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A phenomenological study of undergraduate instructors using the inverted or flipped classroom model

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Pepperdine University

Graduate School of Education and Psychology

A PHENOMENOLOGICAL STUDY OF UNDERGRADUATE INSTRUCTORS

USING THE INVERTED OR FLIPPED CLASSROOM MODEL

A dissertation submitted in partial satisfaction

of the requirements for the degree of

Doctor of Education in Educational Technology

by

Anna F. Brown

October, 2012

Linda G. Polin, Ph.D. – Dissertation Chairperson

This dissertation, written by

Anna F. Brown

under the guidance of a Faculty Committee and approved by its members, has been submitted to and accepted by the Graduate Faculty in partial fulfillment of the requirements for the degree of

DOCTOR OF EDUCATION

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DEDICATION

This study is dedicated to "the first Dr. Brown," my father, the late Francis J. Brown, Ph.D., Professor Emeritus at DePaul University and President of the National Association for Personal Rights in Education (NAPRE). He taught many things to many people. One of his great lessons to me was persistence. Thanks, Dad, for helping me through this work and many other life experiences.

"Nothing in this world can take the place of persistence. Talent will not; nothing is more common than unsuccessful people with talent. Genius will not; unrewarded genius is almost a proverb. Education will not; the world is full of educated derelicts. Persistence and determination alone are omnipotent." ~Calvin Coolidge

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ABSTRACT

The changing educational needs of undergraduate students have not been addressed with

a corresponding development of instructional methods in higher education classrooms.

This study used a phenomenological approach to investigate a classroom-based

instructional model called the *inverted* or *flipped* classroom. The flipped classroom

incorporates technologies to move lecture content online, allowing for a more learner-

centered classroom environment. The purpose of the study is to explore the experience

of instructors who have adopted this model for their classroom-based undergraduate

courses. The participant set includes a range of teaching experience, discipline, and

institutional setting. Participants share a transition from a more traditional, teacher-

centered practice as well as early adopter traits. Individual, semi-structured, VoIP

interviews were held and course materials analyzed. The data collection and analysis

process produced a rich set of data that provides a multilayered view of participant

experiences adopting the model. Findings for instructors include the following points:

The model, at its best, has a complex structure requiring careful instructional design and

implementation. The focus of course design centers on a series of inversions and

connections that make the model successful. The primary goal is an active learning

environment in the classroom. The model builds on the relationships it affords to

instructors and students, leading to more differentiated instruction and increased student

involvement. Findings for faculty development personnel and administrators include the

following points: The participants are relearning to teach over time through a process of

discovery. Their concern for the learning experiences of their students directs their

choices and efforts. They appreciate the autonomy inherent in their role, as it enables

them to act in response to student need. The experiences of the participants indicate that there is still work to be done in the area of supporting instructors in the classroom. Instructors are reaching for more learner-centered approaches. The emphasis on technology use and online teaching may steer many instructors away from receiving guidance and assistance in improving their classroom-based teaching practices. By facilitating a learner-centered approach, this model can contribute to undergraduate education in the face-to-face environments that constitute the primary setting for college courses.

Chapter 1. Problem and Purpose

Undergraduate students are arriving at colleges in greater numbers and diversity

than ten years ago, and they arrive, more and more, with an understanding not only of the

relevance of technology use to their everyday lives and future careers, but also with an

ability to communicate and collaborate with peers and others in new ways. The

educational needs, abilities, and expectations of incoming students have been rapidly

changing over the past decade, and continue to change, through a combination of new

teaching methods in primary and secondary schools and new technologies and learning

opportunities available to many young people outside their school days. In addition,

expectations continue to change for those entering the workforce after earning

undergraduate degrees.

A recent report from the MacArthur Foundation (Jenkins, Purushotma, Weigel,

Clinton, & Robison, 2009) presents one view of the changing needs in education today.

This report discusses the impact of technological growth not only on education, but on

the culture as well. Rather than focusing on technology access for all students (a

challenge that has not yet been met), the authors describe new ways in which technology

users communicate, interact, and cooperate to learn skills, produce work, and create

community in both professional and personal settings. While schools continue to teach

and assess students primarily as individuals who work autonomously, the proposed

framework, termed participatory culture, assumes the primacy of collaborative learning

and shared knowledge (Jenkins et al., 2009). The report authors encourage educators to

make participatory culture the new focus of educational change. The blend of

technology-specific, individual, and team-based skills they delineate provides a more complete and realistic portrayal of the needs of students today.

As in most institutions, college and university personnel have devoted considerable time and resources to respond to the changes that technology demands. The bulk of their attention in terms of learning technologies has gone to the development of online courses and programs. In other words, college educators have been transforming the classroom experience by bringing it online. However, they have thereby neglected the use of technology for the face-to-face classroom experience, which remains the mainstay of undergraduate education. Correspondingly, the primary agenda of faculty development professionals has been to train instructors to teach online, leaving instructional practices in classroom-based courses largely unexamined. While training for online teaching frequently emphasizes communication and collaboration (Palloff & Pratt, 2007), many instructors who continue to teach in the classroom may not see a way to move their teaching forward.

