching and learning communities, sums are greater than parts, and solutions arise at the intersections of differences. In this context, this chapter presents what may at first seem like a paradox: that self-reflection and self-knowledge are prerequisites for collaboration and community. The paradox is illusory and not new, as it invokes the ancient Greek call to "know thyself" in order to also know others.

Two powerful conversations for teaching and learning communities to both deepen group identities and cross group boundaries involve signature pedagogies and the Scholarship of Teaching and Learning (SoTL). As discipline-specific ways of teaching, signature pedagogies facilitate a heightened awareness and practice of how particular fields operate. At the same time, this awareness allows experts in one area to "orient themselves within the different disciplines just down the hall or a few buildings over and facilitate the cross-pollinating conversations" and "reach out across the disciplines to appreciate the professional differences—and similarities—within the academic community."[3]

Similarly, SoTL is a scholarly approach to inquiry about teaching and learning that often begins with disciplinary thinking: what it means to learn, to evidence or perform learning, and to document and evaluate learning in a specific course within a specific discipline. Yet SoTL, by its very multidisciplinary nature, is a "trading zone" where educator-practitioners are "simplifying, translating, telling, and persuading 'foreigners' to hear their stories and try their wares."[4] Exploring signature pedagogies and SoTL can thus improve the learning of both student and teacher, enhancing the metacognitive awareness and agility that can break down silos to build communities that share meaning and purpose.

Signature Pedagogies

Lee Shulman coined the term *signature pedagogies* to describe the ways some professions are taught, the ways of teaching "that leap to mind when we first think about the preparation of members of particular professions." He looked to the rapid-fire Socratic questioning "so vividly portrayed in *The Paper Chase*" to illustrate law school's familiar "case dialogue method of teaching, in which an authoritative and often authoritarian instructor engages

individual students in a large class of many dozens in dialogue about an appellate court case of some complexity."[5] With the goal of preparing students for a specific career, signature pedagogies "prefigure the cultures of professional work and provide the early socialization into the practices and values of a field," enacting its "habits of the mind, habits of the heart, and habits of the hand."[6] The law classroom prefigures the courtroom, with its reliance on memory of precedent and case law, intense debates, power differences, and high stakes. Shulman's illustrations of signature pedagogies are those that immediately leap to mind, in part thanks to popular culture's representations of these professions.

Traditional academic disciplines haven't been as fortunate. Historian Lendol Calder points out that teaching in his field has been canonized "in the 'Anyone?… Anyone?' history class scene in the movie *Ferris Bueller's Day Off*."[7] This experience of a dry history lecture focused on facts and fill-in-the-blanks is familiar enough that it's easily parodied for our entertainment. Beyond the exaggerations on screen, the conventional ways some disciplines are taught have more serious consequences, reinforcing common disciplinary misconceptions. Calder laments, "Students come to college thinking that history is what one finds in a textbook: a stable, authoritative body of knowledge that, when remembered, somehow makes the world a better place."[8] To counter this preconception, he redesigned his history survey by looking to Shulman: "a signature pedagogy, then, is what beginning students in the professions have but history beginners typically do not: ways of being taught that require them to do, think, and value what practitioners in the field are doing, thinking, and valuing."[9] Historians don't do regurgitation, think in facts, and value vague social improvement. Instead, Calder identifies "a basic set of moves" or "cognitive habits" that *are* characteristic of what historians do, think, and value—"questioning, connecting, sourcing, making inferences, considering alternate perspectives, and recognizing limits to one's knowledge"[10]—and builds these into the overarching structure, the first few days, the routines, and the final assignment in his history survey.

As Calder's example illustrates by focusing on the introductory survey in which some students are majors and many are not, signature pedagogies in academic disciplines don't necessarily seek to create future professionals (e.g., professional historians and history professors). They suggest that disciplinary ways of doing, thinking, and valuing are important for reasons that transcend career goals: they develop thoughtful, ethical, and able citizens who have a range of habits to navigate an increasingly complex, global, and technological world.

Two key characteristics are embedded in signature pedagogies: intentionality and authenticity. They are imbued with a deliberate disciplinary design. Calder's revised survey course, like Shulman's sample law classroom, originates with the goal of "socialization into" the entirety of a field with its ways of knowing, doing, and being. They are more than the visible teaching and learning practices, or what Shulman calls the "surface structure" of signature pedagogies. They are also built on the "deep structure" of understanding how the discipline is best taught and learned, and the "implicit structure" of the discipline's fundamental values.[11] Several studies have shown that, even more than the practices deployed in the classroom, the way an instructor conceives of the purpose of teaching affects student learning. A more conceptual approach to teaching aimed at, for instance, "provok[ing] discussion and debate, monitor[ing] students' changing understanding, and encourag[ing] students to question their own ideas," rather than a more transactional approach aimed at demonstrating

"good presentation, covering the content, and providing a good set of notes," leads to deeper student learning.[12] Extrapolating from this work, pedagogical intention matters.

Signature pedagogies are also characterized by authenticity. Far more than the notion of learning by doing, or mimicking a field's "surface structures," signature pedagogies reproduce the experience of doing and being in the field, combining "a cognitive apprenticeship wherein one learns to think like a professional, a practical apprenticeship where one learns to perform like a professional, and a moral apprenticeship where one learns to think and act in a responsible and ethical manner that integrates across all three domains."[13]

Outside of the classical professions cited by Shulman—law, medicine, engineering, the clergy—practitioner-scholars are working to identify and articulate signature pedagogies across the disciplines.[14] Some are aided by their professional organizations' statements about the learning expectations or competencies for the field. For instance, Peden and Wilson VanVoorhis look to the American Psychological Association's (APA) *Guidelines* for the undergraduate psychology major. Using the relevant goals from the APA, they turn to the discipline's top teaching journal to "discover what these articles reveal about whether psychologists weigh the goals equally and how psychologists teach undergraduates to think and act like psychologists."[15] By mapping the goals onto the pedagogies discussed in the articles, they offer evidence of the most frequent pedagogies, and then encourage follow-up research to consider the broader implications for what students are learning about the field.

Information Literacy and Signature Pedagogies

This method offers another way of looking at the Association of College and Research Libraries (ACRL) *Framework for Information Literacy in Higher Education*.[16] If information literacy is foundational to "thinking like a librarian"—akin to the sociological imagination for sociologists or historical thinking for historians[17]—the ACRL's six frames and prompts point to some elements of librarians' signature pedagogies. While in some sense they reflect what it means to think like a librarian, the outward-facing work of librarians (as illustrated in information literacy) means that the goal is again not necessarily more librarians but instead more information-literate learners. The frames and prompts also map onto Shulman's three apprenticeships, spanning the head, hand, and heart as habits for information-literate citizens.

For the head, the *Framework* offers two keys way of knowing: understanding "authority" as "constructed and contextual" and "scholarship as conversation." It suggests that this cognitive apprenticeship occurs when students have "an open mind when encountering varied and sometimes conflicting perspectives" or when they "see themselves as contributors to scholarship rather than only consumers." These illustrative prompts for each frame can be seen as elements of the surface structure of this signature pedagogy.

For the hand, three frames highlight ways of doing formed in a practical apprenticeship: treating "information creation as a process," "research as inquiry," and "searching as strategic exploration." Here, students experience the "different methods of information dissemination with different purposes," the "open-ended exploration and engagement with information," and the limits of "first attempts at searching."

And one frame—one significant frame—outlines the moral apprenticeship, or a habit of the heart: "information has value." The power of information and its role "as a

commodity, as a means of education, as a means to influence, and as a means of negotiating and understanding the world" is arguably the foundational belief in information literacy and librarianship. The prompts for learning point to "proper attribution and citation" as surface ways of demonstrating "respect" for "the original ideas of others." Here, the notion of surface structure is even more meaningful: while attribution and citation are essential, they are indeed small actions that convey deep moral value in the field.

The ACRL *Framework* is just one way in to signature pedagogies for librarians. Reflecting more broadly on additional habits of head, hand, and heart that are important to librarians will generate a range of approaches and strategies that are signatures of library instruction. In collaboration with library colleagues, this reflection can extend to exploring where and how these ways of knowing, doing, and valuing are taught. Such critical examination of what this apprenticeship looks like can then explore perhaps the most important question of all: Is it effective? This is where the Scholarship of Teaching and Learning (SoTL) comes in.

Scholarship of Teaching and Learning

SoTL is a way to assess, document, and communicate students' learning. More specifically, it is

- **inquiry** to understand or improve postsecondary student learning and the teaching approaches and practices that affect student learning
- **informed** by relevant research on teaching and learning
- conducted by members of the educational community *from across campus* who draw from their **disciplinary expertise** by gathering and analyzing relevant **evidence** from the learners in their own specific **contexts shared broadly** to contribute to knowledge and practices in teaching and learning.[18]

One of the strengths of SoTL is that its practice isn't limited to any discipline or rank or status. Librarians, their instructor-of-record colleagues, and the learners themselves can conduct SoTL projects to meaningfully study the learning that happens in their specific teaching and learning contexts.

Mia O'Brien's "Navigating the SoTL Landscape: A Compass, Map, and Some Tools for Getting Started" has gained traction in the library community as a useful resource for getting started in SoTL.[19] She offers four questions as orientations to the field: "What will my students learn and why is it worth learning? Who are my students and how do students learn effectively? What can I do to support students to learn effectively? How do I know if my teaching and my students' learning have been effective?"[20] Foregrounding pedagogical intention, or "teaching as design," she also includes signature pedagogies as one way "to support students to learn effectively."

O'Brien's recommendations for sources of evidence collected to answer "How do I know if my teaching and my students' learning have been effective?" are student evaluation surveys, peer evaluation through "focused observation of practice, analysis of learning materials, feedback of assessment designs etc.," and self-evaluation in course memos, teaching journals, records of conversations, and statements of teaching philosophy.[21] She ends by mentioning Angelo and Cross's *Classroom Assessment Techniques* as "a particularly

comprehensive, highly regarded resource and starting point." Indeed, *CATs*, as it's widely known, includes even stronger methods for collecting evidence of student learning. *CATs*' formative assessments, or low-stakes methods for quickly capturing snapshots of student thinking, are simple to implement and meaningful in what they can reveal about learning or problems with learning.

Perhaps the best known of the classroom assessment techniques are the minute paper and the muddiest point. The minute paper can be used to get a glimpse of what students think they understand about something. It's a brief, typically anonymous, and ungraded response to a question such as "What's the most important thing you learned today?"[22] Students' responses to this question can be revealing: they may articulate something close to the intended learning goal, or they may reflect misconceptions and misunderstandings, or they may identify something important that's still different from the intended outcome. Whatever the answer, it can make visible student thinking at a critical point in learning. Timed strategically, these documents can then become data or evidence of something significant about student learning.

The muddiest point is a similarly brief, anonymous, ungraded assessment technique that can provide useful insight, as well as SoTL evidence or data, particularly into moments of confusion or frustration. In response to a question such as "What is confusing about today's class?" or "What questions do you have about today's activity?" students can safely confess what's difficult for them or what they don't understand.[23] Imagine having on hand paragraphs in which students describe what research means to them. A SoTL perspective resists taking these statements at face value because "when we examine student learning,… nothing is as obvious as it might seem."[24] Looking at students' responses with this complexity in mind, these descriptions may provide specific examples of, for instance, students seeing scholarship as a conversation, but a conversation that actively excludes them. They may provide clear and varied descriptions of "information" as inert, depersonalized, and deconceptualized data, suggesting one of the reasons why they may see citations, attribution, and plagiarism as mere technicalities. There are other effective classroom assessment techniques that can function as data collection tools in SoTL projects. A simple Google search will turn up dozens.

Think-alouds are another rich source of SoTL evidence. While classroom assessment techniques like the minute paper and muddiest point are easy to implement and relatively quick to analyze, think-alouds are more time-intensive, but the level of access into student thinking they provide is invaluable. A protocol originating in cognitive psychology, the think-aloud trains someone "to think out loud while completing a task," and "the voiced introspections can be recorded, transcribed, and analyzed to determine what cognitive processes were in play."[25] Calder explains,

> For SoTL researchers, think-alouds can generate useful data for several kinds of questions. For example, when observing a recurring bottleneck to learning, how does one identify the specific places where students get stuck? Or what about a teaching intervention or new course design: How effective for learning is the new approach, and what new moments of difficulty are created? A beautiful thing about think-alouds is how effective they are at uncovering

> and documenting what conventional assessment methods often miss—hidden levels of student insight and misunderstanding.[26]

Imagine a handful of students doing think-alouds while conducting their searches, verbalizing where they get stuck, how they feel about that stuckness, what they think when they find something useful, what they consider useful, and so on. Or think of what we could learn by having access to what students think about (and don't think about) when they're integrating researched information into a paragraph within their own essays.

SoTL and Signature Pedagogies

The ACRL *Framework* calls for "faculty" to "look to librarians as partners" and encourages "collaboration" and "a new synergy" with "their complementary roles as educators." This call invokes the model of the embedded librarian working alongside an instructor of record in the design and delivery of a course, rather than the traditional one-off, fifty-minute class period in which the librarian is expected to teach students how to do research, be information literate, and complete an assignment—typically a weighty one—specific to the course. It also invokes the partnership, collaboration, and complementary lens librarians can offer from their unique access to students. The one-on-one or small-group instruction that occurs when librarians work directly with students in consultations, at the reference desk, or even in online chats is a pedagogy that deserves attention. In these conversations, librarians have access to student thinking that may not be shared elsewhere. In these moments away from their instructor of record and their peers, students are more likely to confess to confusion, describe what they understand and what they don't, ask vulnerable questions, and reveal misconceptions—some of the most important information about student learning. This pedagogy puts librarians in a unique position to make these intermediate moments of learning visible and to make sense of what happens as students struggle to learn outside of class. These insights can then be shared with instructors as part of the same teaching and learning community working in collaboration, partnership, and a more integrative approach to support the same students.

Is it possible that these moments of instruction are a signature pedagogy of library instruction? What ways of thinking are the students developing in these moments? What habits and practices are they honing? What values are they exercising? Perhaps they are learning to think of authority as dependent on their "information need" and context, and of their research as a conversation. Perhaps they are honing the processes of creating information, the ability to ask "increasingly complex or new questions" as they go, and "the mental flexibility" of strategic searching. And perhaps they are exercising greater respect for the value of information and ideas. We can speculate, but SoTL projects would provide evidence and understanding.

Pat Hutchings's now-classic taxonomy of SoTL questions offers an accessible entry point for thinking about SoTL projects.[27] She outlines four kinds of questions SoTL projects may ask and attempt to answer: "What works?" projects evaluate the effectiveness of a learning activity, "What is?" projects document and describe moments of learning, "What's possible?" projects experiment with new approaches, and "theory-building" projects conceptualize about what it means to teach and learn.[28] The first two project types are

the most common. They also establish foundations for understanding effective teaching and learning, especially if in reverse order: that is, starting with a "What is?" project that aims to describe, document, and understand what happens when students are in the midst of learning before trying to determine if something "works." Projects that start with evaluating an intervention without first establishing what isn't working by drawing on either a prior project or a strong literature review may, in fact, begin with an inaccurate diagnosis that then leads to efforts to fix what wasn't broken. Rather than the cart leading the horse—and potentially the wrong horse—SoTL practitioners are wise to begin with a thoughtful exploration of "What is?"

- What do students understand about *x*? What does it look like to understand it?
- What do students *not* understand about it? What are their misconceptions, bottlenecks, mental roadblocks about it? What do these difficulties look like?
- Why do they have difficulty with it? What's at the root of their misconceptions?
- What are the consequences of their misconceptions?

Ultimately, the Scholarship of Teaching and Learning and signature pedagogies present an invitation to librarians to delve deeply into student learning within their specific contexts and to draw out the internal processes that other educators can't access on their own—and then to share these insights with others in conversations and communities based on the shared meaning and purpose of improving learning across and beyond institutions of higher education.

Notes

1. Lee S. Shulman, "Teaching as Community Property: Putting an End to Pedagogical Solitude," *Change* 25, no. 6 (1993): 6.
2. Association of American Colleges and Universities, "Essential Learning Outcomes," accessed May 1, 2018, https://aacu.org/leap/essential-learning-outcomes.
3. Nancy L. Chick, Aeron Haynie, and Regan A. R. Gurung, "From Generic to Signature Pedagogies: Teaching Disciplinary Understandings," in *Exploring Signature Pedagogies: Approaches to Teaching Disciplinary Habits of Mind*, ed. Regan A. R. Gurung, Nancy L. Chick, and Aeron Haynie (Sterling, VA: Stylus, 2009), 12–13.
4. Mary Taylor Huber and Sherwyn P. Morreale, "Situating the Scholarship of Teaching and Learning: A Cross-Disciplinary Conversation," in *Disciplinary Styles in the Scholarship of Teaching and Learning: Exploring Common Ground*, ed. Mary Taylor Huber and Sherwyn P. Morreale (Menlo Park, CA: Carnegie Foundation, 2002), 19.
5. Lee S. Shulman, "Signature Pedagogies in the Professions," *Daedalus* 134, no. 3 (2005): 52.
6. Shulman, "Signature Pedagogies in the Professions," 59.
7. Lendol Calder, "Uncoverage: Toward a Signature Pedagogy for the History Survey," *Journal of American History* 92, no. 4 (2006): 1359.
8. Calder, "Uncoverage," 1363.
9. Calder, "Uncoverage," 1361.
10. Calder, "Uncoverage," 1361.
11. Shulman, "Signature Pedagogies in the Professions," 54–55.
12. Keith Trigwell, "Evidence of the Impact of the Scholarship of Teaching and Learning Purposes," *Teaching & Learning Inquiry* 1, no. 1 (2013): 98. See also Keith Trigwell, Michael Prosser, and Fiona Waterhouse, "Relations between Teachers' Approaches to Teaching and Students' Approaches to Learning," *Higher Education* 37 (1999): 57–70; Graham Gibbs and Martin Coffey, "The Impact of Training

of University Teachers on Their Teaching Skills, Their Approach to Teaching and the Approach to Learning of Their Students," *Active Learning in Higher Education* 5, no. 1 (2004): 87–100.