Statement of Problem

Despite the dramatic cultural changes that have taken place over the past decades, an odd contradiction continues to exist in the American educational system. Those who teach our children in primary and secondary schools must first earn a degree in education, mastering subjects such as curriculum development and learning theory. However, those who teach at our colleges and universities have no such requirement. Most college professors, educated to be experts in their disciplines, have not been taught to teach (Lowenthal, 2008). As a result, they typically "teach the way they were taught" (Bruffee, 1999, p. xiii), with a combination of lecture and discussion during class sessions and

homework assigned between sessions, punctuated more or less often by quizzes and exams. This teacher-centered approach leaves little room for peer collaboration or self-directed study.

The contradiction in educational requirements between primary and secondary teachers and college professors has not gone unnoticed. Faculty development centers, meant to assist professors in the upgrading of their pedagogical skills, began to be more prevalent in the 70s and 80s, and by the 90s had become standard at most post-secondary institutions. These centers commonly offer seminars, workshops, one-on-one support, and other opportunities for learning. Doctoral programs have developed ancillary teaching certificates for their graduate students, many of whom act as teaching assistants during their studies (Powers, 2006). There are even freestanding programs offered to professors over the summer break for acquiring, assessing, and honing teaching abilities (Highlights, n.d.). All of these offerings, however, are optional to the university professor, resulting in, at best, faculties with inconsistent aptitude for the profession and a mixture of experiences, some fortunate and some not, for undergraduate students.

During the decades of extensive growth in online education, still ongoing, faculty development centers made the support of that growth their primary focus. Instructors planning to teach online are typically trained in a facilitative and collaborative approach to instruction. In fact, literature on online and blended course development assumes the use of alternative instructional methods in online courses and frequently compares the online teaching experience with the "traditional" teaching methods of a campus-based class (Picciano & Dziuban, 2007, p. 7). The unspoken assumption is that most instructors of face-to-face classes utilize common but outmoded practices, unlike the carefully

considered and up-to-date instructional methods found in many, though not all, online courses. These assumptions, while largely undocumented, are not unfounded.

At this time, though the availability of post-secondary online programs increases annually, most undergraduate students continue to attend on-campus courses. Those courses may have one of several common formats. Many required courses for incoming freshmen are large lecture classes, with in some cases over one hundred students enrolled. As a rule, these class groups meet in an appropriately large lecture hall for lectures, and additionally meet in assigned study groups led by a teaching assistant. Much attention has been paid to these courses in terms of using technology to help manage the workload for the instructors involved and improve the experience of the students (Allen & Tanner, 2005; Caldwell, 2007; Oliver, 2007). At the other end of the undergraduate curriculum, seminar classes usually have a much smaller than average headcount. By definition, seminars are open only to advanced students and involve extensive discussion. Student participation is expected, though some question the quality of that participatory experience (Bruffee, 1999). Between these two established class formats fall a wide range of other undergraduate classes that may have between fifteen and forty students enrolled. While the structure of these mid-level courses relies to some extent on discipline, program, and facilities, the instructor's teaching practice is the main deciding factor as to how the course is taught.

The incoming class of high school graduates arrives each year not only more tech-savvy but also more aware of and accustomed to learner-centered strategies rather than more traditional teaching methods such as lecture and homework. However, the typical on-campus student's experience continues to include considerable quiet listening in the

classroom and solo study and practice outside the classroom. While the assignment of group work has become increasingly common, this is still often considered homework to be arranged and completed outside the class meeting time, without the oversight and guidance of the instructor.

Recent articles on lecture capture help underline the issues behind classroom teaching strategies. Lecture capture refers to the practice of recording a professor's lecture as s/he presents it to a live class, for the purpose of posting it online to share, whether on a secure site for enrolled students only or through a service such as iTunes U, where it can also be made available to be viewed by the general public. When a captured lecture is distributed to enrolled students, professors typically intend that students use it for review purposes after attending the live lecture. It is therefore seen as a problem of the practice that attendance rates drop notably once lectures and the instructor's accompanying lecture notes are made available online. Students report that they find lectures boring, and cite busy schedules as a justification for lack of attendance. Meanwhile, professors devise methods—pop quizzes, grades for attendance, or putting limits on the material that is posted—to ensure that their students don't skip the class session, and thus the live lecture. Some professors have chosen to stop posting their lecture material altogether. A literature review of podcast studies echoes their concerns, asking, "If the lecture is going to be available for podcast downloading, why then should students bother coming to class?" (Hew, 2009, p. 335). Remarkably, most of the professors interviewed for these articles seemed not to see alternative solutions, though one mentioned a desire to include more interaction and discussion in his classes (Silverstein, 2006; Young, 2010).

In a recent move, the University System of Maryland (USM) has adopted a statewide strategic plan that calls for sweeping change. Among the five main themes of the plan is the goal of "transforming the academic model to meet the…needs of Maryland's 21st century students" (University System of Maryland, 2010, p. 19). Building on an initiative that has taken place over the past five years, the USM intends to increase the use of technologies in the classroom as well as to "address the realities of 21st century learning and teaching needs through course redesign" (University System of Maryland, 2010, p. 21). According to one report, this includes the creation of "classrooms that are conducive to one-on-one interaction between professor and students" (The Diamondback, 2010, para. 2). The USM's plan is just one of the initiatives taking place currently as colleges and universities seek to respond to the changing needs. While the call for transformation is widely discussed in higher education circles, there is still much doubt as to whether most institutions are ready for the necessary changes (Lederman, 2010).

Statement of Purpose

The purpose of this study was to learn more about instructors who, in response to the changing needs of students, have made a corresponding shift in their own teaching practice. The study investigated a specific model for classroom teaching in which instructors restructure courses to take advantage of changes in learning technologies and developments in learning theories. It explored the experiences of instructors who have made such changes as well as their methods and purposes in making the changes. The model builds on advances that have already been made through the growth of online

programs, such as the expanded use of learning technologies and alternative pedagogical approaches.

At Southern Methodist University, instructors are encouraged to transform their course model by forgoing the presentation of lectures using PowerPoint during class time. Instead, they are assisted in converting lecture content to podcasts (audio or video recordings shared online), reserving face-to-face time for class discussion and other group activities. Instructors are asked to engage actively with students, who are in turn expected to study the podcasts before showing up for class. For example, one film instructor uses class time to focus on discussions of movie clips, with the expectation that students will ground their observations in the content from his online podcasts. This method of transforming classroom-based courses is sometimes referred to as the *inverted classroom* (Young, 2009).

The inverted classroom model reverses, or inverts, the traditional format of a classroom-based course. This model, which has also been called the *classroom flip* (Baker, 2000), has become popularized in the last few years as the *flipped classroom* (Khan, 2011). The terms inverted and flipped are used interchangeable in this document to refer to this model. The model provides structure and strategies that enable instructors to fully transform their classes to learner-centered environments. In an inverted classroom structure, lectures, the primary contact-hour activity of the traditional classroom, no longer take place during class time. The content that formerly would have been covered in the lecture is instead made available online, in a variety of formats. Rather than being used to supplement the live lecture, as in the case of the lecture capture discussion above, the online materials in this framework are intended to replace it,

freeing up class time for other uses. Those activities that would normally take place outside the classroom, conventionally known as homework, are restructured and rescheduled to take place during the times that the class meets face-to-face. This significant switch impacts the roles and responsibilities of instructors and students alike and holds the potential for improving classroom-based learning experiences for both groups (Baker, 2000; Lage, Platt, & Treglia, 2000).

It is important to note that, in this model, technology is not specifically integrated into class time activities, the usual assumption when instructors are urged to make use of learning technologies. Instead, the primary technology use consists of the conversion of lectures to podcasts or other online formats. Secondarily, a learning management system (LMS) such as Blackboard or Sakai may be used to store and share the podcasts and other materials such as lecture notes and discussion questions. Students get recorded, rewindable, and rewatchable lectures and supplemental materials that help them prepare for class. Instructors invest extra time initially, but are then rewarded with reusable content. In addition, instructors are freed from the requirement of ensuring that all course content is covered during class hours. As a result, they can determine how to best spend class time. Whether they choose to make use of further technology or keep the class time tech-free will depend on what they deem appropriate for the subject, level, facilities, and other aspects of a particular course.

While this model is uncommon in undergraduate classrooms, interest and adoption among teachers in primary and secondary schools has grown considerably over the past two years. Pioneers and new converts post regularly on education sites and professional blogs about the model (Edudemic, 2012; Edutopia, 2012). Much of the

discussion is focused on the making of videos for student viewing and the "twilight" or "death" of the lecture (Lambert, 2012; Segesten, 2012), topics which engender much controversy. However, those who advocate for flipping the classroom make it clear that the real value of the model lies in the flexibility it provides teachers to alter the way they design their class sessions to meet their students' needs (Bergmann, 2012). Students of well-designed flipped classes may develop both greater ownership of their learning and the collaborative skills they need for a participatory culture.

Research Questions

Though not typical, some college instructors have already begun teaching courses using the inverted classroom model, often independent of faculty development efforts or institutional incentives. This study investigates the reasons why instructors adopt this model, what their experiences have been like, and what kind of support they need. The study report provides an understanding of instructor motivations and challenges, useful to others interested in adopting the model for their own courses or encouraging and supporting its adoption. Many instructors may be hesitant to risk such a significant conversion process and can benefit from the lessons learned by their peers. Faculty developers can gain an understanding of the place of this model in the undergraduate educational experience as well as insights for implementing and integrating the model.

This study used a qualitative approach in the form of a phenomenological study. For the purposes of this study, the inverted classroom model has been defined as a model used for classroom-based courses, in which lecture no longer takes place during class time. Instead, course content is shared online in a variety of forms, allowing for a more interactive and participatory experience in the classroom. A sample of instructors using

this model was identified and interviewed regarding their experience inverting one or more undergraduate courses. The primary research question addressed was: What has been the experience of college instructors who have adopted the inverted classroom model for their classroom-based undergraduate courses? For this study to be of use to those transitioning to or supporting the transition to this model, the following sub-questions will also be addressed:

- What have been their motivations and influences for this transition?