13. Lee S. Shulman, "The Signature Pedagogies of the Professions of Law, Medicine, Engineering, and the Clergy: Potential Lessons for the Education of Teachers" (presentation at the National Research Council's Center for Education's Math Science Partnerships Workshop: Irvine, CA, February 6–8, 2005), 3, http://iw73535.tripod.com/sitebuildercontent/sitebuilderfiles/shulmanarticle.pdf.
14. See, for example, Regan A. R. Gurung, Nancy L. Chick, and Aeron Haynie, eds., *Exploring Signature Pedagogies* (Sterling, VA: Stylus, 2009); Nancy L. Chick, Regan A. R. Gurung, and Aeron Haynie, eds., *Exploring More Signature Pedagogies* (Sterling, VA: Stylus, 2012).
15. Blaine F. Peden and Carmen R. Wilson VanVoorhis, "Developing Habits of the Mind, Hand, and Heart in Psychology Undergraduates," in *Exploring Signature Pedagogies: Approaches to Teaching Disciplinary Habits of Mind*, ed. Regan A. R. Gurung, Nancy L. Chick, and Aeron Haynie (Sterling, VA: Stylus, 2009), 165.
16. Association of College and Research Libraries, *Framework for Information Literacy for Higher Education* (Chicago: Association of College and Research Libraries, 2016), http://www.ala.org/acrl/standards/ilframework.
17. Eri Fujieda, "Signature Pedagogy and the Sociological Imagination: A Critical Assessment," in *Exploring Signature Pedagogies: Approaches to Teaching Disciplinary Habits of Mind*, ed. Regan A. R. Gurung, Nancy L. Chick, and Aeron Haynie (Sterling, VA: Stylus, 2009), 184; Sam Wineburg, *Historical Thinking and Other Unnatural Acts* (Philadelphia: Temple University Press, 2001); Calder, "Uncoverage"; Joel M. Sipress and David J. Voelker, "From Learning History to Doing History: Beyond the Coverage Model," in *Exploring Signature Pedagogies: Approaches to Teaching Disciplinary Habits of Mind*, ed. Regan A. R. Gurung, Nancy L. Chick, and Aeron Haynie (Sterling, VA: Stylus, 2009), 21.
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19. Mia O'Brien, "Navigating the SoTL Landscape: A Compass, Map, and Some Tools for Getting Started," *International Journal for the Scholarship of Teaching and Learning* 2, no. 2 (2008): 1–20. See, for instance, Lauren Hays and Melissa Mallon, "Keeping Up With… the Scholarship of Teaching and Learning," *Keeping Up With*, September 19, 2017, http://www.ala.org/acrl/publications/keeping_up_with/sotl.; Lindsay McNiff and Lauren Hays, "SoTL in the LIS Classroom: Helping Future Academic Librarians Become More Engaged Teachers," *Communications in Information Literacy* 11, no. 2 (2017): 366–77.
20. O'Brien, "Navigating the SoTL Landscape," 4.
21. O'Brien, "Navigating the SoTL Landscape," 14–15.
22. Thomas A. Angelo and K. Patricia Cross, *Classroom Assessment Techniques* (San Francisco: Jossey-Bass, 1993), 148–53.
23. Angelo and Cross, *Classroom Assessment Techniques*, 154–158.
24. Dianne Fallon, "'Lucky to Live in Maine': Examining Student Responses to Diversity Issues," *Teaching English in the Two-Year College* 33, no. 4 (May 2006): 413.
25. Lendol Calder, "Student Think-Alouds: Making Thinking and Learning Visible," in *SoTL in Action: Illuminating Critical Moments of Practice*, ed. Nancy L. Chick (Sterling, VA: Stylus, 2018), 110.
26. Calder, "Student Think-Alouds," 110–11.
27. Pat Hutchings, "Introduction," in *Opening Lines: Approaches to the Scholarship of Teaching and Learning*, ed. Pat Hutchings (San Francisco: Jossey-Bass, 2000), 1–10.
28. Hutchings, "Introduction," 4–5.

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Chapter 4

Bottlenecks of Information Literacy

Joan Middendorf and Andrea Baer

In recent years academic librarians have expressed great interest in the places where students get "stuck" in their learning process. By identifying where students struggle most, librarians, like many college educators, can develop more effective pedagogical approaches both to their individual instruction and to collaborative teaching with disciplinary faculty. Librarians' interest in the "stuck places" of learning have been especially apparent in work on information literacy "threshold concepts" and in the adoption of the ACRL *Framework for Information Literacy for Higher Education*, which is largely informed by threshold concepts theory.[1]

A related instructional approach that is also referenced in the ACRL *Framework* is Decoding the Disciplines.[2] Decoding the Disciplines (hereafter Decoding) is a model for instructional design that begins with identifying these stuck places, the "bottlenecks of learning." The Decoding framework offers a process for teachers to address these bottlenecks through modeling, opportunities for student practice and instructor feedback, and assessment.

While Decoding is most often discussed in relation to student learning, it is also a powerful model for fostering cross-disciplinary dialogue and collaboration among educators. The Decoding process grew out of work in a faculty learning community at Indiana University in which professors from different disciplines developed their disciplinary teaching largely through interactions with colleagues in other fields. These exchanges helped participants to gain deeper understandings of their own fields' epistemologies and practices and to develop more effective ways to teach these to novices in their disciplines. Decoding takes the differences in disciplines seriously and often utilizes cross-disciplinary groups to uncover the mental moves and assumptions that underlie teaching so that disciplinary knowledge can be made available to students. As educators work across disciplinary lines, they gain fresh insights into their own fields.

We, the authors (Joan and Andrea), believe that Decoding can also be a rich tool for librarians and teaching faculty in cultivating meaningful partnerships as they identify and address the "bottlenecks" that often stand in the way of learning, teaching, and librarian-faculty collaboration. We first became acquainted with one another in 2015–2016, when we shared an office space at Indiana University. Joan is an educational developer who, along with historian David Pace, developed the Decoding the Disciplines framework at Indiana University. Andrea is an instruction librarian who has used the Decoding model for her own teaching, as well as for professional development workshops for instruction librarians and teaching faculty. As Andrea became further intrigued by Decoding's relevance to the recently adopted ACRL *Framework* (which also focuses on "stuck places" in

learning), we began to discuss the ways that Decoding can inform work in both of our professional communities. When Joan was approached about contributing to this book, the questions that she had been asked to address seemed to lend themselves naturally to collaboration: What do educators need to learn and to experience in order to build meaningful cross-disciplinary teaching and learning communities, and how can the ACRL *Framework* serve as a catalyst for librarian-faculty dialogue and collaboration?

We began considering how we might draw from the Decoding model in order to explore these challenging questions. We reflected on "bottlenecks of information literacy" not only in terms of student learning, but also in relation to librarians' and disciplinary faculty's challenges with teaching information literacy and with cultivating cross-professional dialogue and partnerships.

Our investigation was informed partly by an online survey of instruction librarians about their perceptions of the "bottlenecks of information literacy." The most prominent survey finding was that the most pervasive bottleneck of information literacy for students, faculty, and librarians may be the misconception that information seeking is a simple mechanical process of source retrieval, rather than an inquiry-driven, analytical process. (Many librarians will immediately see connections between this bottleneck and the ACRL *Framework*'s "Research as Inquiry" frame.) In this chapter we discuss how Decoding can help educators develop effective responses to this bottleneck, as well as how Decoding and the *Framework* can work complementarily to cultivate cross-disciplinary teaching partnerships that address such bottlenecks. Though the scope of this chapter does not allow for an in-depth analysis of the survey findings (which will be a focus of later research), we use the central finding to build examples of how the Decoding process might be applied to information literacy instruction.

What Is Decoding the Disciplines?

Decoding the Disciplines is a theory of pedagogy that guides the teaching and learning process. Based on the gap between expert and novice thinking, the Decoding process uncovers the mental moves of experts in order to make those moves available to students. Instead of starting with the information or content that students need to learn, Decoding begins with the bottlenecks, the places where students struggle to learn. In the seven-step Decoding model (see figure 4.1), educators first identify the crucial bottlenecks. They then "decode" what an expert does to get through a bottleneck. This process reveals the expert's mental actions. The ensuing steps reveal the mental action to students, encourage students to rehearse and to strengthen their ability to perform the action, motivate them to persist with the new mental action, and frequently check students' proficiency with that action (assessment). The final step of Decoding encourages educators to go public with their efforts as they share their Decoding and teaching process with peers, invite feedback, and encourage the spread of ideas. (For a detailed explanation of each step of the Decoding process and accompanying exercises, see *Overcoming Student Learning Bottlenecks.*[3])

The steps are not linear, and one does not have to do all of the steps, though it is usually essential to find the bottleneck and the underlying mental action. Then a teacher can use any of the remaining steps to develop instruction that will help students to get through the bottleneck. The Decoding model can be applied at the lesson level to bring

1. What is a bottleneck to learning in this lesson, a place where students regularly struggle to learn?
2. What do experts do to get through the bottleneck? What mental action do they use?
3. How can this mental action be explicitly modeled? What analogies are helpful?
4. How will students practice tasks and receive feedback on this mental action?
5. How can students be motivated to persist in using this new mental action?
6. How will students be assessed on their proficiency (or lack thereof) in using the mental move?
7. How will the results of this decoding work be shared with others?

Figure 4.1
The seven steps of Decoding the Disciplines.

students through the bottlenecks. At the course level, teachers identify the main bottlenecks and then tackle them one at a time, scaffolding the concepts and enabling deeper understanding. At the curricular level, faculty groups determine the predominant mental moves students should acquire over the course of their program and in which courses they will learn these.

Decoding is useful on both a practical and a theoretical level. When educators teach in the absence of theories, they can get overwhelmed in an ocean of content and a vast array of teaching methods. Decoding the Disciplines is a theory of pedagogy, while bottlenecks are one of many theories of difficulty that guide Decoding.[4] The two theories of bottlenecks and Decoding the Disciplines can be used to organize teaching. As a theory of difficulty, the bottlenecks point teachers to where the critical assumptions and mental moves in their discipline are not being made clear and where it would be worthwhile to focus their efforts. As a pedagogical theory, Decoding the Disciplines provides a solid framework to get students through the difficulties.

Theories of difficulty, such as threshold concepts and bottlenecks, focus on what makes a given concept difficult.[5] In other words, what is the nature of the problem that is blocking student learning? The theory of difficulty that helps educators understand why bottlenecks exist is that of tacit knowledge.[6] According to this theory, many faculty gain their expertise through academic study and applied work in the discipline, but it remains tacit, or implicit, knowledge.

A central tenet of Decoding is that knowledge and learning are disciplinary and that different disciplines present different challenges to learners. Experts have learned to do many tasks simultaneously. If educators want students to do the "critical thinking" of the discipline, they have to break down what the expert does. The bottlenecks, the places where students struggle, point to where the expert is making leaps that may leave students behind.[7] Faculty practice the disciplinary "game" at a complex level.[8] At this advanced stage the focus is on the further creation of disciplinary knowledge, rather than on making

explicit the nature of one's own reasoning process. Thus, disciplinary and trans-disciplinary assumptions and mental moves are hidden. When it is time to teach undergraduates about the discipline, it is difficult to explain one's own tacit knowledge. The degree to which experts can be unaware of the nature of their own knowledge-creating process can be surprising.[9]

The Survey

As noted previously, to explore our central questions, we developed an online survey for instruction librarians about the bottlenecks for students, faculty, and librarians of teaching and learning about information literacy. The survey responses would help us explore what the bottlenecks of information literacy are for students, faculty, and librarians. Identifying these bottlenecks is essential to building and growing meaningful faculty-librarian teaching partnerships. Ideally such an investigation would also involve surveying faculty and students about their perceptions of the "stuck places" in seeking, evaluating, and using information. Given the timeline for writing this chapter, we approached the survey as a tool for guiding our discussion of Decoding the Disciplines rather than as a thorough investigation into information literacy bottlenecks. Our discussion of the survey is therefore focused on its purpose for the writing of this chapter.

In January 2018 we invited librarians through the ACRL Information Literacy Instruction Discussion List (ILI-L) to respond to the survey during a two-week time period. We received responses from 129 individuals. Our analytical strategy applied the constant comparative method to uncover patterns that emerged from the survey results.[10] Responses were sorted into categories inductively rather than assigned to predetermined categories. Because the scope of this chapter does not allow for an in-depth and statistical analysis of the survey findings, we concentrate on the most prominent emerging theme—that an overarching bottleneck for librarians, faculty, and students in teaching or learning about information literacy is an understanding of information seeking as inquiry-driven, rather than as a simple process of information retrieval. In the survey we asked librarians what they perceived as the stuck places, or the "bottlenecks," of information literacy for students, faculty, and librarians through the following questions:

- Where do students get stuck when seeking, evaluating, or using information for their academic work?
- Where do faculty get stuck in teaching students how to seek, evaluate, or use information?
- Where do librarians get stuck in teaching students how to seek, evaluate, or use information?

Because we were particularly interested in barriers to faculty-librarian collaboration, we also asked survey participants what barriers, or "stuck places," get in the way of meaningful faculty-librarian teaching collaborations. The survey also included two additional questions, which were intended to help us investigate "emotional bottlenecks" of information literacy. However, responses to these questions proved to be less directly relevant to our current discussion. This data therefore is not described in this chapter; it will instead be used for later research that focuses more narrowly on emotional bottlenecks. Drawing

from the findings from the first four survey questions, we examine common bottlenecks of information literacy.

Key Survey Findings

One striking quality of the survey was the remarkable consistency of participants' responses. Themes surfaced not only across individual participants' responses, but also across answers to the different questions. The most prominent (and perhaps most significant) pattern to emerge was that of contrasting conceptions of information literacy. Respondents repeatedly described understandings among students, faculty, and librarians of information literacy as either simplistic search mechanics or as inquiry-driven research and information use. The common view of information literacy as a fairly clear-cut procedure—whether held by students, faculty, or in some cases librarians—appeared to be at the root of the majority of the information literacy "bottlenecks" that all three groups experience. In other words, students, faculty, and librarians struggled with how either to engage with or to represent information seeking and selection as an inquiry-based process, rather than as a mechanical act of source retrieval.

Other obstacles to teaching and learning about information literacy could often be traced back to this conception of information literacy. For example, the challenge for librarians of teaching primarily within "one-shot" library sessions can be tied to the notion that an hour is sufficient time for students to learn the "basics of library research." The one-shot approach, many respondents suggested, may reinforce misunderstandings of information literacy as simple, mechanical procedures that either can be learned quickly or are "picked up" without explicit instruction.

These findings align with those from other research studies, such as those of Project Information Literacy (PIL). In their 2010 study *Truth Be Told: How College Students Evaluate and Use Information in the Digital Age*, PIL researchers Alison J. Head and Michael B. Eisenberg provide data that suggests that "the large majority of students conceptualize research, especially tasks associated with seeking information, as a competency learned by rote, rather than as an opportunity to learn, develop, or expand upon an information-gathering strategy which leverages the wide range of resources available to them in the digital age."[11] Wendy Holliday and Jim Rogers drew similar conclusions not only about how students often conceive of information seeking and information sources, but also about how course instructors and librarians often teach about searching for and using sources. In "Talking about Information Literacy: The Mediating Role of Discourse in a College Writing Classroom," Holliday and Rogers observe that information literacy instruction often reinforces the conception of sources as objects to be found and inserted into a paper (rather than as resources for learning about an issue).[12]

All of this research indicates that an understanding of "Research as Inquiry" is fundamental to information literacy, a point that is reflected throughout the ACRL *Framework* and in particular in the *Framework*'s sections "Research as Inquiry" and "Searching as Strategic Exploration." These studies moreover illustrate that conceptions (and misconceptions) of information seeking and use matter. Students and often faculty often view a library search as a retrieval of sources, like hunting for a set number of animals, without being quite concerned about the type of animal. Librarians, in contrast, most often want

students to think of a search as more of a genuinely interesting question. Librarians often play with different search terms, evaluate the quality of the answers they receive based on those search terms, and revise their searches accordingly. The end result is usually not a clear-cut answer to a simple question. Instead the searcher usually must interpret the results of several searches and synthesize key pieces of information. Educators who pay attention to the learners' struggle can apply Decoding the Disciplines to help students get through the bottleneck.

Applying Decoding to a Conceptual "Bottleneck"

Given that inquiry-centered research is perhaps the greatest information literacy bottleneck, how might Decoding help students, librarians, and faculty to approach information seeking and use as inquiry-driven? In other words, how can librarians and their fellow educators address misconceptions, such as seeing research as a simple, linear process of information retrieval, and how can Decoding the Disciplines help with this? We will illustrate how Decoding can be applied to teaching about both conceptual understandings (such as inquiry-driven information seeking) and concrete tasks (such as developing effective search terms) that are done most skillfully with an inquiry-centered mindset. We focus first on applying the Decoding model to unpacking the most significant bottleneck that was apparent in our survey: inquiry-driven information seeking. In the first two steps of the Decoding the Disciplines model, teachers select a bottleneck and decode the implicit mental moves of the expert.

To decode inquiry-driven information seeking, Joan conducted a brief Decoding interview with Andrea about what she does when beginning to find library resources in order to explore a research question. This is a complex process that involves numerous tasks and mental moves, so it is unsurprising that during the interview we were identifying numerous places where students may get stuck. The interview answers served as the basis for the first two steps in the Decoding process that is outlined below.

1. **The Bottleneck:** The main bottleneck we found in the survey was conceptual in nature: most students appear to approach information searching as a mechanical, linear process. Students frequently struggle with library database searches, which they often see as a process of retrieving a source as quickly as possible in order to meet basic assignment requirements. Often students believe that a research assignment is primarily about finding a certain number of sources, rather than selecting sources strategically in order to learn more about the topic or issue. This contributes to numerous challenges in finding, evaluating, and using information effectively.
2. **Mental Action (**What mental actions does the expert perform to get past this bottleneck?): Though database searching varies depending on context, the overall mental action of inquiry-driven database searching can generally be broken down into the following mental actions:
    a. **Question development:** Often the question is developed and refined during the search process. In this example, we work from the assumption that the

researcher has already formulated a genuine, meaningful question, though that question may still need to be refined during the searching process.

b. **Identification of search terms:** The expert generates different search terms that reflect central concepts related to the research question and analyzes the resulting sources in order to determine which keywords unlock sources that better get at the question. (This analysis process may involve evaluating both individual search results and the summative information, or metadata, about one's search, such as the number of search results, subject terms, publication years, or publication sources. This analysis enables one both to identify possible search terms and to better understand the research question and how others have approached it.)
c. **Tolerance of ambiguity:** When evaluating the relevance of search results in relation to the research question, scholars are comfortable that there is rarely one clear answer or one single source that fully addresses the question. A research question may evolve as the researcher learns more about the related literature.
d. **Analysis of search results:** Expert researchers evaluate the relevance and authority of sources in relation to their research questions. They synthesize relevant information from the various sources in order to generate an original approach to their questions. Again, this information may lead researchers to revise their questions.