- What has changed in their teaching practice as a result of the transition?

- What have been the benefits and challenges of this adoption process?

- What contexts have influenced their experiences with this model?

By exploring the experiences of instructors who have adopted inverted teaching methods, this study provides a foundation for understanding the benefits and challenges of implementing the inverted classroom model in undergraduate classroom-based teaching. The examination of these issues provides guidance for those instructors interested in developing a more learner-centered approach to teaching and a more participatory learning experience for their students. By facilitating a learner-centered approach to instruction, this model can contribute to the enhancement of the undergraduate educational experience.

Significance of Study

Many college instructors continue to use outmoded methods of teaching in their undergraduate courses. While they may be aware of and even interested in alternative pedagogical strategies, those most widely promoted and supported in colleges today revolve around teaching online courses, with little to no emphasis placed on methods for

classroom-based instruction. Transitioning a course from traditional to online is a significant investment of time and effort. The workload involved is generally acknowledged and supported by an instructor's institution. Transitioning a traditional course to an inverted course requires a comparable amount of effort. However, this effort may not be recognized or supported equally.

This study describes the lived experiences of instructors who have transitioned to an inverted classroom model, providing a foundation for understanding the influences, motivations, challenges, and benefits involved. It is hoped that the results will aid college instructors interested in learner-centered course design by detailing the experiences of others who have inverted their classrooms through the innovative combination of learning technologies and instructional strategies. Learning more about the value and uses of the model can aid in its effective adoption by college instructors. By articulating the experiences of those who have adopted inverted teaching methods, this study illuminates its current use and draws attention to the significant role it can play in higher education.

In addition, the subject matter is expected to prove of interest to faculty development personnel and higher education administrators in their efforts to support effective course design. Further study of the model holds the potential to contribute much needed change in the conditions of the undergraduate learning experience in the face-to-face learning environments that currently constitute the primary setting for college courses. This study contributes to the body of knowledge on learning technologies used to support the implementation of learner-centered strategies in the undergraduate classroom.

        The following chapter will discuss the roots of teacher-centered instruction and

the challenges that a transition to learner-centered instruction brings. Related learning

theory, principles, and approaches will be presented, and several models and methods

used in undergraduate instruction will be described. In addition, topics relevant to the use

of learning technologies in higher education will be covered, including issues of online

teaching and learning, as they are relevant to inverted classroom instruction. Diffusion of

innovation theory will be discussed in terms of faculty innovation with learning

technologies. Finally, a detailed description of the inverted classroom will be presented,

including the activities and technologies used, the changed roles of instructors and

students, and the benefits and challenges cited by practitioners who have published or

presented on their experiences.

Chapter 2. Literature Review

This chapter provides an overview of the literature on two aspects of this study, reflecting a dual grounding in instructional innovation and learning technologies adoption. The first concerns of the inverted classroom are the significant changes it brings to the teaching practice of instructors and the learning experiences of their students. For that reason, this review begins where many instructors begin, with teacher-centered instruction and its deep roots in higher education. An introduction to the didactic and facilitative approaches to instruction leads into the discussion of learner-centered instruction, the primary alternative to teacher-centered. This alternative creates significant challenges for instructors, requiring the development of new skills and the redesign of their courses. Several instructional models and methods are explained to provide a practical context for the flipped classroom model. Finally, the focus moves from teaching to learning with a discussion of student-to-student learning that may be of particular relevance to the model of the classroom-based course unrestricted by the dominance of the lecture.

In the latter half of the chapter, concepts and perspectives on learning technologies in higher education are considered. Higher education has made significant progress in the development of online courses and programs over the past two decades, and it is commonly assumed that instructors need to learn different pedagogical skills to succeed in the online environment. The mistaken dichotomy this has created between online and classroom-based teaching is reconsidered, and an alternate measure of assessing technology use in college courses is presented. Studies on faculty adoption of learning technologies for their teaching practice, viewed through the lens of innovation

theory, provide a framework for situating this study's participants. Finally, a review of practitioner studies on the inverted classroom examines aspects of adoption experiences including the shifting roles and responsibilities of both instructors and students, the technologies and activities employed to structure the courses, and the benefits and challenges reported on the model.

Teacher-Centered Instruction

What does the archetype of teaching look like? If you search Google for a selection of images using the keyword "teaching," you will see a predominance of scenes showing a single, standing figure, typically at the front of a room, facing a group of seated others. Often, the standing figure holds a pointing device, or simply gestures with their hands, indicating that they are explaining something to those seated. The standing person is doing the talking, sharing their knowledge with the group. They, and the knowledge they impart, are the focus of attention for their class. Those seated, presumably, do their best to absorb the information being imparted. This process of transferring knowledge from speaker-teacher to listener-student makes up the central component of teacher-centered instruction.

The teacher-centered model of instruction is so closely associated with the archetype of teaching that discussing it as only one of a range of instructional models can be a problematic task. Lecture, the most common mode of teacher-centered instruction, has traditionally been the primary teaching method in post-secondary institutions (Fink, 2003). Many of those who now are college instructors themselves went through years of schooling, from primary through graduate level, taking this model for granted. While the reported percentage of instructors using lecture has dropped considerably over the last

two decades, 46 percent of college teachers still make extensive use of it (DeAngelo et al., 2009; Fink, 2003). In addition, though the amount of time spent lecturing may have decreased, and the reported use of alternate teaching strategies such as group work may have increased, not enough is known to make any assumption about a shift away from teacher-centered instruction. Other models have not become common enough to displace the prevailing view that a teacher's job is to impart knowledge through oral presentation and then to check whether students have learned it through homework assignments and tests. This lecture-exam model of teaching is built into the structure of most colleges and universities, exemplified in the credit hour system, the title of lecturer, and the physical layout of classrooms, making the use of alternate models a challenging proposition.

While informal learning and apprenticeship models have long been part of society (P. Jarvis, 1985), early formal teaching in universities was done strictly by lecture, with instructors docked in pay if they did not cover the prescribed material completely (Shulman, 1986). Subject matter expertise was required, but the primary professional identity was that of teacher. In the late 1800s, that role began to shift, and by the early 1900s, college professors in America were seen first and foremost as experts in their fields, not expert teachers. They were expected to focus primarily on maintaining professional activities such as research and publication in order to move forward in their careers (Rudoph, 1962/1990). While tenured positions today require demonstrated excellence in teaching and university service as well as publication, the idea of professor as expert remains. Combined with the lack of teaching credentials required for post-secondary instructors, this view of the professoriate results in less focus on and skill at teaching, a situation that has caused ongoing concern in academia.

Teacher education in the United States focuses on the training of those who would teach in the K-12 school system. Where once a teacher was primarily expected to be a subject matter specialist, teacher education has come to incorporate and even prioritize the pedagogical preparation of teachers (Shulman, 1986). Research on secondary teachers delineates multiple categories of pedagogical knowledge that teachers need, including general pedagogical knowledge, curriculum knowledge, and pedagogical content knowledge, i.e., knowledge specific to teaching a given subject (Shulman, 1987). More recently, this categorization has been further developed to include knowledge of the incorporation of technology into the instructional process. Though classrooms have long incorporated technologies such as blackboards and projection equipment, the comparatively more recent introduction of digital learning technologies has "changed the nature of the classroom or [has] the potential to do so" (Mishra & Koehler, 2006, p. 1023). The technological pedagogical content knowledge (TPCK) framework provides a conceptual and practical structure for assessing the preparation of professionals to teach in today's classrooms. This framework moves beyond conventional software and hardware training, which poses technology as a separate and distinct domain, to a model that assumes the integration and interrelation of technology with the pedagogical and content knowledge spheres (Mishra & Koehler, 2006).

Teacher-centered instruction, which has been referred to as the factory model of instruction (Harris, 2010; J. Jarvis, 2010), is exemplified by the archetypal image discussed above—the teacher as lecturer, regularly dispensing knowledge within a set time and place for the consumption of students. This model emphasizes the presentation of course material, the quality of instruction provided, and the access to that instruction.

Assessment of learning, like the knowledge imparted, remains in the control of the instructor. Students are meant to follow the instructor's policies; assimilate the knowledge through individual, isolated effort; and demonstrate that assimilation primarily through mid-term and final exams. Student interaction and collaboration may be considered inappropriate (Bruffee, 1999). The class environment assumes a competitive stance, with students working and learning independently from each other and from the instructor (Barr & Tagg, 1995; Harris & Cullen, 2010). Notably, though students are often assigned reading as part of their individual work, the content of that reading is typically the subject of the instructor's lecture at the next class session.

As knowledge expands and disciplines become more complex, the teacher-centered model requires an increase in subjects and content covered and an increase in students taught (Harris & Cullen, 2010). With a focus on access to education, as well as increased tuition dollars, college and university staffs work to manage the admission of greater numbers of students, and a more diverse student population, while concerns about the retention and success of those already attending grow. The teacher-centered tradition cannot be sustained as we move into the future of education. While the relative autonomy of the classroom instructor provides the freedom to adopt new practices and strategies, the institutions themselves must also change to support and expand access to alternative instructional methods and concepts (Harris & Cullen, 2010).

Teacher-centered instruction may be compared to the didactic approach, one of three teaching methods defined by P. Jarvis (1985). Didactic instruction consists of the process of transmitting information from the expert teacher to the student, typically via lecture. The instructor controls the content of the lecture and the form used to evaluate

student learning. Students taught by this method strive to absorb the content so that they can replicate what they have heard when prompted. This instructional method attempts to steer and shape the student toward a specific role or function. The didactic approach may at times be used in combination with other methods (P. Jarvis, 1985).

The facilitative approach, in contrast, focuses on the needs and interests of the learner. This method, according to P. Jarvis (1985), "should in no way be controlled by the teacher" (p. 97), but rather allows the learner to select the content and direction of the learning process. The instructor, in the role of facilitator, having observed the abilities and prior knowledge of the learner, endeavors to provide an effective environment for learning to take place. The facilitative approach works toward the self-efficacy of learners, who strive to fulfill their own potential for growth (P. Jarvis, 1985).