Because processes vary by discipline, a geologist's or sociologist's answers to the interview questions would probably vary from Andrea's responses. It would be useful for instruction librarians to compare these different answers as they consider varying disciplinary approaches to information literacy.

Each of the points above involves a number of complex mental moves, many of which are done alongside one another (for example, evaluating search results, revising search strategies, and revising a research question). As these complex tasks reflect, often while dissecting the mental moves of a disciplinary task, experts realize that they must further dissect the individual mental moves that they have already outlined. In other words, a bottleneck of learning often contains within it sub-bottlenecks, much like a set of Russian nesting dolls. The more specific teachers are about the sub-bottleneck, the better they can help students to work through the larger bottleneck. Just as when teaching a novice to drive a car, many tasks need to be done simultaneously (steering the car in space, accelerating and braking, keeping aware of the location of nearby vehicles, etc.). Each of these involves a different mental move (and a corresponding physical move), but for clarity (and safety!), it is best to introduce each move separately. Teachers are not being clear if they cannot explain the separate tasks.

Strategies for Addressing Bottlenecks and Sub-bottlenecks

A **bottleneck strategy** uncovers a multi-part mental move that students have been left to intuit. The strategy breaks down these mental actions so that students can perform that larger mental move. A good bottleneck strategy appears to be deceptively simple, but it is

powerful. In the case of more complex bottlenecks (such as the conceptual understanding of inquiry-driven information seeking), an instructor may need to develop multiple strategies that address various sub-bottlenecks.

Next we share a sub-bottleneck strategy for the second mental move outlined above: developing search terms. Like the concept of inquiry-driven information seeking, this sub-bottleneck is closely tied to the ACRL *Framework*'s frames "Searching as Strategic Exploration" and "Research as Inquiry," both of which emphasize the nonlinear and iterative nature of research.

The bottleneck strategy below shows one plan for getting students through this sub-bottleneck. Other instructors might make different choices in terms of analogies and methods for practice and assessments. Instructors in different fields would also develop their strategy based on the ways knowledge is created in their disciplines.

A Sub-bottleneck Strategy (Example): Developing Search Terms

1. **Bottleneck:** Students struggle with developing search terms, particularly when they cannot find a source that corresponds perfectly with their research topic. For example, a student researching homelessness in Calgary might think that he or she must find sources specifically about homelessness in that geographic area, rather than identifying key issues or concepts that would help explore a particular aspect of homelessness, such as homelessness among teens or policies and programs that reduce homelessness. (See MacMillan et al. for a more detailed discussion of a Decoding interview on this topic.[13])
2. **Expert Mental Moves:** Generate search terms based on the more important factors or issues related to the topic, skim the results, and adjust the search terms. Repeat this process until satisfactory sources are found.
3. **Modeling with Analogy:** "Developing search terms that unlock the best sources is like . . ." A possible analogy here is calibrating a rifle for target practice. You take your best shot and then view the target through binoculars. Maybe the shot is off a little and needs to be adjusted to the left and higher, so you use the feedback you received from the previous aim and take a better shot. This time maybe the shot is still a little high or too low, but closer, so you keep trying until you hit the bull's-eye (not one precise spot, but a circular space).
4. **Practice:** In small teams students create a concept map for search terms about homelessness in Calgary. On large sheets of paper, each team writes the main topic on middle of the paper. They then add synonyms or related broader topics to the map. Students might identify additional terms after a quick database or search engine search. When done, students test out their search terms, choose two to four of the best search terms for their topic, and discuss whether or how their search terms changed. For homework, students individually make another concept map with a new topic and assess the effectiveness of those terms.
5. **Motivating Students and Holding Them Accountable:** By practicing the concept map in teams, students may increase their motivation and sense of effectiveness. Also, because this bottleneck is a misconception (that is, the pre-existing notion of mere source retrieval blocks students from an inquiry-driven approach

to developing search terms), it might be useful to find out more about the misconception. Teachers can ask learners to jot down answers to the following questions in order to encourage students to explain their ideas further: "What are some ways to generate good search terms?" and "Why do you say that?" Such questions can either confirm or disconfirm instructors' assumptions about prevalent student misconceptions.

6. **Assessing Students on the Mental Action:** An Approximate Analogy Classroom Assessment Technique (CAT), such as the prompt "Finding the best search terms is like… ," can be used to check whether students are still thinking of information searching as a process of finding one perfect result or as an iterative process of testing out various terms in order to move toward a better result.[14] Alternatively, an instructor could use a Focused Lists CAT, in which students list the steps for determining the best search terms. This activity could be used as a pre- and a posttest.
7. **Instructor Reflection and Sharing:** What were the results of your assessments? What did the pre- and posttest show? What did you learn about your students' learning? Where might you like to share what you learned using the bottlenecks and Decoding frameworks?

The sub-bottleneck strategy corresponds with the steps of Decoding. Below is an explanation of how we applied Decoding to developing the strategy.

1. The Bottleneck: What Are Students Unable to Do?

We chose our bottleneck based on our central survey finding: the conceptual understanding of information seeking as information-driven. Most instructors, however, identify the places where students struggle based on their own teaching context. When there are several bottlenecks to choose from (as is usually the case), a teacher may choose the one that seems most troublesome and that is central to knowledge creation in their field. A bottleneck in formatting a paper is probably not as important as a bottleneck in identifying and using search terms.

2. Mental Action: What Mental Actions Does the Expert Perform in Order to Get Past the Bottleneck?

Our inventory of the overall mental moves in inquiry-driven information seeking uncovered four mental moves, one of which we further decoded with the sub-bottleneck strategy outlined above. These mental moves or mental actions, the most difficult part of the process, were derived from an interview, but identifying mental moves (which often have become intuitive to an expert) can also be done with analogies, rubrics, model building, reflective writing tours, and mind maps.[15] These mental actions can serve as student learning outcomes. They are also the foundation for the remaining Decoding steps.

3. Modeling the Thinking: What Do Experts Do to Get through the Bottleneck? What Mental Action Do They Use?

Here a teacher shows students how the mental action is done. This is done first through an analogy or a metaphor. Then the mental action is performed on a disciplinary example.

Analogies work as inferential frameworks: they help students tap into ideas with which they are already familiar and show them which "mental muscles" to use. In this way analogies encourage students to draw connections between experiences and concepts and to transfer their understandings from one context to another. Because analogies enable students to identify where they have used this kind of thinking before, they allow students to transfer that thinking into the new domain. Analogies should be brought from outside of the focus discipline because too much discipline-speak camouflages the key parts of a within-discipline analogy.

In the example of developing effective search terms, students are encouraged to ask themselves, "Where have I done something similar, in which I am initially unsure about my approach and have to test it out, see what result that gets me, and then generate something even more useful?" To explain the ambiguity in developing effective search terms, a teacher might use the analogy of golfing: when teeing off, golfers don't aim for the hole. Sometimes they can't even see the hole on the first shot. They aim for an area toward the hole, and it takes several strokes to get there. It is when they are putting that they aim for the hole.[16]

When inventing analogies, it is important to take into account the misunderstandings of the target mental action, as well as to anticipate and eliminate the analogy-caused misconceptions. Chi advises making a side-by-side comparison between a misleading concept and the disciplinary mental move in order to help students recognize the difference.[17] For example, a teacher might employ a shopping analogy in order to compare an inquiry-based search to retrieval of an already identified source. Consider the following analogy. When shopping, sometimes one knows exactly what one is looking for and where to go. At other times shoppers just know that they need something, but they are not sure how they can find it (e.g., shopping for the perfect white shirt). Then they have to look at a few of those items, in a few different stores or databases, in order to narrow down their criteria.[18]

The analogy is followed by a specific example of inquiry-driven information seeking. The teacher highlights exactly where the mental actions come into play in the example (e.g., how experts come up with some search terms, how they determine which terms are getting them the best results, and how they then revise the search terms in order to further strengthen the search results). If the teacher fails to point out where the specialized mental moves take place, students may not know where to focus their attention in the example and can get lost in the details.

4. Practice and Feedback: How Will Students Practice These Mental Actions? How Will They Receive Feedback to Make Improvements?

Students need a chance to practice in class so that they can try out the new ideas with instructor support. They also need practice outside of class that reinforces the new mental action. Teachers need to match the mental action with methods of practice. Methods that are good for idea generation (as when generating search terms) include list making, concept mapping, and drawing (visualization).

There are countless activities that might provide students with practice in iterative information searching. Many librarians use concept mapping in their instruction and will have numerous other ideas for providing opportunities for student practice. What makes

Decoding unique is that it encourages teachers to be deliberate in breaking down complex mental moves and providing students with ways of practicing these moves one at a time before integrating multiple moves.

5. Motivation: How Can Students Be Motivated to Persist in Using This New Mental Action?

Step 5 reminds teachers to analyze the places where students are especially resistant and where the instructor experiences pushback. The results from our survey indicate that students have (and some librarians and faculty may inadvertently reinforce) a misconception that library research is a linear process.

A misconception is a type of bottleneck in which a pre-existing concept blocks the novice (often a student) from using the conceptual category that the expert uses. Finding out more about student misconceptions through quick assessments can either confirm or disconfirm instructors' assumptions about prevalent student misconceptions.

Step 5 can also help teachers rethink course design in order to ensure that major course assignments build upon one another. This scaffolding can help students to engage in related mental actions in increasingly sophisticated ways. Scaffolding also helps students focus on the mental actions, rather than getting lost in long writing assignments or fact-based test questions that may not provide the same quality of practice with the task at hand.

6. Assessment: How Will I Assess Student Mastery of the Mental Action?

On what tasks are students performing well, and where might instructors need to provide more modeling or practice? Pre- and posttests can provide evidence of the change in students' abilities to complete the mental action (or of the lack thereof).

Bottleneck strategies illustrate that Decoding is not a linear process. Often they indicate the necessity for further modeling or practice or the need to further break down the sub-bottlenecks. In Decoding, a strategy's efficacy is "tested, rather than just assumed."[19] Using quick, frequent Classroom Assessment Techniques (CATs) gives teachers the evidence that they need in order to determine exactly where to dig in further so that students get through the bottleneck.[20]

7. Sharing the Results: How Will I Share What I Have Learned?

This step encourages the analysis and reflection that help teachers

1. to see what they have learned about students' learning and about applying theories of difficulty (such as bottlenecks) and theories of pedagogy (such as Decoding the Disciplines) and
2. to consider how sharing their teaching experiences may benefit other educators.

Following this reflection, instructors can share their experiences and insights with fellow educators in order to spark further dialogue and collaboration. When Joan and colleagues first started asking instructors to share their results with peers, they were surprised at the extent to which participants spread and benefited from one another's ideas.[21]

Once instructors have identified a bottleneck and decoded what an expert does, the Decoding model shows them how to design an effective bottleneck strategy and how

to assess student learning. But there is room for much individual autonomy. There are numerous analogies, disciplinary examples, methods for student practice, and assessment techniques from which to select, but all are driven by the bottlenecks and mental actions. Step 2 of the Decoding process (identifying the mental actions of an expert) can be used to write specific learning outcomes and auxiliary learning outcomes. A class lesson about the sub-bottleneck may incorporate elements of the strategy, but it is not necessarily the same as that strategy. For example, the instructor may use analogies and assessments of one bottleneck strategy and the practice and assessment of another.

It is important to step back after completing a sub-bottleneck strategy to consider how it fits into the larger picture. How does the sub-bottleneck of developing effective search terms relate to the larger bottleneck of inquiry-driven information seeking? When a bottleneck has a lot of moving parts, the parts must be coordinated. An instructor would want to check student's proficiency with this bottleneck and to develop strategies for the other critical bottlenecks in order to be sure that all of the relevant mental moves have been executed fairly well.[22]

Connecting Sub-bottlenecks with Larger Conceptual Bottlenecks

While bottlenecks are often interconnected, it is generally best to focus on one bottleneck at a time. Research on Decoding has shown that when teachers promote a deep understanding of one disciplinary bottleneck, students are better able to understand related bottlenecks.[23] In the example above, a deeper understanding of how to generate and to refine search terms will help students to grasp that skilled library research is usually not a linear hunt for simple answers. Because students don't usually find a single term that will lead them to one source that will provide a complete answer, the sub-bottleneck of identifying search terms can also help students better understand the role of ambiguity and recursiveness in inquiry-driven information seeking, even though the instruction does not focus on ambiguity.

If it usually works best to address one sub-bottleneck at a time, what does this mean for conceptual bottlenecks, which are often conglomerations of multiple bottlenecks? As suggested above, addressing any single sub-bottleneck can make the related bottlenecks easier to get through. After assessing and ensuring student competence on the component tasks, later assignments can synthesize these component tasks (for example, an assignment in which students develop a research question AND related search terms). Students are also asked during such activities to engage in metacognition—reflecting on their own thought processes. For example, students might write responses to questions such as "Has your research question changed since beginning your search? If so how? Have your search terms changed, given what you have learned about your question? In what ways?"

Because inquiry-driven information seeking involves numerous mental moves, each of which may itself be a bottleneck, it is more effective to break this large bottleneck into smaller ones, while frequently reiterating how the concept of inquiry informs or is reflected in those mental moves. Even the bottleneck of identifying search terms could be broken down into further mental moves if time allows. It is worth noting that undergraduate education often does not allow for the rich social contexts of graduate education, such as reading 200 articles to understand a particular context in history or doing a comprehensive

literature review on a research topic in order to develop a deep understanding of it.[24] Thus, often "teachers are actually trying to design processes that differ from the ones they themselves went through, using much more attenuated materials."[25] The fact that the processes that teachers model to students are often not identical to their own disciplinary approaches can create an additional hurdle for students in understanding a discipline and its practices. A theory of pedagogy can help experts uncover the mental processes that they use, set priorities for their limited time with students, and develop a strategy for students to work on key aspects of information seeking.

In this chapter we have focused on inquiry-driven information seeking and strategic searching, but the Decoding process could be applied to any number of other bottlenecks, including other conceptual understandings described in the *Framework*.

Decoding and Librarian-Faculty Partnership

A bottleneck strategy such as the one that we have shared not only can inform an individual instructor's work; it can also be an opening for discussion and collaboration among educators from different disciplines. Decoding provides a theoretical framework that can be used when leading learning communities. Participants, instead of being faced with a hodgepodge of techniques and tools that can be very confusing, could choose their own bottlenecks. The concern here is less about what tools or techniques they pick; instead the focus is on using the process so that everyone unpacks their tacit knowledge and develops a strategy that will help to bring students into this kind of disciplinary thinking. In a learning community that applies Decoding in this way, faculty and librarians are brought into the academy more deeply as they learn the ways that knowledge is developed and used across different fields. Through comparing disciplinary practices and approaches, they can gain insights into the methods and mental moves of their own fields. Decoding is a reliable, robust process that can be used for semester-long communities or for those that last for only a few meetings.

Within the context of information literacy instruction, a bottleneck strategy, or simply a discussion about what bottlenecks students experience when seeking and using sources in different disciplines, could be a meaningful starting point for librarian-faculty collaboration. During such conversations librarians and faculty could develop fuller understandings of where students struggle with research and source use and how to respond to students as they experience these difficulties.

For example, librarians could organize groups to work on the bottlenecks in disciplinary research with faculty across disciplines, librarians, and writing center staff (since writing and information literacy processes are closely linked). Faculty in the Decoding faculty learning community would choose a specific bottleneck involved in the research process, such as choosing search terms, asking authentic questions, or analyzing sources or evidence. Over the sessions participants would decode experts' ways of operating and would develop analogies, practice, and assessments for the mental actions. Once their bottleneck strategies were ready, participants could try them out with each other and could receive feedback from one another before teaching their students. When fellow educators receive feedback from one another, it is particularly important to review assessments to ensure that they pinpoint the mental moves for which students may need further practice

and explanation. (More detailed Decoding exercises are described in *Overcoming Student Learning Bottlenecks: Decode the Critical Thinking of Your Discipline*.[26])

As suggested previously, a central benefit of cross-disciplinary Decoding is that it provides faculty, librarians, and other collaborators with a process through which to uncover their own disciplinary tacit knowledge. In a supportive community, participants can see where a colleague is not making tacit knowledge clear or is leaving it to colleagues to intuit parts of that knowledge. Colleagues, in turn, can see when a participant from another discipline is making conceptual leaps that leave them confused. Thus, participants realize where to make tacit knowledge more explicit for students. In this comparative process, everyone gains a better understanding of ways that knowledge is created and of the epistemologies of their fields.

Because librarians have to work across disciplinary silos so often, getting insights into different disciplines can better enable them to cross divides and to build more collaborative relationships. As we discuss in the subsequent section, the ACRL *Framework* can provide information literacy concepts that can be a basis for reaching these mutual understandings.

Decoding and the ACRL *Framework for Information Literacy*

Perhaps the most obvious of the parallels between Decoding and the *Framework* is their shared use of theories of difficulty (that is, theories about where students get stuck in the learning process and how to help them work through those stuck places). While Decoding concentrates on any type of learning bottleneck, the *Framework* presents six *conceptual* bottlenecks. These conceptual frames are sometimes considered "threshold concepts," complex concepts that are challenging initially to grasp and that are crucial to understanding an area of study. Similar to Decoding's emphasis on making disciplinary knowledge explicit, the *Framework*'s conceptual understandings reveal much of the tacit disciplinary knowledge that librarians and expert researchers bring to their work. In addition, the *Framework* and Decoding both contrast the thinking of novice learners and experts in order to help students move closer to accomplishing what experts do.