The third method of teaching, the Socratic approach, falls between the didactic and facilitative approaches. This method involves the instructor asking a series of questions of learners to elicit their responses. The focus remains on learners as they formulate their responses. Socratic questioning can be used in a didactic way, leading students to reply with the correct response as determined by the instructor. However, it can also be used in a facilitative way, to aid learners in their own search for answers. For this reason, Socratic instruction should be used with care to ensure the intended outcome is achieved (P. Jarvis, 1985).

Although lecture and teacher-centered instruction are familiar practices in the undergraduate classroom, with deep roots in our cultural thinking, P. Jarvis' three methods provide other ways to frame the teaching role. Much has been written about the benefits and potential of alternative methods (Bruffee, 1999; Fink, 2003; Weimer, 2002),

and some faculty members have brought new approaches to the classes they teach. However, It is easy to understand why many college teachers do not pursue alternative instructional models despite the evidence that they improve the learning experience for their students. The archetypal image of teaching—a lecturing teacher and note-taking students—remains the expected experience in the undergraduate classroom.

Learner-Centered Instruction

Just as didactic teaching methods reflect a teacher-centered approach to instruction, facilitative methods suggest a learner-centered approach. In a learner-centered environment, the focus is taken off the delivery of instruction and put on the experience of learning. Where teacher-centered instruction suggests a factory model, learner-centered instruction evokes an incubator (J. Jarvis, 2010). The role of the instructor changes from content deliverer to learning guide as the students move from passive recipients of static knowledge to active participants in a process of discovery and understanding.

A transition from traditional teaching to learner-centered instruction requires a significant change in perspective. Weimer (2002) lays out five points to be addressed in a transition to a learner-centered teaching practice. These points make explicit the changes and challenges that await the willing instructor. Perhaps most challenging among these is the need to shift the *balance of power* from the traditional stance of teacher as sole authority figure to one in which power is shared as students contribute to decisions on course activities, policies, and content. This shift in power requires that the *role of the teacher* also changes. Instructors step away from being the center of attention and become facilitators or guides attending to the learning process of the students.

Instructors do less of the work of leading—providing questions and solutions, explaining and summarizing—and more of the work of designing activities and processes that engage students and encourage their interactivity. These two changes combined transform the basis of the teaching practice that many instructors take for granted.

Closely related to the changes noted above, students in a learner-centered environment need to take on the *responsibility for learning*. This can be a significant adjustment for those students who have for years experienced only teacher-centered instruction. It alone makes a strong argument for program-level adoption of learner-centered instruction rather than leaving the decision up to individual instructors. Students develop the skills of self-directed learning, an important, life-long benefit, as they experience this approach. This is counterbalanced in the short term by the detailed work required of the instructor to guide students through the process.

One of the primary reasons instructors struggle with converting to a learner-centered approach may be the need to cover content. As the focus moves from teaching to learning, the *function of content* also needs to change. From seeing content knowledge as the primary goal of learning, the task shifts to using content knowledge in support of application, practice, and skill development. Weimer (2002) points out the important synergy that results from linking the learning of content and skills. However, her view seems to assume a necessary reduction of content at the expense of this change. Alternately, Fink (2003) suggests that instructors "make better use of out-of-class time" by having students get their first exposure to foundational knowledge on their own (p. 167). It is important to note here that the inverted classroom model has much to contribute to this issue.

Weimer's (2002) final point of change is the *purpose and process of evaluation*. Rather than the testing and grading system well known to both instructors and students, a shift must be made to make evaluation part of the learning process, incorporating self- and peer assessment as well as greater use of feedback by instructors. As with the previous changes discussed, changing the grading process may be seen as altering the roots of teaching as they are commonly understood in our culture. Significant support, planning, and collaboration will be needed if learner-centered instruction is to become the predominate approach to teaching and learning in higher education.

Weimer (2002) recommends that instructors undertake a full rather than a gradual transition to learner-centered instruction. However, she acknowledges that a full transition poses a significant challenge to an instructor. Weimer states, "…what happens in most college classrooms continues to be very teacher centered, despite the interest in, support for, and some use of these more learner-centered methods" (p. 72).

Weimer's (2002) list of five changes makes it clear that transitioning to learner-centered instruction is not an easy undertaking. Added to those issues, however, are a number of other barriers to such a transition. These include the heavy workloads of most faculty, lack of support for or acknowledgement of any change effort by an instructor's institution, concerns about student resistance, and even the physical structure of most classrooms, designed to support teacher-centered classes. While higher education has seen a growing interest in learner-centered approaches, there remains much work to be done in their adoption.

The following sections address a range of models and methods used in the undergraduate classroom. While not exhaustive, these sections cover many of the

influences and results of the increasing interest in the learner-centered approach. Together, they both ground learner-centered instruction in a broader context and provide a practical understanding of how it influences what happens in the classroom.

Models and Methods of Undergraduate Classroom Teaching

A number of learner-centered instruction models and methods have come into practice in the undergraduate classroom. The following section will describe a selection of those most relevant to the later discussion of the inverted classroom. To begin, the widely used terms collaborative and cooperative learning are delineated. The problem-based and studio-based models, which provide the closest comparison to the inverted classroom, will be examined, followed by descriptions of active learning, just-in-time learning, and finally, peer instruction. All incorporate key elements relevant to the inverted classroom model.

Collaborative and cooperative learning. Collaborative learning, based in part on Vygotsky's (1978) concepts of social learning and scaffolding, refers to learning that occurs between two or more people, with each contributing what they know and understand to build a new understanding. The label can be used to classify a broad range of in- or out-of-classroom activities that involve learners working in pairs or small groups. However, while group work has become a ubiquitous addition to college courses, collaborative learning works best when the activity is designed to ensure that all participants play active roles and that meaningful knowledge building takes place (Barkley, Cross, & Major, 2004). Most notably, collaborative learning works best with a goal of learners realizing new understanding for themselves rather than simply reaching the intended conclusions of the instructor.

The term cooperative learning is often used interchangeably with collaborative learning, though it may be considered to imply a different meaning. For some, cooperative learning refers to group work undertaken within a formally structured, teacher-centered environment and resulting in students reaching the approved answer (Barkley et al., 2004). Millis (2010), an advocate of cooperative learning, defines it as a structured and supported method in which students are teamed up for projects or possibly for whole semesters. The projects, created by the instructor, are largely problem-based and designed "to provide challenges a single student could not meet" (Millis, 2010, p. 5). Critiques of self, other group members, and the group as a whole ensure the accountability of individual students. In addition, attention is paid to the development of the social and productivity skills that make a team effective. The instructor oversees the construction of the assigned work, keeps close tabs on team progress throughout, and may even determine which students work together. It is interesting to note that Millis characterizes this carefully configured process as a "learning-centered approach" (Millis, 2010, p. 6).

Bruffee (1999), a leading proponent of collaborative learning, acknowledges the similarities between collaborative and cooperative methods and also points out their differences. According to Bruffee, both methods encourage student learning by creating situations in which they can work together, underlining their basis in social constructivist ideas. However, the instructor-led method of cooperative learning focuses on the development of the social skills students need to in order to learn and produce work together, and is most appropriate for younger students and foundational studies. Collaborative learning, on the other hand, relies on group self-governance to establish the

interdependence necessary in a non-foundational environment where knowledge and authority are rightly questioned in the process of knowledge construction (Bruffee, 1999).

Problem-based and studio-based learning. In the problem-based learning model (PBL), a commonly referenced model in discussions of learner-centered instruction, students learn by solving challenging problems in collaboration with other students. The instructor may provide primary sources of content knowledge, or the students may seek out sources themselves as needed. The problems to be solved may also be introduced by the instructor or formed by the students. The intention is that students apply both existing content knowledge (what they already know) as well as additional research (what they determine they need to know) to the solving of a problem that is both complex and situated within the field of study. The instructor acts as guide by raising questions and engaging students in discussion as they work toward a solution. As with collaborative learning, students acquire or sharpen their skills in teamwork, research, and self-directed learning, as well as their grasp of content knowledge, through the PBL process (Boud & Feletti, 1998). Most importantly, they learn to apply knowledge rather than simply to report it for a grade.

Studio-based learning (SBL) takes its approach from the practices of fields such as fine arts and architecture. Unlike problem-based learning, studio-based learners work individually, though in a shared space. There, they research and develop individual projects, or "solutions to ambiguous questions" (Brocato & Monson, 2009), similar to the problems of PBL. They search out their own resources and produce multiple *propositions* or versions of work in response to an assignment (Brocato, 2009, p. 141). During this process, they have access to teachers, mentors, or other experts to consult on

their selection of resources and the direction of their work. The overall process consists of learners proposing project solutions, coming together to share and critique work in a group setting, and then returning to individual work to further the project in preparation for the next critique session. This is referred to as a "proposing, critiquing, iterating" (p. 138) process. With the focus on the learner's individual work development, this model offers a distinctive learner-centered approach.

Active learning and just-in-time teaching. Active learning works from the concept that students learn better when they are participating in a learning activity than when they are passive recipients of a presentation of knowledge. However, participation is not enough. Activities must be designed to ensure that learners are reflecting on their actions as well. A complete active learning experience may include participation, observation of others' participation, self-reflection, and reflective conversation with others. Direct learning from accessing source material, during or outside of class, would also be considered an integral element of active learning (Fink, 2003).