At the same time that bottlenecks and the *Framework* are based largely on theories of difficulty, each applies those theories in different ways. This is perhaps most evident in how they engage with the macro- and micro-levels of disciplinary knowledge and practices. Decoding, in focusing on a specific bottleneck, zooms in to the micro-level, using a theory of pedagogy to lay bare disciplinary practices and, more specifically, "mental moves" that have become implicit to disciplinary experts and strategies for bringing students into these mental moves. Decoding can also zoom out to map the larger epistemological bases of a field, as when setting priorities in curriculum development. Decoding moves back and forth between specific bottlenecks and the comprehensive mental moves that underlie the work in a field. In moving between the macro- and micro-levels of disciplinary mental moves, Decoding can dissect the ways that disciplinary knowledge is created.

In contrast, the *Framework* focuses primarily on the epistemological and conceptual levels, though its knowledge practices and dispositions often describe more specific actions. In other words, the *Framework* concentrates primarily on the macro-level view as it centers on overarching concepts that have been identified as central to information and research practices that often cross disciplinary lines.

Decoding also differs from the *Framework* because it begins with teachers identifying where they see students struggling to learn about and engage in a discipline. In a similar but not identical way, the *Framework* describes conceptual "bottlenecks" that have been identified by librarians based on their teaching experiences and observations. Again, these "threshold concepts" are a particular kind of bottleneck.

The intersections and the differences between Decoding and the *Framework* illustrate how they can work together to enrich individual instruction as well as faculty-librarian partnerships. For example, because Decoding concentrates primarily on the specific mental moves of a discipline by breaking larger bottlenecks into smaller ones and identifying the various mental moves, it often does not foreground the larger conceptual frameworks of a discipline. A teacher who uses a bottleneck or sub-bottleneck strategy to develop instruction might therefore use the *Framework* as a tool to take a step back and to consider broader concepts that are central to the mental moves just dissected. In the case of our sub-bottleneck strategy, an instructor who is teaching students about strategic search terms would ideally identify strategic moments during which to reflect with students on how their searching is part of a larger process of inquiry-driven research. Here again, analogies could be a powerful teaching tool. (See step 3 of the sub-bottleneck strategy above for examples of applying analogies to teaching about research as inquiry.)

In return, Decoding outlines a process for educators to be more explicit about such implicit knowledge and to improve the teaching and learning process so that students are more likely to get through the bottlenecks. By taking a deep dive into a discipline's epistemologies and practices, Decoding providing teachers with two different, but related and robust, theories through which to frame their efforts. It shows teachers how to identify the places where students get stuck in the discipline and to find effective strategies to teach the underlying mental moves that are holding students back. Moreover, it provides openings for cross-disciplinary exchanges that help instructors to identify their own tacit knowledge and thus to develop more effective teaching strategies.

The *Framework*, in describing key concepts and epistemologies of information literacy, also offers numerous openings for librarian-faculty dialogue and for instructional and curricular design. In a sense it reflects a "decoding" of academic practices. The *Framework*'s main starting point is conceptual understandings, while Decoding's point of departure is identifying specific places where students struggle before moving on to addressing areas of learning difficulty.

Using the *Framework* and Decoding together may help educators both to identify core concepts that can guide instruction and to ground those abstract concepts in concrete tasks that students find challenging. Used together, the *Framework* and Decoding can help librarians and fellow educators as a collective to identify tacit disciplinary knowledge and bottlenecks of learning. The *Framework* may be particularly helpful for identifying conceptual bottlenecks that are crucial to inquiry-driven research. In turn, Decoding's use of analogies may be particularly useful when teaching about *Framework* concepts, which are often challenging when students have misconceptions about information seeking or use.

The complementary nature of Decoding and the *Framework* is reflected in the bottleneck and sub-bottlenecks on which we have focused in this chapter. As noted previously, our survey findings suggest that one of the most prominent bottlenecks of information literacy identified by the librarian participants is inquiry-driven information seeking.

This bottleneck is closely tied to the *Framework*'s conceptual understandings "Research as Inquiry" and "Searching as Strategic Exploration." These two frames describe a constellation of complex ideas that inform numerous research and information practices. These broad concepts can help students see the bigger picture of why their research matters and why information seeking is more than a process of random collection.

Instructors can highlight and encourage students to explore these concepts through numerous activities, some of which we have suggested in this chapter. Instructors can also use core concepts to structure curriculum and activities and to invite students to consider the bigger picture. Such understandings, of course, develop over time and through repeated experience and reflection. Students will still likely get stuck at numerous points in their research process when they are new to an area of study. Often they will benefit from further guidance on how to do research or use information in purposeful ways and within specific contexts.

The commonalities and differences between Decoding and the *Framework* suggest how, used as complements to one another, these two approaches can further open dialogue and collaboration between librarians and faculty. Such cross-professional dialogue is essential to addressing one of the greatest "bottlenecks" of librarian-faculty collaboration that our survey participants identified: limited understandings of one another's work and, more specifically, of information literacy instruction.

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Chapter 5

Developing Learning Partnerships

Navigating Troublesome and Transformational Relationships

Peter Felten, Kristina Meinking, Shannon Tennant, and Katherine Westover

Librarians, students, and disciplinary faculty bring expectations and habits into their work together that shape, and sometimes distort, the processes and outcomes of these interactions. Academic culture tends to draw distinctions between disciplinary faculty and librarians, for instance, that can lead students to think a librarian is a helper or a service provider to the expert professor. At the same time, real or perceived hierarchies in higher education create sharp divides between instructors and students.

Approaching the relationships among librarians, students, and disciplinary faculty from a partnership framework challenges these assumptions and norms, and in so doing enables deeper learning and new forms of community to unfold. A growing body of literature is documenting and analyzing a range of partnership practices in higher education teaching and learning.[1] In this emerging domain of practice, partnership is defined as a "reciprocal process through which all participants have the opportunity to contribute equally, although not necessarily in the same ways, to curricular or pedagogical conceptualization, decision-making, implementation, investigation, or analysis."[2]

Because partnerships are somewhat (or perhaps very!) outside the norm in student/faculty/staff interactions, they can be challenging to develop and sustain. Cook-Sather argued that partnership is a threshold concept because it is "initially 'troublesome,' given the norms in higher education that clearly distinguish faculty and student roles and responsibilities, [yet] once embraced, the notion of such student-faculty partnership is transformative, irreversible, and integrative."[3] Power differentials are commonly identified as the fundamental reason why partnerships are "troublesome" for all involved. The academy's hierarchies of expertise and evaluation are difficult to navigate, even for well-intentioned partners.[4] Three additional factors also often vex those aspiring to partnership: the customs and habits that faculty, staff, and students enact in their work may not align with the principles or practices of partnership; the institutional structures of higher education may create barriers or disincentives toward deep collaboration; and inequities within the academy—typically mirroring broader social inequities—may make it difficult to engage all potential partners.[5]

Despite the significant hurdles on the road to partnership, researchers in several countries have documented the positive outcomes that typically arise for all involved in partnerships, including enhanced motivation and engagement, increased confidence and self-efficacy, and deepened relationships and trust.[6] Partnerships also appear to contribute

to a stronger sense of belonging and to more inclusive classroom experiences for students and instructors.[7]

To achieve these positive outcomes, librarians and disciplinary faculty will need to learn to navigate the unfamiliar—and often unsteady—ground of partnerships with students. Partnerships require participants to enter a liminal space that stretches between and across traditional roles, assumptions, and power relationships—where no one is entirely and exclusively "instructor" or "student." This can be deeply troubling to faculty who have hard-earned expertise; as one disciplinary faculty member explained: "I think when most faculty hear of a program in which students are involved as [partners], they assume that the program is giving the students unfettered authority or equality in the teaching process. Or that the program is imposing the student's authority into the teaching equation."[8]

From this faculty perspective, partnerships fit the definition of "troublesome knowledge" in that they are "'alien,' or counter-intuitive or even intellectually absurd at face value."[9] Students also often find the experience of liminality to be troubling in ways that undergraduates in one study described as "'stressful,' 'debilitating,' 'frustrating,' and 'intensely emotional.'"[10] Despite—or perhaps because of—this discomfort and unfamiliarity, liminality is a "transformational state."[11] Significant learning experiences require people to move through this liminal and troublesome space "so as to 'provoke' learners to move on from their prevailing ways of conceptualizing a particular phenomenon to new ways of seeing."[12] In this chapter, we explore the practices that move librarians, disciplinary faculty, and students into and across the threshold of partnership. We begin by briefly profiling two faculty-student partnership programs to establish what Hutchings has called "visions of the possible."[13] Focusing on these mature initiatives, however, may obscure some of what makes partnerships so troublesome, so we then offer a case study of an evolving partnership among three of this chapter's authors—a librarian (Shannon), a classics professor (Kristina), and an undergraduate student (Kat). This case is *not* a hero's journey to inevitable success; instead, the case illustrates some of the complexity of developing partnerships in practice. We conclude with recommendations for others who would like to navigate these troublesome and transformational relationships.

Visions of the Possible

In her influential taxonomy of four types of questions in the Scholarship of Teaching and Learning, Hutchings included in this quartet "visions of the possible."[14] In this spirit, we briefly outline two well-established partnership programs to underscore some of the most common, and most transformational, practices at the heart of partnerships.

For more than a decade, the Students as Learners and Teachers (SaLT) program at Bryn Mawr and Haverford Colleges has paired paid undergraduate consultants with disciplinary faculty from outside of the student's major "in semester-long partnerships to analyze, affirm, and revise the faculty member's pedagogical approaches in a course as s/he teaches it."[15] The student consultant observes class and then meets with her faculty partner weekly to discuss what she noticed, allowing for collaborative goal setting and ongoing pedagogical revision. This process may seem relatively straightforward, but it often feels distinctly different from what the faculty member or the student consultant had ever experienced in higher education. As one faculty member described it: "It is challenging to have someone

watching you.… Having an observer in the room makes me feel very exposed and vulnerable. But over time it has become less about 'being good' or performing well and more about learning from my students and pushing their ability to engage with the material."[16]

Student consultants typically report a parallel discomfort and transformation. One consultant initially reflected: "I was hesitant about my ability to do a good job given my lack of background in education, and I am just a student"; yet, as the semester partnership unfolded, this consultant came to realize "I wasn't just a student, that I came with a perspective and expertise of a student but that was just as valid as the things [the faculty member] was bringing to the table."[17] These partnerships not only transform the perspectives of the individual faculty and students involved, but also lead to enhancements in teaching, learning, and classroom environments.[18] The SaLT program's practice of "inviting students who are traditionally under-represented and underserved by institutions of higher education in the role of student consultant"[19] has also meant that these partnerships foster inclusive and responsive teaching practices that enhance student and faculty sense of belonging.[20]

A different model of partnership, a student-faculty Course Design Team (CDT), has evolved over more than a decade at Elon University. The first CDT emerged organically from a collaboration that began as a junior faculty member, his department chair, and the director of the faculty development center worked together to try to "fix" a course that departmental faculty believed to be essential to the curriculum yet that students consistently critiqued as unnecessary. To understand student perspectives on this crucial course, the trio hired seven upper-level undergraduates to join a process they christened a "course design team." The ten-member team met a dozen times over almost three months to rearticulate the course goals, reconsider course readings, refine assessment processes, and reimagine day-to-day classroom experiences. The group needed time and careful facilitation to create opportunities for critical conversations, but eventually moments occurred where "the professors became the learners and the students became the teachers—a complete flip from what was the norm."[21] This CDT experience proved to be so helpful for the course, and such a positive experience for the partners, that the process began to spread across campus.[22] Although some of the novelty of partnering on course design has worn off, the challenges of "equalizing faculty and student voices proved to be difficult" in nearly every CDT.[23] Faculty and students bring deeply engrained habits and assumptions into any conversation about teaching and learning, making the liminal space of a CDT both troublesome and potentially transformative. Only by working side-by-side toward a common goal can diverse members of the same CDT develop the shared sense of respect, reciprocity, and responsibility that is essential for partnership.[24] As one Elon faculty member recalled, the CDT process encouraged her to become "more willing to trust student partners by sharing power with them, not exerting it over them."[25]

Taken together, these two programs (SaLT and CDTs) demonstrate some of the potential of partnerships to transform teaching and learning for individuals, programs, and institutions. However, these mature programs also underscore that no matter how rich the institutional soil, the process of growing an individual partnership often is troublesome. Because partnerships require individuals to move into liminal spaces that destabilize traditional and comfortable roles for instructors and students, navigating a partnership is often challenging.

The Case of an Evolving Library Partnership

Across higher education, the particulars of teaching and learning partnership vary widely, as the "visions of the possible" (discussed above) reveal. The heart of any partnership, however, is what the partners do together toward their shared educational goals.[26] In the case that follows, we use the experience of three partners—a librarian (Shannon), a disciplinary faculty member (Kristina), and an undergraduate student (Kat)—to explore just how troublesome it can be to develop a new partnership.

The First Steps toward Partnership

In our case, both institutional and curricular structures helped to facilitate and support the librarian-faculty partnership. Like most academic libraries, Elon University has a librarian liaison program through which every department is assigned to a specific librarian. Originally the librarian primarily assisted in collection development, but now liaisons also provide research instruction for at least some classes in their departments. The librarians have also worked hard to deepen relationships with the disciplinary faculty, to be viewed more as colleagues rather than service providers, and to engage in meaningful collaboration with faculty. Shannon became the librarian liaison to the classics program and soon began to work with Kristina, who was a new faculty member.

An early foray into partnership in 2013 brings to light some of the strictures that can bind and hamper librarian-faculty collaboration. Kristina and Shannon found, for example, that their daily, weekly, and semester-long habits and routines did not necessarily align with each other's. As the disciplinary faculty partner, Kristina had to overcome a sense of inadequacy regarding her course preparation timelines: to bring another instructor into your own course involves a laying bare both of your course and of yourself. Like many new disciplinary faculty, Kristina had to juggle multiple responsibilities, meaning that she could not plan her teaching as thoroughly or as far ahead as she would have preferred. What might an experienced colleague like Shannon think, Kristina wondered, if she were witness to the messy parts of this new faculty member's pedagogical preparation? These concerns meant that Kristina kept her pedagogical planning with Shannon at a rather superficial level when they first began to work together. An overwhelming workload, and perhaps a touch of imposter syndrome, made entering into a partnership particularly troublesome at this point.

That started to change later when Kristina and Shannon began to jointly plan portions of Kristina's introductory Classical Mythology course. They started brainstorming together over the summer, getting an early start (which felt particularly good to Kristina!) not least because Kristina was unable to be present for the class session that she hoped Shannon would teach. Kristina's anticipated absence reflects a perennial problem and troubleshooting moment: the literature about librarian/faculty partnerships warns about teaching when the professor is not present, or "glorified babysitting."[27] Surveys of disciplinary faculty often corroborate librarians' fears that many view them as, at best, bit players in the academic enterprise.[28] Librarians worry that if they are perceived as disobliging, the relationship-building work might be undone. Aware of these concerns, Kristina and Shannon looked for ways to link the students' work with Shannon to graded assignments in the course. In so doing, they hoped to increase the perceived value of the session and

its activities for the students. As they did this, they began to build the shared trust and collaborative habits that are the foundation of a lasting partnership.

The first significant result of their partnership was the "Adopt-a-Myth" project that asked students to identify a myth, character, story, theme, or idea and to make it their own, either through a creative endeavor of their choosing or through a conventional research essay. Students began this project in earnest after the midterm; three project check-ins required them to respond to various prompts and engage in a dialogue about their project with the professor. Kristina and Shannon were intentional about timing and planned Shannon's library session right before the second check-in. They were similarly intentional about language: the prompts for the second check-in emphasized the purpose and audience of the project, as well as asking students to craft a plan for its completion. A "library assignment," worth the same number of points as each check-in, was also incorporated into the project and due at the next class meeting after the session. They also aimed to connect the prompts to the ACRL *Framework* so that the language of the questions students considered would align with the language they heard Shannon use to describe the research process during the session.

The planning of the session also reflects a significant shift in library instruction, due to the introduction of the ACRL *Framework for Information Literacy in Higher Education*.[29] Whereas library classes traditionally focused on practical search strategies, the *Framework* changed the focus to broad concepts relevant across disciplines. The *Framework* was a huge conceptual shift for Shannon, and one that marked a troublesome element of her experience of the partnership. As a cataloger by training, Shannon usually focuses on details and rules and the practical how-to of research. She was not accustomed to considering the theoretical aspects of information, so in this budding partnership she was in a doubly liminal space. Both the *Framework* and the partnership energized Shannon, but she definitely felt like she was walking on unfamiliar ground as she planned for her teaching in the mythology course.

Because Shannon and Kristina had laid a strong foundation for the library session in the course, Kristina's absence had no negative consequences. Shannon framed the activity using language the students already knew and valued, and then she prompted the students to dig into the sources. Many students tapped Shannon's expertise as they worked and, although this was an introductory-level course, many students learned skills that would enable them to conduct the kinds of research that would be expected in more advanced courses. Reflecting on the outcomes of the class, Shannon and Kristina agreed that their emerging partnership allowed them to codesign a particularly effective research activity, although each had felt some uncertainty as they learned to work together.

The New Step: Cocreating a Course

A deeper partnership began to develop in the fall of 2016 when Kristina cotaught a once-a-week preparatory seminar for a winter term three-week study-abroad course in Rome (to be taught that January of 2017). She and her co-instructor reached out to Shannon early in the course planning process. The instructors hoped Shannon's expertise would help position students for success in the research-based goals of the class, goals that were integrated into a variety of assignments. Rather than treating a library session as a blip on the course radar, partnering throughout the course creation process meant that both the librarian's and disciplinary instructors' expertise informed the course from start to finish.

Together they agreed that two library-focused sessions would best facilitate students' learning toward the course goals, while also weaving language from the ACRL *Framework* through the course—not just when Shannon was present. The research project tasked students with adopting an ancient site to research and then teach the class about when in Rome. One element of their preparation was an annotated bibliography due at the end of the fall term; other assignments mirrored the research project in that they challenged students to become experts and to add their voices to scholarly conversation. To prepare for these sessions, Kristina, her co-instructor, and Shannon all emphasized to the students the need to identify and work with both primary and secondary sources. They also reiterated the extent to which the research in which they engaged in the course was critical not just for the work of the preparatory seminar but also for their time learning in Rome itself, both practically and in terms of their learning in the course. The library sessions thus became an integral part of the class, not an interruption by an outsider.

Students (including Kat, a coauthor of this paper) responded well to Kristina and Shannon's partnership, noting in particular how the collaborative design and teaching encouraged students to draw from the complementary expertise of both the professor and the librarian. Still, the positive experience had not reached Kristina and Shannon's full aspirations for their partnership. They had aimed to bring at least one student into the course-planning process but struggled to do this for a variety of mostly logistical reasons. These challenges might be particularly troublesome for librarians and others who do not have frequent contact with a stable cohort of students.[30] In Kristina and Shannon's case, the course had never been taught before, so it was difficult to identify students who had relevant knowledge and perspectives. Also, Kristina and Shannon (and the co-instructor) did most of their course planning during the summer, when the vast majority of Elon students are not on campus. Ironically, during the Rome course, Kristina and Shannon identified a potential student partner, Kat. To begin to build a shared partnership, the trio worked together on this chapter as one way to build trust and relational habits that should help them when they begin to partner on a future course design project.

Lessons Learned and Troubles Ahead

In this case, we have teased out moments where we found the ethos of partnership emerged over time as the disciplinary faculty member and the librarian became more aware of one another's values and goals, and we continued to deepen our trust and respect for one another. Such a continually evolving collaboration enhances the professional lives of both partners, supporting the work that each is committed to in her university role and helping to weave together the academic community more tightly. Additionally, this sort of partnership, as well as the intellectual and professional engagement at its core, serves as an important model for students, whose expectations might posit the two partners (librarian and disciplinary faculty) as different and separate sources of authority, knowledge, and expertise. By collaboratively weaving library instruction into course goals and assignments, both professionals focus on student learning and on creating opportunities for students to succeed in their academic work.

Yet the very things that made these outcomes possible—deeply collaborative planning over an extended period of time—may make partnering with undergraduate students particularly troublesome for librarians and disciplinary faculty. On many campuses, few

occasions bring students, librarians, and instructors together in ways that enable partnerships to develop. Creative approaches to library liaison programs and initiatives to support undergraduate research might be particularly fruitful opportunities to cultivate partnerships.

Advice for Building Partnerships

The case presented here and the literature suggest that a first step to building partnerships in any context is to talk with potential partners in ways that go beyond mere transactional exchanges.[31] These conversations establish a foundation for partnerships by developing trust, respect, and understanding. From there, start small and set attainable goals. In this case, Kristina and Shannon's early work together might be most accurately termed cooperation, in the sense that they were working independently toward a shared goal of student learning, whereas later iterations of the partnership involved more genuine collaboration, where they worked alongside one another toward a shared goal.

At the same time, do not assume that partnership will be easy or will always feel comfortable. Indeed, as partnerships develop, participants often move from a relatively comfortable stance to one that feels more risky or unstable. Kristina experienced considerable unease when she opened up her course planning to Shannon, and Shannon felt something similar when she adopted a new ACRL *Framework*-inspired approach to library instruction to achieve the goals that she and Kristina had developed together. And finally, partnerships take time to nourish and grow: investments in small things, like meetings over coffee rather than hurried email exchanges, build relationships that can produce significant outcomes later.

Ultimately, we have learned that breaking out of our previous—and comfortable—separate roles into a new partnership relationship has had significant positive outcomes. In our most rewarding course collaboration, the librarian and disciplinary faculty communicated early and often to jointly plan the course, the disciplinary faculty member was a participant in all library sessions, and the students engaged in a scaffolded process of inquiry guided by both librarian and disciplinary faculty. Together we accomplished more than we could have on our own. Yet we still struggle to bring students into the partnership, so the process is hardly complete. Despite the troubles along the way, working in partnership has prompted each of us to think more creatively, to make more connections, to push ourselves to take on unfamiliar roles, and to learn and grow in ways that exceeded our expectations for ourselves and each other.

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Chapter 6

When Teachers Talk to Teachers

Shared Traits between Writing Across the Curriculum and Faculty Learning Communities

Kateryna A. R. Schray

Just inside the door of Marshall University's Center for Teaching and Learning stand two inviting bookcases: 6 feet tall, 32 inches wide, five shelves each, made of composite wood with a black laminate surface, jammed with books of varying shapes and sizes. On good days, the books are carefully arranged by general subject and author; on better days, they are in minor disarray resulting from a colleague's determined search for teaching magic.

The books are there to help our faculty help our students meet the learning outcomes specified in Marshall's Baccalaureate Degree Profile, nine domains that constitute our institution's understanding of Critical Thinking. These domains are (1) Communication Fluency, (2) Creative Thinking, (3) Ethical and Civic Thinking, (4) Information Literacy, (5) Inquiry Based Thinking, (6) Integrative Thinking, (7) Intercultural Thinking, (8) Metacognitive Thinking, and (9) Quantitative Thinking.[1]

Accordingly, Jenny Morgan, our office administrator, has carefully categorized the books using little circle stickers on their spines in different colors: yellow for Writing Across the Curriculum (WAC); pink for Community-Based Learning (CBL); and blue for general resources about teaching and learning. It is this last, blue-stickered group, which takes up an entire bookcase, that is most telling. While WAC resources help with Communication Fluency, and CBL resources help with Ethical and Civic Thinking, the blue-stickered books cover pedagogy related to the remaining seven outcomes of our higher education goals. However, with very few exceptions, these books outline strategies and use examples exclusively from high school classrooms. By contrast, college-specific resources about WAC and CBL abound, which makes sense given that these two proven high-impact practices originated at the university level. Here we can easily observe the gap in teaching resources between two different types of professional educators, a gap that can be effectively addressed through faculty learning communities.

Because they bring together faculty from different disciplines and levels of teaching, and because they result in conversations about teaching based on shared meanings and purpose, faculty learning communities (FLCs) are the ideal loci of faculty development, pedagogical problem solving, and forward-looking curricular thinking. My goal in this chapter is to identify the elements that contribute to a successful FLC experience for faculty by, first, viewing Marshall University's twenty-five-year-old WAC program as a proto-FLC, and second, offering a snapshot of current FLC experiences of both faculty and librarians at Marshall.

WAC as a Proto-FLC

Writing Across the Curriculum is the oldest faculty development effort at Marshall, and, as is the case on many campuses, our WAC program predates our Center for Teaching and Learning (CTL) and eventually led to its formation. The WAC program is active year-round, offering faculty-led workshops in the fall and spring semesters, supporting faculty throughout the process of becoming certified to teach Writing-Intensive courses, and ensuring that Writing-Intensive courses are offered across the curriculum and meet WAC standards. The program is overseen by a director who works with and reports to the executive director of the CTL, as well as a WAC committee made up of representatives from seven of Marshall's colleges and the director of the Writing Center. The CTL itself reports to the Office of Academic Affairs.

At Marshall, as at many other institutions, WAC grew out of a faculty-driven effort. It started as an initiative in the early 1990s by a handful of professors interested in fostering student involvement in learning by "engag[ing] students directly in the subject matter of the course through a variety of activities that focus on writing as a means of learning."[2] While we are likely to look back on this founding group as a committee or a task force, in actuality our WAC program both anticipated and grew out of an FLC, decades before the term came into common usage. My hope is to demonstrate the emergence of a successful FLC using the origins of WAC, with the benefit of historical perspective.

It is not always possible to recognize the full extent of our inventions until some time has passed and until we view it through the eyes of a new generation. And sometimes the general name for the specific thing we've invented takes time to reveal itself. At Marshall University, and I suspect at many other institutions, WAC was—and still is—essentially a faculty learning community that has evolved into a community of practice (CoP), although its now-official status and formalized programming obscure its pure origins. Our WAC program demonstrates the ultimate potential of what can happen when a group of committed faculty come together to talk about becoming better teachers (FLC) and continue to share their experiences, discoveries, and resources with one another and new colleagues in a sustained and systematic manner (CoP). One of the founders of WAC at Marshall, professor emerita Dr. Shirley Lumpkin, recalled, "We were a truly collaborative group from the beginning with a leader but all folks participating and contributing equally. What we wanted was very simple: better teaching and learning in our classrooms. We wanted evidence and experience-based practices that could be shown to work to engage students, to improve their writing, thinking, and learning skills to make our classrooms lively learning spaces."[3]

Lumpkin's recollection is consistent with the wider story of WAC, whose history is beautifully told by Susan McLeod in "The Pedagogy of Writing Across the Curriculum."[4] McLeod notes that the first WAC faculty seminar was organized by Barbara Walvoord in 1969–1970 at Central College in Pella, Iowa, and describes the origins of WAC in terms of frustrated colleagues "at their collective wits' end" gathering in faculty seminars to address the problems they were encountering with student writing.[5] At the time, high school assessment favored multiple choice–type testing, resulting in college-bound students with poor writing skills.[6]

McLeod points out that everyone involved in WAC has his or her own story of what led to embracing this pedagogy. In the briefest terms, here is Marshall's: a general education reform had just failed, and faculty dedicated to teaching "wanted to work on our own to provide across the curriculum experiences for students in the kinds of classrooms with the kinds of teaching and learning we envisioned."[7]

The group at Marshall started out small in the early 1990s under the leadership of Dr. Charles Lloyd from classical studies, now professor emeritus, with faculty from English, psychology, biology, and communications disorders, soon joined by math, graphic design, political science, business, and music. Recalling the first years of WAC, Lumpkin observed that it is difficult to remember offhand exactly when someone joined the effort "because when someone became a WACkie it seemed like they had been there forever."[8]

In November of 1994, both the Faculty Senate and the university president approved the proposal to implement a WAC program at Marshall. The proposal made the bold claim that "no single program can further the university's mission to the public more than Writing Across the Curriculum. Through it students become educated readers and writers who do not work in mental isolation but who actively look for connections among all of their life's pursuits and the world around them."[9]

Workshops in those early years were facilitated by outside experts, including Barbara Walvoord, Chris Anson, and Kathleen Yancey—nationally recognized pioneers in WAC pedagogy who relied on data-driven research and engaged faculty in various constructive formats (workshops, symposia), which were funded by supportive administrators. While Lloyd's leadership and focused advocacy were critical to the success of the effort, other factors were also key:

- Participating faculty genuinely believed in what they were doing and enjoyed working with one another. Lumpkin recalled, "We used to say WAC was the only meeting we looked forward to going to."[10]
- Participating faculty made an effort to understand and respect how one another's disciplines thought and worked.
- Participating faculty practiced what they preached. Lumpkin recalled, "We really wrote assignments and criteria and critiqued one another's with the aim of helping ourselves revise and reflect *without fear of the errors* we were making (which we could fix). We failed a lot *together*."[11]
- Finally, and most importantly, participating faculty could see their students flourish and develop new skills under WAC pedagogy.

While clearly enthusiastic, the group was also patient when encouraging hesitant colleagues to embrace this new pedagogy. However, it did not take long for colleagues to notice that faculty teaching with WAC principles saw their students flourish. Their students were more invested in the course material and understood it in greater depth; had a better sense of the role of writing in learning; and were developing critical-thinking skills transferable across disciplines.

In the 1990s, when the WAC faculty group was forming at Marshall, the concept of faculty development as a vehicle for improving teaching was just evolving.[12] While today

most of us arrive in our first classrooms with little or no preparation as *teachers*, such circumstances were not a concern until fairly recently. There are, of course, exceptions: PhD programs in disciplines like English and math rely on their doctoral candidates to teach their freshman-level classes and typically enroll these instructors in a required teaching course or put them through a week-long training before the semester begins. Nonetheless, the majority of us arrive at our first college teaching appointment without formal training on how to teach. While we have immense expertise in our subjects, we are novices in the other half of our professional vocations as teachers.

Back to that first generation of WAC faculty at Marshall: Coming together with fellow teachers to talk about *teaching*, to *learn about teaching*, to *reflect on one's teaching*, was something new. Within the first year of the program, faculty observed changes not only in the quality of their students' writing and learning, but also in their own experiences as teachers: "WAC training gave me the hypodermic adrenaline I needed after twenty years of teaching—I'm starting anew."[13]

Early faculty evaluations of the WAC program recorded a wide range of classroom successes, all of which are now predictable, but they also revealed something that was very new at the time. One professor wrote: "Being a WAC professor has helped me focus on *how* the students are learning," a sentiment that pervades most of the evaluations.[14] Professors reported thinking systematically and critically about their own teaching for the first time and talking about student learning with colleagues from other disciplines. Professors reported looking for their students' understanding of concepts and their abilities to communicate those concepts to someone else instead of simply repeating correct answers. Most importantly professors began to see themselves as part of a teaching community: "I don't feel alone in the classroom anymore—I am working with a group of colleagues, students, and professionals. WAC has made our University a responsive teaching environment by valuing thoughtful inquiry into teaching and providing a genuine community committed to that goal."[15]

What we have here is evidence of the first formal FLC at Marshall.

The community aspect of WAC is not just anecdotal. A study of teaching portfolios in Marshall University's WAC program published in 2003 by Karen McComas and Charles Lloyd found that by 1996, WAC faculty "regularly share[d] their problems, solutions and strategies with one another and reflect[ed] both publicly and privately about their teaching."[16] The focus of McComas and Lloyd's study was the use of teaching portfolios as applications for WAC certification, but their work also revealed an unexpected finding: that while portfolios are by nature "uniquely individual pieces of work," the professors interviewed relied to a great extent "on social interaction with the WAC community" to complete their portfolios.[17] McComas and Lloyd's article tells the stories of seven WAC faculty members as they reflect on the process of putting together a portfolio to demonstrate how they have reinvented an existing course to meet Writing-Intensive standards. McComas and Lloyd found that the WAC community provides an individual teacher with a cohort of similarly interested faculty, colleagues "who are interested in improving and examining their teaching practices."[18] This sense of community is so strong that "almost all of the teachers interviewed expressed difficulty in separating the insights gained specifically from the creation of a portfolio from what they had gained by participating in all aspects of the WAC program."[19]

In 1998–1999, the WAC program became part of Marshall University's newly founded Center for Teaching Excellence (CTE). Shortly thereafter, the CTE and the provost's office recognized that the Center had a wider mission beyond encouraging teaching excellence, and that mission was to investigate teaching and learning *as subjects*. Accordingly, the name was changed to the Center for the Advancement of Teaching and Learning (CATL), and shortly thereafter to the Center for Teaching and Learning (CTL). The name changes reflect our evolving understanding of teaching and learning, summarized in Elizabeth F. Barkley's now famous and oft-cited observation that "teaching without learning is just talking," and fully explored in James E. Zull's *The Art of Changing the Brain*.[20]

The Center started as three desks in a small office: one for the Center itself, one for the WAC program, and one for what eventually became the Office of University Assessment. The colocation of these programs is telling, and this physical proximity is an important factor that we take for granted today: best teaching practices are informed by thoughtful assessment of established learning outcomes, a feedback loop that both identifies challenges and works to address them.

Twenty-five years and several curricular reforms later, the initial proposal to add a Writing-Intensive requirement to Marshall's General Education curriculum looks wonderfully prophetic: as outlined in the original proposal, writing-intensive pedagogy would support "critical thinking, organization and synthesis of diverse elements, summarizing skills, and awareness among students of their own learning processes."[21] Today, these anticipated benefits are echoed in the nine Critical Thinking domains of our Baccalaureate Degree Profile already mentioned. Today, the WAC Office is housed in the CTL and has been part of the center since its founding. The success of the WAC program paved the way for exploring other high-impact practices at Marshall: Service Learning (now Community-Based Learning) in 2002 and Supplemental Instruction in 2017. Today, our WAC roster lists 172 WAC-trained/WAC-certified faculty, and our workshops are well attended. WAC's faculty learning community origin is exciting because it means that, without knowing it, we have already done it—we have already created an FLC, and we see what it can do.

Faculty Learning Communities at Marshall University

While the ultimate efforts and results of what we do as teachers are very public and people-centered, much of it we do on our own. Ironically, although a college professor performs in front of a class for a living, most of a professor's teaching work is typically done in isolation, and it can be quite lonely. As Lee Shulman famously wrote, "We experience isolation not in the stacks but in the classroom. We close the classroom door and experience pedagogical solitude, whereas in our life as scholars, we are members of active communities: communities of conversation, communities of evaluation, communities in which we gather with others in our invisible colleges to exchange our findings, our methods, and our excuses."[22] We have—we've always had—a remedy for the scholarly part of our vocations. Faculty scholarship support groups among recent hires are fairly common and happen almost naturally. Continuing best practices from graduate school, new faculty meet to share their drafts and encourage one another's progress. Such writing support groups make perfect sense as graduate school does not actually teach you how to become a scholar in terms of nuts and bolts; instead, a successful publication record is the result

of mentorship and observation, trial and error, and generous peer feedback. And while ongoing scholarly productivity is essential in both practical (tenure and promotion) and emotional (self-fulfillment) terms, it is less common for faculty of any rank to come together in a formal effort to improve course assignments, classroom strategies, and the like, and it is only recently that faculty have begun investing the same energy into what, for most of us, is the bulk of our work: teaching. That's the idea behind faculty learning communities.

While there are obvious benefits to having colleagues from the same field support one another in scholarly efforts, there are great advantages to cross-disciplinary collaborations when it comes to teaching.[23] When experts from different fields come together to talk about teaching as a distinct skill, talent, and craft, the subject matter is temporarily put aside, factoring out and prioritizing pedagogy.

Marshall University's official FLCs are housed in the Center for Teaching and Learning. FLCs can be formed at any time, but tend to organize at the beginning of the academic year and work over the two semesters, meeting an average of every two to three weeks. While the topic and specific focus of each FLC is described in detail on the CTL's website,[24] the following serves as a general preface: "In addition to the meetings, participants will read, collaborate, and make progress on individual projects between meetings. Each participant will actively contribute as responders, facilitators, peer reviewers and experts in selected areas of teaching and learning."[25]

Marshall's CTL began formally offering FLCs in 2014–2015. The first FLCs were organized by CTL staff, who are themselves faculty members. While most FLCs are "affiliated with the initiatives of the CTL, any faculty member may propose a faculty learning community" for which the CTL will provide support (issuing the call for participants, advertising the FLC, managing the registration process, and securing meeting space).[26] While every FLC has a focus and a stated purpose, an FLC is successful if it inspires members to think about their teaching, explore ideas, and identify pedagogical practices they might be interested in trying. One could go so far as to say that an FLC is successful because teachers come together to talk about their vocations. Typically, FLC participants leave every meeting knowing something they did not know before or thinking about something they had not considered. FLCs meet in the CTL's workroom, a welcoming 19-by-16-foot room with large windows, two whiteboards, a television screen with projection capabilities, and numerous tables and chairs, typically in a hollow rectangle but easily reconfigured into a variety of layouts.

In order to expand Marshall University's institutional expertise in the Scholarship of Teaching and Learning (SoTL), beginning in 2014–2015, the CTL has offered a unique faculty development opportunity: the Hedrick Teaching Fellowship. One of several awards generously funded by the late Charles B. and Mary Jo Locke Hedrick, the Hedrick Teaching Fellowship encourages faculty to take the lead in faculty development by developing a niche area of teaching expertise and exploring ways in which to engage students in high-impact learning. The Hedrick Teaching Fellow collaborates with the CTL staff "in shaping the strategic plan for campus-wide faculty development" and "adding to the programming regularly offered by the Center."[27]

Working with an FLC, the Hedrick Teaching Fellow explores a teaching challenge in connection with one of the nine domains that make up our Baccalaureate Degree Profile and facilitates a variety of instructional development opportunities for Marshall faculty.

Recall the telling physical proximity and colocation within the first office of the CTL: assessment and faculty development literally sat side by side, an apt metaphor for the ideal circumstances of improving the teaching and learning experiences of both faculty and students. The two most public results of the fellowship are a series of presentations in April (Marshall's month of celebrating teaching excellence) and Marshall's annual teaching conference—iPED: Inquiring Pedagogies—which takes place in August before classes begin. It is not unusual for faculty who join an FLC to have their own SoTL projects or focus in addition to the overall goal of the FLC.

A quick overview of faculty participation in FLCs at Marshall follows, based on our FLC registration records.

- **Total number of FLCs.** Since the fall of 2014, the CTL has sponsored twelve FLCs (please see appendix for details). Two of the earliest ones, Pedagogy of Undergraduate Research (PUR) and Scholarship of Teaching and Learning (SoTL), continued on into the following years and have since become communities of practice. The remaining FLC titles are
  - Cross-disciplinary Experimentation, Innovation, and Intellectual Risk-Taking
  - Visual Learning and Thinking
  - Linking the Humanities and STEM
  - Integrative Thinking
  - Course-Based Undergraduate Research Experiences
  - Breaking Past Your Intuition with Evidence-Based Arguments
  - What We Talk about When We Talk about Academic Writing
  - Digital Humanities across the Colleges
- **Total number of participating faculty.** Since the fall of 2014, sixty-three unique individuals have signed up for FLCs.
  - Of these sixty-three individuals, four are Marshall University librarians.
  - Of these sixty-three individuals, ten have participated in more than one FLC.
  - Marshall University has nine colleges with faculty; eight of the nine colleges are represented by the participating faculty. (The only college not represented is the Joan C. Edward School of Medicine.)
- **Breakdown of FLC facilitators.** Since the fall of 2014, nine faculty members have facilitated FLCs.
  - Four FLCs have been facilitated by the CTL director.
  - One FLC has been facilitated by the WAC director.
  - Four FLCs have been facilitated by a Hedrick Teaching Fellow.
  - Three FLCs have been facilitated by other faculty.

These metrics are the easy part of describing FLCs at Marshall; the bigger challenge is describing what an FLC actually is. Here I turn to the letter I wrote to my successor in the Hedrick Teaching Fellowship, reflecting on facilitating an FLC:

> An FLC looks like a group of people gathered in a room for an academic purpose, which immediately calls to mind one of two models: a graduate seminar or a committee, the dynamics of and expectations for which we know

> well. But an FLC is neither: you are not a teacher although you are leading a scholarly inquiry into the subject, and you are not a committee chair although you are ultimately responsible for charting the course of that inquiry. You are a colleague who has invited peers to go along on an adventure. That was surprisingly hard for me. I was very worried about coming off as bossy but equally worried about coming off as directionless. I recall your mentioning a graduate seminar you participated in, the one in which the professor would not necessarily always attend and where you and your classmates divided up the work and took turns leading the discussion—that model strikes me as ideal and if you apply it, I will be excited to see the results.[28]

In describing their roles as FLC facilitators, facilitators use just that word—*facilitators*—before diving into figurative language. Dr. McComas, who has facilitated numerous FLCs, sees herself as a "connector," bringing together people and information, using her administrative perspective as the CTL Executive Director to connect colleagues with similar goals and interests.[29] Another facilitator sees herself as "more or less a team captain, offering a guiding framework and some focus to the discussions, but allowing each team member to offer their own strengths and expertise."[30] Still another facilitator describes himself as a discussion leader with the goal of running the FLC "like a meeting that I would enjoy participating in (a well-chaired committee?)."[31] All of the facilitators emphasized that their leadership was largely limited to initiating and guiding a conversation and that including all members of that FLC in the conversation was a priority; all use similar language about creating "a space for people to talk about a certain topic."[32] Finally, several facilitators compared their roles to hosts: one compared FLC meetings to "hosting a party: if you gather smart, fun people who have something in common in a room, good things happen."[33]

The sixty-three faculty members who have participated in one or more FLCs at Marshall were asked to complete a five-question survey about their FLC experiences: reasons for joining an FLC, tangible FLC results, intangible FLC benefits, attitudes toward FLC meetings, and similes used to describe FLC meetings. Of the sixty-three individuals, two have since left the institution and could not be reached; the survey was sent via an email link to the remaining sixty-one faculty members. Respondents were instructed to complete a survey for each FLC in which they participated. The survey questions were in check-box format, and respondents were instructed to "check all that apply"; an "Other" category was included with each set of answers with space to elaborate. Forty-two surveys were completed within a seven-day period. Based on narrative responses under "Other," it became clear that one respondent mistook the subject of the survey for another event at Marshall, and those answers are omitted from the results reported below, bringing the total number of survey responses to forty-one.

As shown in figure 6.1, the most common reason respondents gave for joining an FLC was that they were interested in the FLC topic (87.80%), followed by wanting to be a better teacher (63.41%) and having a general interest in the Scholarship of Teaching and Learning (58.54%). Respondents also noted the human element, joining in response to a personal invitation from the facilitator (39.02%), being at Marshall for a while and wanting to meet new people (24.39%), and being new and wanting to meet new people (14.63%).

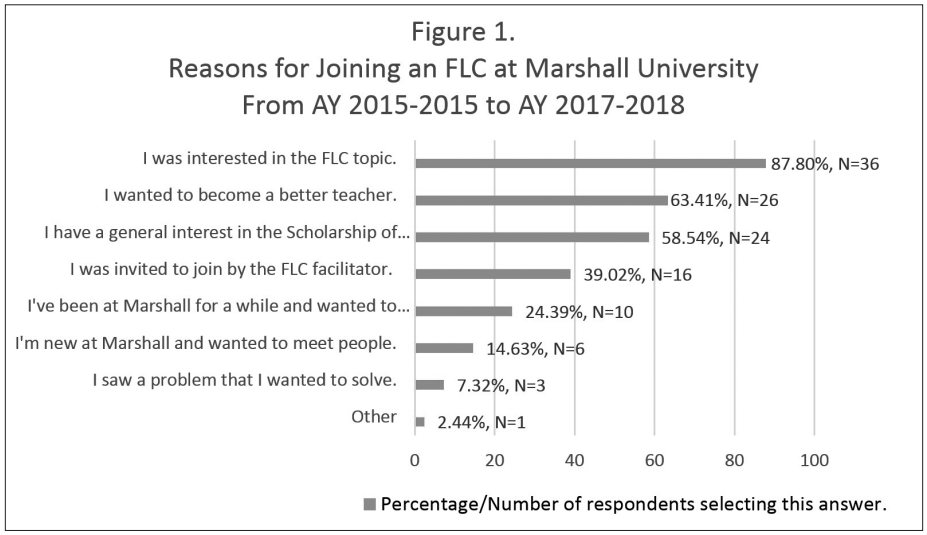

Figure 6.1
Reasons for joining an FLC.

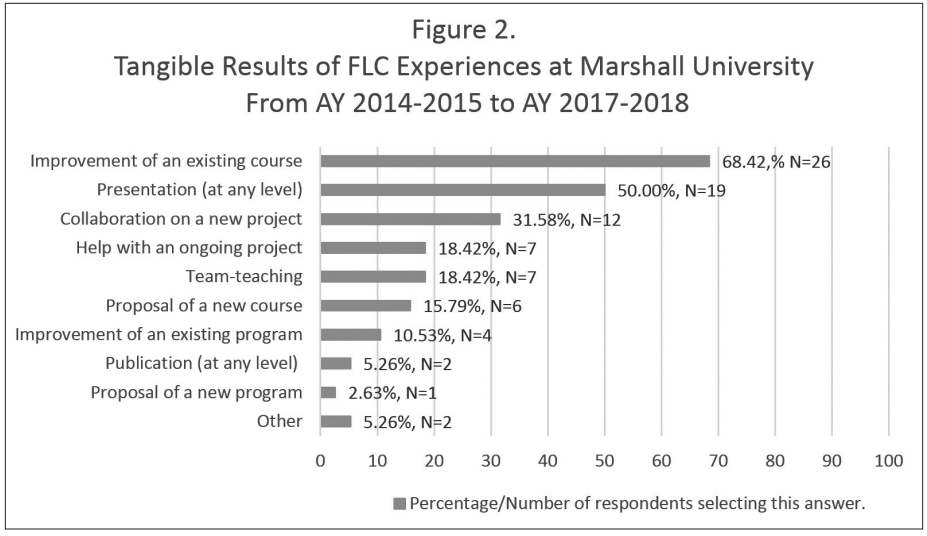

Figure 6.2
Tangible results of FLCs.

As shown in figure 6.2, the most frequent tangible outcome of respondents' FLC experiences was the revision, reconsideration, or improvement of an existing course (68.42%), followed by presentations (50%) and collaboration on new projects (31.58%). In addition to the options shown in figure 6.2, respondents also identified "introduction to other disciplines' ways of writing academically" and "new ideas for course assignments" under "Other" as tangible benefits of their FLC experiences (5.26%).

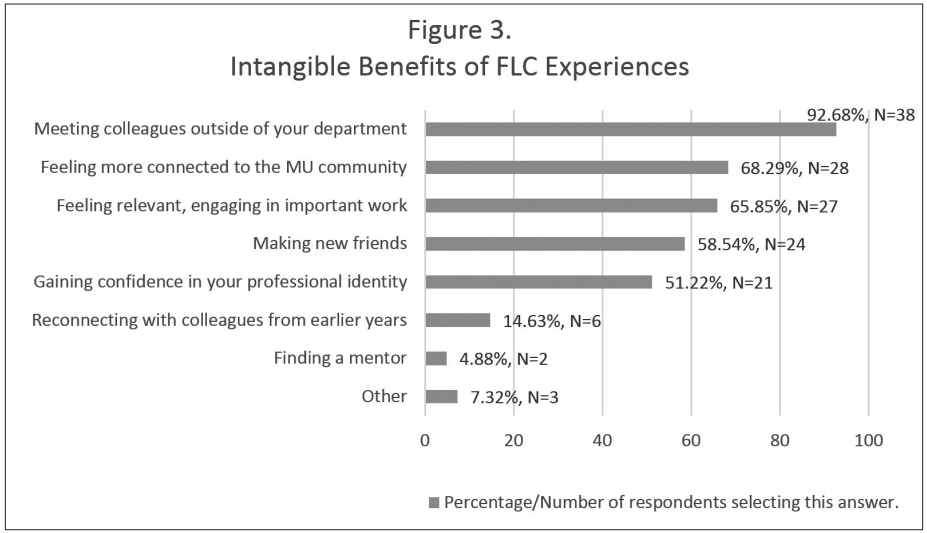

Figure 6.3
Intangible benefits of FLCs.

As shown in figure 6.3, participation in an FLC offers faculty numerous intangible benefits, the most often-reported being meeting colleagues outside of one's department (92.68%). The next most frequently selected responses suggest that FLCs may be worth exploring in terms of faculty retention: respondents reported "feeling more connected to Marshall University" (68.29%), "feeling relevant, engaging in important work" (65.85%), "making new friends" (58.54%), and "gaining confidence in professional identity" (51.22%) as a result of their FLC experiences. Under the "Other" category, respondents reported feeling validated on dissertation work and planning to join another FLC in the next semester.

As shown in figure 6.4, respondents reported feeling very positive about their FLC experiences, with the majority "very much looking forward to FLC meetings" (75.61%) and the rest "somewhat looking forward to FLC meetings" (19.51%; one respondent used the "Other" option to explain that they answered "somewhat" only because they were very busy that semester). No respondent selected "did not look forward to the FLC meetings," but two specified personal circumstances under "Other."

As shown in figure 6.5, to describe their FLC experiences, respondents tended to choose similes that recalled positive, affirming, and supportive experiences: being part of a study group (48.78%) and attending a social gathering with fun, intelligent people (43.90%), followed by participating in a graduate seminar and being a member of a team (both at 41.46%), having a support group (34.15%), being part of a friend group (31.71%), and belonging to a club (9.76%). Fewer respondents selected similes that were more work-oriented: working on a task force (29.27%) and serving on a committee (2.44%). Three respondents added descriptions of their FLC experiences under "Other": "intellectual debate (in a good way)"; "working to solve a problem through collaboration and idea sharing"; and "attending a meeting to gather information about something I am interested in."

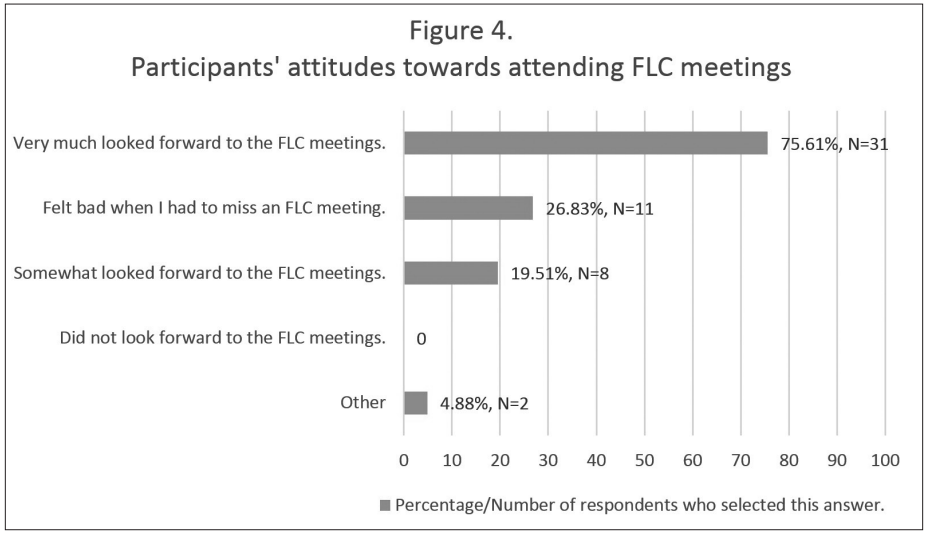

Figure 6.4
Participants' attitudes toward FLC meetings.

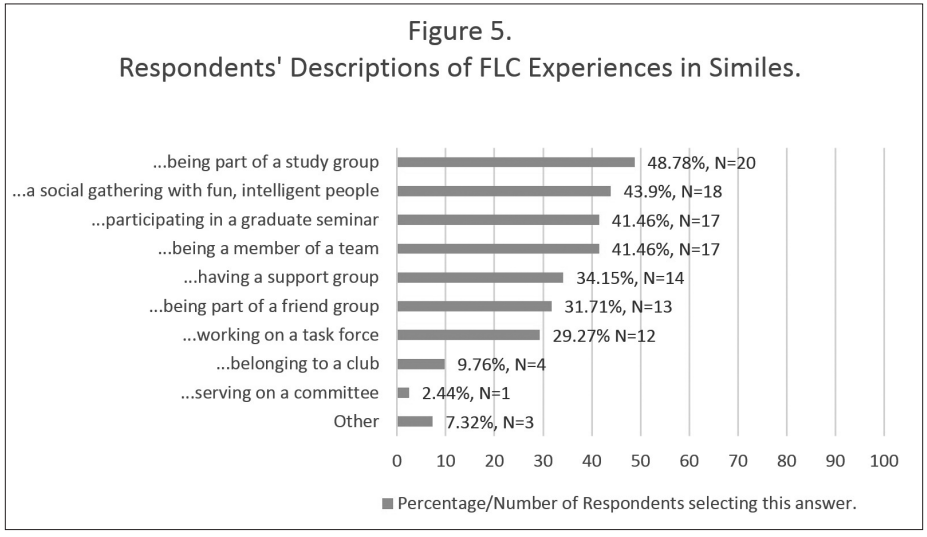

Figure 6.5
Respondents' descriptions of FLC experiences in similes.

Librarians in FLCs

Four librarians have participated in three FLCs sponsored by the CTL: one in an FLC on the Pedagogy of Undergraduate Research, one in an FLC on Integrative Thinking, and two in an FLC on Digital Humanities. Librarians, by the nature of their work, are more inclined to want to collaborate with faculty than faculty are inclined to want to collaborate

with one another when it comes to teaching. In follow-up conversations, many of our FLC participants acknowledged that they did not realize the extent to which librarians can assist them in their professional lives.

Librarians are the unsung heroes of education, and here I take the liberty of lapsing into a personal anecdote. It is largely through my interactions on an award selection committee with Research and Instruction Librarian Eryn Roles that I came to fully appreciate the call to teaching embedded in a librarian's vocation. I distinctly remember a round of introductions during our first meeting: I pointed out that each college was represented on the committee and then, in a weak attempt at humor, said that my department was represented twice since both Eryn and I had our roots in English. With a kind and heartwarming smile, Eryn gently corrected me and pointed out that "actually we [librarians] are part of every department." It was a "duh" moment for me, but Eryn's statement made perfect sense. It was also an important epiphany because the subject of that day's conversation was that teaching strategies vary from discipline to discipline. While teaching excellence is reflected in general qualities, each discipline has specific challenges, conventions, and practices of which committee members should be aware as they visit classes. While the experience of most of us on the committee was largely limited to our own fields, navigating the wide variety of course formats and assignments came easily to Eryn, who was in an ideal position to contextualize the wide range of teaching practices we observed later that year. When the time came to organize my own FLC, asking a librarian to join the effort was an obvious step. It also made sense to schedule a visit to our library's Special Collections department, not only to see the wealth of materials there, but also to give faculty an opportunity to interact with a professional sibling who has much to offer.

My fellow FLC facilitators acknowledge the distinct benefits of having a librarian on board, specifically in terms of their expertise in Information Literacy. Regardless of the SoTL topic, an FLC is an ideal place to acquaint faculty with the ACRL's *Framework for Information Literacy for Higher Education*. Based on an ever-evolving information ecosystem that responds in real time to rapid advances in internet technology, the *Framework* equips students to evaluate all sources for credibility and bias, everything from tweets to academic articles. The *Framework* helps students understand that claims are not necessarily facts; that facts do not always provide information; that information does not always lead to knowledge; and that knowledge is a far cry from wisdom. Marshall University Instructional and Research Librarian Sabrina Thomas, who participated in an FLC on the Pedagogy of Undergraduate Research, explained the problem facing our students, both as college learners and as global citizens: "We're not thinking about the information that we are consuming, the information that we are creating, and, most importantly, the information that we are putting out into the world." Thomas made the important point that for many people, college is the only time that they will have free access to the best information in the world and argued that, in a very real way, "information literacy equals survival and is a skillset that is no longer solely the domain of academia."[34] Thomas emphasized that it is especially important that students are taught information literacy in their freshman and sophomore years so that they are exposed to this vital precondition for critical thinking even if they do not graduate. For all these reasons, Thomas explained that today's library instruction goes well beyond Boolean searches and truncation, the skills faculty are most likely to recall from their own student days. She pointed out that

the rapid rate of technological change has led teaching librarians to develop new strategies and concepts for teaching information literacy that should be part of every discipline and advocated that faculty partner with librarians to create project-based assignments assessable with rubrics.[35] Other Marshall librarians participating in FLCs echo the importance of faculty-librarian partnerships for student learning and advocate including the *Framework* in faculty discussions on teaching and learning. Eryn Roles described the *Framework* as a support system for critical thinking that "provides insight into how to *do* any subject."[36]

Because of the critical role of Information Literacy, all four librarians experienced *being* (not just *feeling*) essential to the efforts of their FLCs. Roles sees librarians as "the support system for the entire faculty and student body," ready and willing to "provide materials, insight, practice, sources, and tools," and to work with faculty in integrating these elements into their teaching.[37] Lori Thompson, MU Archivist and Digital Preservation Librarian, described her Digital Humanities across the Colleges FLC experience as "a great opportunity to understand the innovative methods faculty are using to research and share their results" and emphasized the need for dialogue between faculty and librarians, "essential in understanding the digital asset needs of the faculty as well as an opportunity to share how archives and libraries are leveraging technology to provide those digital assets."[38]

In many important ways, the circumstances that today's teaching librarians find themselves in are very similar to the situation faced by English teachers in the 1970s and 1980s, when it became clear that students were not going to become good writers based on a two-course composition sequence alone and that a life skill such as writing had to be reinforced across the curriculum and applied across the disciplines to have greater effect. Indeed, the following quotation from the introduction to the *Framework* sounds reminiscent of the passion of the early WAC faculty: "The *Framework* opens the way for librarians, faculty, and other institutional partners to redesign instruction sessions, assignments, courses, and even curricula; to connect information literacy with student success initiatives; to collaborate on pedagogical research and involve students themselves in that research; and to create wider conversations about student learning, the scholarship of teaching and learning, and the assessment of learning on local campuses and beyond."[39]

Just as WAC pedagogies found solutions for professors frustrated with students' poor writing skills, the *Framework* offers a plan for all educators dismayed at students' indiscriminant consumption of information.[40] Arming students with better critical-thinking skills is at the heart of both efforts, as much a part of WAC pedagogy as information literacy. As with writing, students need repeated exposure to information literacy, opportunities to learn and fail and try again, opportunities to encounter the same challenge in different fields and at different levels, and FLCs are ideal places to begin those conversations.

Closing Thoughts

Returning to the original goal for this chapter: What does it take to have a successful FLC? One could argue that by virtue of bringing faculty and librarians together to talk about teaching, an FLC has already achieved its primary goal. After all, an impressive 63.41 percent of respondents included "wanting to become a better teacher" among their reasons for joining an FLC. Beyond that, the history of the formation of the WAC program at Marshall, email correspondence with FLC facilitators, and survey results and follow-up

interviews with FLC participants suggest that the following circumstances lead to a meaningful FLC experience:

1. **An FLC needs a shared purpose.** Marshall's WAC program developed out of a faculty effort to address an identified weakness in our students' academic performance. Hedrick Fellowship FLCs are organized around one or more of the nine critical thinking domains that make up our Baccalaureate Degree Profile. Other FLCs were created to explore specific ways to better meet the needs of our students. It is also likely that members of an FLC will have their own goals within that larger shared purpose.
2. **An FLC is truly a *faculty*-led effort.** Marshall's WAC program and all of our FLCs grew out of faculty interest and came about because faculty voluntarily and even enthusiastically joined together to explore ideas in teaching and learning with colleagues who also wanted to be there. Lumpkin's recollection of enjoying WAC meetings echoes in our survey results, where 75.61 percent of respondents reported that they "very much looked forward to FLC meetings," and the majority of respondents chose positive similes that recalled either graduate school (48.78%, 41.46%), social events (43.9%, 31.71%), or a sense of belonging (41.46%, 34.15%) to describe their FLC experiences, with only 29.27 percent comparing their FLC experience to "working on a task force" and only 2.44 percent comparing the experience to "serving on a committee."
3. **Forming an interdisciplinary group takes effort.** Most faculty have few opportunities to work with colleagues outside of their areas, which means that forming an FLC requires going outside of one's immediate circle and bringing together a group of strangers by actively recruiting faculty from different departments. The benefits of doing so are reflected in our survey results, where 24.39 percent of the respondents indicated that they were older faculty interested in meeting new people, and 14.63 percent of the respondents indicated that they were new at Marshall and interested in meeting new people as their reasons for joining an FLC. Moreover, 92.68 percent of the respondents identified meeting colleagues outside of their department as one of the intangible benefits of their FLC experiences.
4. **An FLC benefits from having a librarian,** although this may not always be possible because of the limited number of librarians. Follow-up conversations with FLC facilitators, FLC participants, and librarians who participated in an FLC all highlighted the ever-increasing importance of information literacy and the benefits of including librarians in conversations about teaching.
5. **An FLC offers its members intangible as well as tangible benefits.** Faculty participating in an FLC can include this experience on their annual reports and in their tenure and promotion or term renewal portfolios as its own activity, in addition to the demonstrable outcomes shown in figure 6.2. The FLC experience resulted in presentations for 50 percent, publications for 5.26 percent, and course improvements for 68.42 percent of the respondents. Significantly, in addition to helping faculty become better teachers, FLCs also have the potential to improve a faculty member's overall professional well-being: 68.85 percent of the respondents included "feeling relevant, engaging in important work" as one of the intangible

benefits of their FLC experience. And while it is not surprising that new faculty would seek membership in an FLC, as indicated in figure 6.1, more "older" faculty (24.39%)—defined as having been at Marshall more than eight years at the time of their FLC participation—than new faculty (14.63%) reported joining an FLC hoping to meet new people. The conventional wisdom is that an individual faculty member's social comfort level at an institution follows a bell curve: faculty know only a handful of people when they arrive at their new institutions, go on to build fruitful relationships in their pre-tenure years, firmly establish themselves between promotion to associate and full professor, and then gradually lose friends to relocation, retirement, and death. In the five years or so leading up to retirement, the majority of long-serving university professors walk into department meetings not knowing many of their newer colleagues who take the lead in program development and can begin to feel less involved in their departments as new ideas are implemented. By its collegial nature, an FLC fosters the social validation and community spirit described in McComas and Lloyd's WAC portfolio study.

The ideal FLC is a productive, supportive, and affirming experience. The location of the bookcases just inside our CTL's door simultaneously provides quick access to valuable resources and reminds us that there is still much work to be done in faculty development at the college level and that it is indeed very good for faculty to undertake this work—good not only for the students who will eventually benefit from the thoughtful debate and resulting improvements in curricula and instruction, but good also for the faculty themselves, who can find joy, renewed energy, and inspiration by coming together with colleagues who share their vocations as teachers.

Acknowledgements

As this is a project about faculty coming together to explore ways of teaching and learning, it follows then that I have many people to acknowledge for their time, expertise, and recollections. Heartfelt thanks to Dr. Karen McComas, Executive Director of the CTL, Dr. Shirley Lumpkin, Director of WAC (2006–2013), and Dr. Sherri Smith, Associate Vice-President of Academic Affairs and Dean of Students, for sharing their institutional knowledge, and to CTL Office Administrator Jenny Morgan for providing me with data. I am grateful to my fellow FLC facilitators who shared their experiences with me, Drs. Jamie Warner, April Fugett, Kristen Lillvis, John Rakus, Herman Mays, Kelli Prejean, and Allison Carey. I am also grateful to Sabrina Thomas, Eryn Roles, and Lori Thompson, librarians who participated in FLCs at Marshall and helped me understand the ACRL *Framework for Information Literacy for Higher Education.* Finally, I am indebted to Thomas Holland, Josh Demakovsky, and Mikayla Larzo, graduate assistants in the CTL, for their help with formatting the survey data.

Appendix: FLCs at Marshall University by Facilitator and Topic

AY 2014–15

- Dr. Jamie Warner: Cross-disciplinary Experimentation, Innovation, and Intellectual Risk-Taking (CEIIR)
- Dr. Karen McComas: Pedagogy of Undergraduate Research (PUR)
- Dr. Karen McComas: Scholarship of Teaching and Learning (SoTL)
- Dr. April Fugett: Visual Learning and Thinking

AY 2015–16

- Dr. Kristen Lillvis: Linking the Humanities and STEM
- Dr. Karen McComas: Pedagogy of Undergraduate Research (PUR)
- Dr. Karen McComas: Scholarship of Teaching and Learning (SoTL)

AY 2016–17

- Dr. Kateryna Schray: Integrative Thinking
- Dr. John Rakus: Course-Based Undergraduate Research Experiences (CUREs)

AY 2017–18

- Dr. Herman Mays: Breaking Past Your Intuition with Evidence-Based Arguments
- Dr. Kelli Prejean: What We Talk about When We Talk about Academic Writing
- Dr. Allison Carey and Dr. Kristen Lillvis: Digital Humanities across the Colleges

Notes

1. "The Marshall University Baccalaureate Degree Profile," Office of Assessment and Program Review, accessed January 23, 2019, http://www.marshall.edu/assessment/LearningOutcomes.aspx.
2. "Writing across the Curriculum (WAC) Proposal," SR-94-95-(3) 110, Marshall University, November 1994, 3.
3. Shirley Lumpkin, email message to author, March 13, 2018.
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Conclusion

As editors, we have lived with the *Framework for Information Literacy* for a period of years—in developing it and promoting its potential among academic librarians and with faculty and others. We believe that the *Framework* is an invitation to build teaching and learning communities in richer ways and that it can create new conversations that make for deeper learning—for students, but also for those participating in these communities. The authors who have contributed to this volume reflect the richness of thought about how teaching and learning communities develop in higher education, and there is an implicit conversation among the chapters themselves around a constellation of themes relating to community formation in support of student learning. Each contributor has identified issues and provided a perspective on how different members of the academy can find a voice in the conversation necessary to form a broader community in support of deeper learning for all. Inviting these leaders in educational development and scholarly approaches to teaching to reflect on building communities has caused us to become "conveners" as well as editors—to guide continuing discussion about teaching and learning and to create those connections across the perspectives offered. In this conclusion, we bring together some of the strands of thought articulated in the chapters, expand on the issues surfaced in them, and suggest possibilities for enlarging communities of teaching and learning in which librarians can contribute more significantly to teaching and learning initiatives at their institutions.

A core issue that has emerged for us, in our continued conversation with contributors, is the role of teacher identity. Descriptions of building community necessarily involve shifts in mindset and identity, involving struggle, changes in role definition, and working through what both Hodges (chapter 2) and Felten and colleagues (chapter 5) aptly describe as the "liminal space," that zone where uncertainties abound, assumptions are challenged, cherished beliefs are given up, and a new identity is forged. Threshold concept theory originally pointed toward difficulties of learning new and unsettling concepts but has increasingly focused on the affective dimension and identity change as another layer of unsettledness for the learner. In considering how communities of teaching and learning might be formed, we are compelled to reflect on the affective and identity formation changes individual disciplinary faculty must undergo as they join communities—their individual liminal experiences—along with other potential partners such as librarians and students, who also experience unsettledness when joining communities.

Another core issue that has emerged for us is the idea of community itself. Here, the idea of "group liminality" emerges. How do groups become a community when faculty who join them come with widely varying disciplinary perspectives, assumptions about effective pedagogy, beliefs about assessment, views of students, hierarchical positions, and attitudes toward the relative priorities of their jobs—scholarship, teaching, and service? How can a sustainable community develop that respects each individual as he or she works through liminal changes, but that also promotes a communal understanding of teaching and learning? We draw on what theorists report in the literature on effective community

and network building in higher education and relate those findings to what our contributors say about community building in their own experience.

Because we focus in this collection on issues of identity change and community formation, we also necessarily consider the issues of professional development that impede or support both. Drawing on the "transformative learning" theory of Mezirow, which emphasizes the "disorienting dilemma" and the necessity of risk taking, we present the underpinnings for professional development that go beyond occasional workshops, seminars, or trainings. We see this framework for professional development for librarians as engaging productively with the liminal space, as understanding campus networks, and as collaborating with faculty in other disciplines who may also be experiencing their own changes in mindset about teaching. The crucial role of ongoing conversation matters greatly in all such professional development.

Building teaching and learning communities successfully requires that the culture of higher education institutions be hospitable to such communities. Our contributors all assume a culture that encourages experimentation in teaching, invites a wide group of stakeholders to participate, provides space and time for dialogue and conversation, and incentivizes a scholarly approach to teaching itself. Hutchings and Sorcinelli (chapter 1) explicitly identify the features of culture that enable community formation around teaching and learning; they also identify the elements of administrative support necessary to create this culture.

One of the happily discovered themes for us in convening these contributors is that we are all learners together, with partial views of what might most effectively deepen our collective knowledge and expand our repertoire of teaching practices. The synergies and connections among these chapters are many, and we invite you as reader to continue to reflect upon them, engage in conversations with colleagues across your campus about them, and expand the community for teaching and learning on your campus.

Teacher Identity within Communities

It is well known that disciplinary faculty are socialized and form their identities through their graduate training and education, which focuses on highly specialized training in research methods and a particular topic pursued over an extended period. Such training usually does not include teaching methods or pedagogy or an understanding of the perspectives of undergraduates or novice learners. Individual faculty may undertake initiatives to understand those perspectives, but the identity of most faculty is centered on specialized research and expertise. They are therefore not well socialized in learning theory or scholarly approaches to teaching and learning. And their identities are most focused on what produces success for them in their disciplines—the rewards that accompany scholarly publication, presentation of research, grants, and fellowships. A "gap" in identity and role formation around pedagogy is obvious for most faculty.

A notable AACU paper, "The Neglected Learner: A Call to Support Integrative Learning for Faculty," addresses this deficit in faculty development and resulting faculty identity.[1] The authors point to the many changes made in pedagogy for students around integrative, engaged learning—through high-impact practices such as internships and service learning—but note that institutions have not created comparable models for faculty

learning. Faculty at many institutions often work in hyperspecialized silos and are not supported in models of faculty development that are cross- or multidisciplinary, that produce community-engaged scholarship, and that develop co-constructed knowledge. The authors observe that this deficit results from institutions' use of "first order changes," which address faculty development with rewards and incentives for individual faculty to change their research and teaching practices, but not "second order changes," which are systemic, deeper, and support networks, clusters, or communities of practice throughout a institution.

Librarians also have underdeveloped or neglected teacher identities. Some librarians enter the field with previous teaching experience, but most library school curricula still do not include courses in instructional methods or information literacy. Once in the workplace, librarians are most typically called upon to do particular types of teaching—single instruction sessions and limited interactions with students—that may not afford them the opportunity to understand how their teaching affects the curriculum or student learning in the longer view. Librarians may therefore not feel well equipped to join conversations about teaching and learning without very intentional efforts on their part to position themselves in campus groups where such conversations occur. Underdeveloped teacher identities are the result.

A recent study of librarians' perceptions of their identities that draws upon Mezirow's theory of identity development as a framework is Hess's study of practicing instruction librarians and of their perspective taking on their work as educators. Hess's study reveals the necessity of a critically reflective stance in shaping a teacher identity, shifting the role beyond that of specific instructional practices and strategies to that of the critically reflective practitioner.[2]

An earlier exploratory study by Walter identifies gaps in professional identity formation around teaching for librarians and suggests that more intentional, sustained focus on forming teacher identities—beyond development of teaching skills themselves—is essential for academic librarians to participate more in the teaching mission of the institutions.[3] Another qualitative study, by Attebury, focuses on the professional development of academic librarians and found that transformational learning happened in the individuals interviewed through a series of highly collaborative, sustained experiences with peers that produced discomfort as a precursor to change and that resulted in a shift in perspective through critical reflection on themselves as professionals.[4] These studies point toward a need for librarians to engage more deeply with teaching and learning communities on their campuses, to become more intentional in joining conversations about teaching and learning, and to redefine their roles through group learning. In effect, librarians need to place themselves in "liminal spaces" for professional development in teaching with colleagues beyond the library.

Community Formation

To develop teaching and learning communities at a wider and deeper level, new models for community formation should be created that involve disciplinary faculty, librarians, instructional designers, educational technologists, student life staff, and possibly students themselves. These communities should be structured to transcend information-sharing

about pedagogical methods or curriculum design (as valuable as those discussions might be), to provoke deeper questions about learning itself and how the "collective" of the group should examine assumptions about learning. The faculty member in economics who assumes that mathematical models are the best explanation for economic behavior of groups and plans her instructional choices accordingly will benefit from conversations with an anthropologist, who makes other pedagogical choices about how best to teach students about how groups behave. A librarian joining this discussion about complex dimensions of group behavior will have to understand the disciplinary assumptions involved before she can suggest ways that students can be taught to join "scholarly conversations" as novices—and identify scholarly information from those different disciplinary universes. An instructional designer working with such a diverse group of experts will need to question standard models for designing instruction brought to the conversation and whether an eclectic model that he would create for different disciplines might enable deeper learning. An educational technologist would need to think about the affordances of various technologies that she could propose that would enable more integrative learning for the students or enable students to join the conversation with faculty as co-designers. A student life staff member could offer a different vantage point in from his knowledge of the many co-curricular, informal, or residential life events that students are experiencing that could reinforce, or contradict, their formal classroom learning. A student member of the group could enrich the conversation by describing the student experiences of her peers. For example, how do student groups on campus replicate what this emerging community of practice is beginning to understand, together, about economic choices of groups, or group behavior, and how best to teach students about these complex ideas?

This kind of multi-functional community of learning creates the necessary conditions for what some scholars call "thinking together," drawing upon the work of Polanyi[5]—a hallmark of communities of practice but also a model that addresses the systemic, integrative, co-constructed development of knowledge suggested in the AACU article on faculty as neglected learners.[6] This model necessarily creates conditions for "group liminality" because it juxtaposes and brings into relief many of the assumptions about student learning as well as disciplinary epistemology—and how it should be taught.

Understanding Campus Networks

Research in change processes in higher education suggests that conditions for "thinking together" can flourish only through understanding how co-constructed meaning emerges across different groups on campuses.[7] Change processes that support the co-construction of meaning in community must build on the specific dynamics and interplay of influence on each campus, but studies of social network theory suggest common elements across them. Social network theory is based upon methods that analyze how individuals and groups are formed and connected beyond traditional hierarchies and boundaries. Social network analysis shows how informal social networks in complex organizations build communication structures, encourage sustained relationships, change mindsets, develop social capital, and most importantly, facilitate learning.[8] According to Kezar, the research on social networks has most often been applied to students or to other specific groups on campus, rather than to more general understanding of faculty as learners. Her review of research

on social networks across multiple disciplines suggests that those who want to encourage community building as a fundamental element of change need to develop a sophisticated understanding of how social networks develop and thrive or remain marginal.

Based on her research, Kezar identified features of networks that help those fostering communities of learning grapple with change processes. These can best be understood as binaries: tight versus loose networks (smaller, dense groups with multiple connections versus larger, loosely affiliated groups); formal versus informal (networks with more structure and formalized communication channels versus informal networks with little structure or defined interactions); nodes (people) versus ties (relationships between people); and strong versus weak ties (strong ties indicating sustained interactions among individuals, or intellectual intimacy among them, versus weak ties, where individuals have infrequent interactions and no long-term history of working together). She also distinguishes between "central actors" and "opinion leaders": the former possess more ties to a greater range of other individuals in an organization, while the latter are those individuals with great informal influence in encouraging others to adopt new practices or attitudes toward innovation.[9]

This kind of understanding of interactions and relationships in complex organizations opens up new possibilities for encouraging a wider range of conversations, pedagogical experiments, inquiry-based approaches to teaching, and collective learning. Librarians may join faculty learning communities or other teaching-focused groups on campus or collaborate in some instances with teaching and learning centers, but adopting a synoptic view of their institutions through analysis of social networks creates more options for influencing change. This kind of thinking asks questions such as these: Where do strong, dense networks of faculty already exist, and how can the library participate? Are there loose, larger networks with weak ties that could be strengthened by strategic intervention, and can I facilitate conversations among group members or offer resources that would diffuse pedagogical innovation more rapidly? Who are the central actors—department chairs, associate deans, or others—whose relationships matter most in building communities around teaching and learning? Which opinion or thought leaders on campus will other faculty follow, and how can I collaborate with those opinion leaders? These questions all point toward the need for strategic thinking and analysis in understanding the social relationships on campus—the panoply of campus networks—in order to build teaching and learning communities or strengthen those already present.

This deeper understanding of the web of social relationships creates conditions for librarians to work with colleagues at the institutional level and to participate in "thinking together" with those colleagues. The "thinking together" described by scholars of communities of practice necessarily involves grappling with uncertainties and questioning assumptions about teaching and learning. Groups with the "strong ties" identified by Kezar may have clarified many issues among themselves and have moved through a stage of "group liminality" but will find new teaching and learning issues to investigate. Groups with "weak ties" or those with loose affiliations will need sustained interactions and more intervention by either "central actors" or "opinion leaders" in order to transform their teaching practices. For librarians, their identities as teachers will be challenged by joining a variety of conversations present in different kinds of networks on campus, and they will need to become more adept in negotiating the different conversations. But the reality of joining those conversations in itself will strengthen their ties with colleagues

beyond the library and enable librarians to participate in discussions in which a shared vocabulary is available. The major themes and topics addressed by the contributors to this volume identify some of the shared vocabulary: evidence-based teaching; the Scholarship of Teaching and Learning (SoTL); Decoding the Disciplines; signature pedagogies; students as pedagogical partners; and, of course, threshold concepts and liminality. The multidisciplinary valences of this shared vocabulary create bonds that extend possibilities for collaboration and investigation of teaching and learning.

Productive Engagement in Group Liminality

If understanding campus networks and developing a shared vocabulary create the conditions for librarians to participate in larger conversations about teaching and learning, how can they best work with colleagues in the process of group liminality, when so much of the academy focuses on individual expertise and scholarship? Forging relationships across disciplines and functional areas involves significant risks and requires creating conditions for trust to flourish. It is here where community formation and teacher identity intersect, as underdeveloped teacher identities for both faculty and librarians will challenge the affective domain. Conversations about teaching and learning in a multidisciplinary teaching and learning community will involve more than "thinking together"; those conversations may be unsettling and provoke disagreement and questioning of one's habitual or cherished beliefs and practices about teaching and bring into the open different understandings of what learning involves.

Group liminality will require sustained interactions and stronger ties with colleagues and time to think together to achieve the "intellectual intimacy" of which Kezar writes. But strong collegial and administrative support is necessary to allow trust to grow in groups where a sense of community is only nascent, or where teacher identity of group members is underdeveloped. Such budding communities will grapple with their own liminal state and become stronger groups through their own internal leadership rather than through externally imposed requirements from administrators,[10] and they will necessarily surface some of the "disorienting dilemmas" of which Mezirow wrote in his theory of transformative learning.[11] Mezirow's well-known theory posits that transformative change in individuals occurs only through a profound shift in world view, beliefs, or assumptions, which results from an unsettling problem they must face, followed by a process of critical reflection leading toward a shift in mindset or identity or adoption of new beliefs. This process of transformation for individuals is comparable to the liminal space identified by threshold concept theory—which involves changes in understanding disciplinary knowledge or practices or affective or identity changes caused by understanding more deeply a field or profession. When new groups focused on teaching and learning are forming, what are some of the "disorienting dilemmas" they are likely to face, and how can dialogue with colleagues enable moving through the liminal space to new collective understandings of pedagogy, student learning, and communities of learning themselves?

For faculty, "disorienting dilemmas" relating to their teaching role may assume these forms:

- managing mixed messages about the importance of teaching, scholarship, and service conveyed by administrators and attempting to resolve the relative importance of teaching and its demands in their overall responsibilities
- finding that the ways they were taught as undergraduates are not effective with students today
- learning that colleagues in their home departments are adopting teaching practices that violate their own assumptions about teaching
- discovering flaws in their assumptions about students' abilities and motivations in light of new information on learning theory

These dilemmas may drive individual faculty members into deeper "pedagogical solitude" or, more productively, into debate and dialogue with colleagues and into critical self-reflection and greater agency in resolving the dilemmas. Working with colleagues across a wider range of disciplines and functional areas in a teaching and learning community is a particularly fruitful way to work through these dilemmas.

For librarians, the "disorienting dilemmas" relating to their teaching role may assume these forms:

- working around the marginal status inherent in providing limited instruction in single instruction sessions or other venues with no opportunity to demonstrate impact on student learning
- breaking out of the "feedback loop" experienced by many librarians, where faculty see them as "service providers" catering to collections or other support needs, rather than as pedagogical partners, and librarians' continued participation in that feedback loop by concentrating only on those service roles
- dealing with increasing expectations to collaborate with faculty and other colleagues to demonstrate impact with limited time and resources
- realizing that teaching a skills-based approach to information literacy is inadequate for educating students about the complexities of the current information landscape, but not possessing a model for understanding that landscape that can be applied to practical teaching situations

When groups focused on teaching and learning form, each group member may be wrestling with his or her own "disorienting dilemmas," or such dilemmas may arise for each member in dialogue with colleagues. The "group liminality" that emerges in such conversations will be a "meta" discussion about teaching and learning. Larger, deeper, more inclusive questions will face the group:

- What does my individual expertise mean in a collaborative setting, in understanding what learning involves for today's hyperconnected students?
- How can our partial understandings and particular perspectives on student learning be coalesced to create a more powerful and communal response to gaps in student understanding of the disciplines as systems of thought and explanation? What multidisciplinary ways of understanding teaching and learning are most fruitful for facilitating the transfer of learning across disciplines?
- How do disciplinary epistemologies constrain our collective understanding of teaching and learning across the institution?
- What does a pedagogical partnership involve? What are the elements of reciprocal understanding and mutual support that help partnerships flourish?

- What perspectives do students themselves bring to the teaching and learning process that all who teach could learn from?

Building teaching and learning communities that encourage group liminality and the surfacing of "disorienting dilemmas" for all involved offers potential to create a multiplier effect—individual learning through dialogue with colleagues with very different backgrounds and perspectives allows for the surfacing of the big "meta" questions about teaching and learning that an entire institution should address. The replication of such conversations across multiple networks of faculty, librarians, and other colleagues further expands the multiplier effect. Underdeveloped teacher identities become stronger through critical reflection, continued conversation, dialogue, debate, and inquiry—through sharing emerging practices about effective pedagogy or engaging in SoTL projects with new partners, through leadership development from the grassroots within teaching and learning communities, and through stronger foundations for further community building based on the co-construction of meaning about learning itself.

The *Framework* as Community-Building Catalyst

The conversational framework necessary for teaching and learning communities to form and grow is present among the chapters contributed by the authors in this volume, who are not only experts in particular facets of faculty development but also members of vital teaching and learning communities across the higher education landscape in the United States and in other countries. We have imagined these chapters as being in dialogue with each other, with ourselves as conveners. Our particular perspective in this volume is to bring the teaching role of librarians more firmly into view by showing how librarians can develop their teaching identities within communities of teaching and learning, and how faculty and others can benefit from librarians' participation in those communities.

The library community now offers the *Framework for Information Literacy* as an intellectual key and catalyst for enriching conversations and curricular change in higher education. The "big ideas" of the *Framework*—based on threshold concepts and emphasizing metacognition and the role of students themselves as contributors to the information landscape—open up possibilities for collaboration in a wide range of campus groups. Examples include using one major frame, "Research as Inquiry," in a vertically organized, team-taught curriculum involving composition faculty and librarians; using the "Information Has Value" frame, with its focus on copyright and intellectual property, to guide a faculty learning community conversation about teaching the use of Creative Commons licenses for student-created projects; using the "Scholarship as Conversation" frame, with its focus on scholarly communication, to bring together faculty sponsors of student groups inviting guest speakers to campus to engage with each other and with students in addressing how scholarly influence works and how speakers are positioned within various schools of thought. The "Authority Is Constructed and Contextual" frame offers the possibility of sustained conversations across multiple groups on campus on the current "fake news" conundrum, but also in larger questions relating to status of authorities, their credibility, and their influence in higher education and in larger society. All of the frames of the *Framework*, because of their larger connections to persistent challenges of teaching and learning in a conceptually sound way, provide points of inspiration for

enriching conversations with colleagues, whatever their discipline, role, function, or status. The *Framework* invites conversation, collaboration, and building communities of learning around big questions that matter, while also providing a shared vocabulary to facilitate forming those communities.

A Call to Action

For this collection, we asked each of the authors to address this question: *What do we as educators need to learn (or unlearn) and experience so we can create teaching and learning communities across disciplines and learning levels based on shared meaning and purpose?* The conversations about teaching and learning communities begun in this collection lay the groundwork for greater understanding in the library community of the potential for participating more deeply in the teaching mission of their institutions. Building multidisciplinary teaching and learning communities depends upon the initiative of librarians—their contributions are vital because of their interdisciplinary perspective on student learning and their interactions with students in more informal learning situations beyond the classroom. Contributing to existing or new communities will require shifts in mindset away from service provider to partner; from occasional guest instructor to frequent co-developer with faculty of curricula, assignments, and learning experiences; and from isolated expert to contributor to a growing community of teachers. The *Framework for Information Literacy* provides language, concepts, and inspiration around which all members of the academy can coalesce in forming communities where all are learners together.

In order to create the teaching and learning communities that we envision:

We encourage deep reflection upon one's own teaching practices and assumptions about learning, first within libraries, and then joining larger discussions or communities of teachers on campus, to strengthen teacher identities through "thinking together" and to work through the often uncomfortable process of developing learning partnerships that challenge assumptions and norms about roles and power differentials.

We encourage the adoption of the philosophies, perspectives, and practices of community pedagogical approaches such as SoTL, Decoding the Disciplines, and signature pedagogies in order to support and sustain us as "faculty learners."

We encourage inviting students themselves into discussions of teaching and learning, to inquire about their perspectives about how they learn, to identify their bottlenecks in understanding processes of research and scholarship, and to identify our own gaps in understanding the complex pathways that students take in achieving their academic goals.

We encourage stronger ties with educational technologists and instructional designers in order to address all of the beliefs and assumptions about learning in a technology-permeated environment.

We encourage drawing upon the *Framework*'s concepts to expand these initial conversations, to plant seeds for partnerships for inquiry-based pedagogy and SoTL projects, and to make interdisciplinary connections across various faculty groups or within campus networks—to be "bridge builders" or conduits for new information, resources, and emergent pedagogical experiments.

We encourage collaboration with centers for teaching and learning and faculty learning communities, expanding upon existing and sometimes occasional relationships to create

innovative approaches for joint professional development activities, to participate in a more coherent curricular approach to faculty development, and to gain recognition for librarians in their role as educators.

We encourage an exploration of the levers that foster a campus culture of teaching and learning, including an understanding of social networks and our role as change agents for teaching and learning at the curricular and institutional level.

Throughout the myriad conversations on our campuses related to teaching and learning, we believe that maintaining the attitude of a learner and inquirer is most crucial; active listening, rather than offering ready-made answers to large institutional pedagogical issues, is crucial before joining the larger, ever-evolving conversation about learning.

We invite you, as reader, to join the conversation about teaching and learning on your campus, wherever it lives, and make it a richer, deeper, more inclusive conversation—for the benefit of yourself, your colleagues, and the students who are the future of our world.

Notes

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Peter Felten is executive director of the Center for Engaged Learning, assistant provost for teaching and learning, and professor of history at Elon University. His research focuses on faculty and organizational development, individual and institutional change, and student experiences and agency in higher education. His books include the coauthored volumes *The Undergraduate Experience: Focusing Institutions on What Matters Most* (Jossey-Bass, 2016); *Transforming Students: Fulfilling the Promise of Higher Education* (Johns Hopkins University Press, 2014); and *Engaging Students as Partners in Learning and Teaching* (Jossey-Bass, 2014); and the coedited book *Intersectionality in Action* (Stylus, 2016). Peter has served as president of the International Society for the Scholarship of Teaching and Learning (2016–2017) and also of the POD Network (2010–2011), the US professional society for educational developers. He is coeditor of the *International Journal for Academic Development* and a fellow of the John N. Gardner Institute for Excellence in Undergraduate Education.

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Linda C. Hodges is director of the Faculty Development Center at the University of Maryland, Baltimore County. She holds a doctorate in biochemistry and spent more than twenty years as a tenured faculty member. In 1999, she was chosen to be a Carnegie Scholar by the Carnegie Foundation for the Advancement of Teaching, an experience that spurred her transition into faculty development. She directed the Harold W. McGraw, Jr. Center for Teaching and Learning at Princeton University for six years before relocating to Maryland. She publishes and presents widely on her work in faculty development, engaged student learning, and effective teaching practices, including her recent book, *Teaching Undergraduate Science: A Guide to Overcoming Obstacles to Student Learning* (Stylus, 2015).

Pat Hutchings is a senior scholar with the National Institute for Learning Outcomes Assessment (NILOA) and the Bay View Alliance and a former vice president of the Carnegie Foundation for the Advancement of Teaching. Her work has focused on strategies for building a campus culture of teaching and learning: student learning outcomes assessment, the peer review of teaching, and the scholarship of teaching and learning. Recent publications include *The Scholarship of Teaching and Learning Reconsidered* with Mary Taylor Huber and Anthony Ciccone (Jossey-Bass, 2011) and, as part of the NILOA team, *Using Evidence of Student Learning to Improve Higher Education* (Jossey-Bass, 2015). From 2010 to 2015, she was a scholar in residence at Gonzaga University. She holds a PhD in English from the University of Iowa and began her faculty career at Alverno College.

Margy MacMillan is a professor and librarian recently retired from Mount Royal University who worked closely with her institution's Academic Development Centre on various initiatives supporting teaching across the disciplines. For several years, she has been active in the Scholarship of Teaching and Learning, and her work in this arena has significantly influenced information literacy thinking and practice. Her long-term study of how the reflections of journalism students show their evolving understanding of information literacy threshold concepts is a model of SoTL research. Her experiences have drawn her into a number of discussions outlined in this book, informed her teaching and research practice, and helped her build bridges between librarians and others. Currently at margymac@gmail.com.

Sharon Mader is professor and dean emerita of the University of New Orleans Library. Following her retirement, she served as ACRL Visiting Program Officer for Information Literacy from 2015 to 2017, shepherding the launch and implementation of the *Framework*

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Joan Middendorf is Lead Instructional Consultant at the Center for Innovative Teaching and Learning and adjunct professor in educational leadership at Indiana University, where she developed Decoding the Disciplines with David Pace to address real difficulties students face not knowing how to deal with unfamiliar ideas and mental models. With Leah Shopkow she published a practical guide to Decoding: *Overcoming Student Learning Bottlenecks* (Stylus, 2017). With the History Learning Project (Diaz, Middendorf, Pace, and Shopkow), Joan has investigated affective learning ("What's Feeling Got to Do with It? Decoding Emotional Bottlenecks in the History Classroom"). She has been awarded top research prizes (2009 McGraw-Hill–Magna and 2008 Menges) in her field.

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