Just-in-time teaching (JiTT) is a well-defined instructional strategy with significant usefulness to the inverted classroom model. It is included in this section on methods and models as an example of a discipline-specific strategy that spans models as well as disciplines. JiTT was designed to engage students more fully in the learning process. It presumes the use of an online learning management system in combination with regular face-to-face class meetings. (Learning management systems will be discussed in a later section.) When an instructor makes use of JiTT, students are assigned reading or the review of other source material between class meetings. Shortly before an upcoming class, the instructor provides access to a short quiz or list of questions to which

students must respond before the class begins. The instructor then accesses the responses, aggregated by the system, before beginning class. Rather than delivering a full lecture on the material that the students have been assigned to read or review, the instructor makes use of the summarized student responses to lecture in a focused way and/or lead a targeted discussion or demonstration. Common errors can be reviewed, and areas where the group as a whole did well can lead to deeper dialogue (Novak, Gavrin, Christian, & Patterson, 1999; Simkins & Maier, 2010). Active learning and JiTT share a common thread of shifting greater responsibility for coverage of course content to students.

Peer instruction. Early in the 90s, Eric Mazur (1997), a professor of physics at Harvard, observed that his students "were not all learning what [he] wanted them to learn" (p. xiii). In response, he developed the peer instruction method, which not only made the content of a course more manageable for students, but also made the process of teaching less strenuous for the instructor. This method consists of a brief overview of key content points, followed by a short quiz on the material. Students get a few moments to think through their own answers before engaging in small group discussions to determine an agreed-upon response. Finally, student responses to the quiz questions are tallied, and the instructor decides, based on the results, whether to devote more time to the topic. Just as Weimer describes, this learner-centered model shifts the roles of the instructor and the content out of the spotlight, and emphasizes student responsibility for learning. Most interesting for a discussion of classroom-based models, students take turns acting as each other's teachers, working to explain their answers and the reasons for them to their peers. In the process, they solidify their own understanding and confidence.

As the name indicates, peer interaction and support form the basis of learning with this method.

This section has provided a discussion of instruction that goes beyond the traditional lecture-testing model. Weimer's (2002) five points of change and the survey of alternate instructional methods demonstrate that learner-centered instruction and active learning go hand in hand, promoting a more experiential as well as a more responsible role for students. The inverted classroom model also endorses this changed student role. For example, the goals listed by one practitioner include, "Provide students with more control over their own learning," and "Give students a greater sense of their own responsibility for their learning" (Baker, 2000, p. 11). In addition, a third goal from that list states, "Provide students with more opportunities to learn from their peers" (Baker, 2000, p. 12). This third goal, students learning with and from their peers, is an integral element in many of the methods reviewed above. However, it merits additional discussion below. A collaborative learning environment requires a rethinking of both course design and classroom relationships, moving beyond Weimer's idea of balancing the power between instructor and students. This type of learning requires that the focus shift from how teachers teach students to how learners learn together.

Learning with Others

Where constructivist theory maintains that we learn through a process of connecting previous experience with new information to build new knowledge, social constructivism focuses on the specific experience of building knowledge through interaction with others (Merriam, Caffarella, & Baumgartner, 2007). We construct new knowledge by working collaboratively, participating in dialogue and other interactions

through which we can communicate our individual experiences and perspectives while taking in and learning from those of others. Anyone who uses online discussion forums in their teaching practice sees social constructivism at work. When one student posts about a concept in such a way that they reveal a limited understanding, another student will typically respond with a post that questions and clarifies the issue, grounding the comments in personal experience. Students share knowledge back and forth as peers, with each one benefitting from the prior knowledge of the other. Though they may not all come to identical conclusions, they have all made use of the process to expand and solidify their own understanding.

Social constructivism grew out of Vygotsky's (1978) emphasis on the role of social interaction in the learning process. According to Vygotsky, children learn best when a parent, teacher, or more knowledgeable peer provides *scaffolding* or support for their learning through such practices as demonstration, questioning, encouraging, and correction. Learners' abilities can be measured both by their current level, working independently, and by the level they would be able to attain with appropriate guidance. The gap between these two measurements is known as the zone of proximal development (Vygotsky, 1978). The optimal learning experience would fall within this zone and consist of activities that the learner is able to accomplish with assistance. Notably, the more experienced person providing the support is understood to also learn from the scaffolding interaction (Scrimsher & Tudge, 2003).

Learning from one another is a common occurrence in informal, everyday contexts, as well as in more formal settings, such as on the job. In college, students often learn outside of class by participating in organized peer activities such as student

organizations or sports teams (Bruffee, 1999). Student peers in formal courses also frequently consult with each other, sharing both the effort and the enjoyment of the learning process (Boud, Cohen, & Sampson, 2001). Where the traditional teaching model promotes interaction between the instructor and each individual student, accompanied by a sense of competition between students, a class oriented toward peer learning deemphasizes the instructor-to-student relationship while emphasizing and enabling collaboration between students.

Within the classroom setting, a shift from teacher-centered to learner-centered instruction parallels a shift from a perception of learning by acquiring knowledge, teacher to student, to one of learning through participation with others in a practice (Barab & Duffy, 2000). Traditional school teaching methods, and the resulting process of learning, are seen as separating learning in an artificial way from the contexts, such as a post-college career, in which the learning would be put to use. These less authentic methods, then, may be replaced with instructional practices that promote the development of a community of learners who engage together in realistic activities. Peer learning is specifically not peer teaching or tutoring, in which the balance of power mimics that of teacher and student. In peer learning situations, students work together in a reciprocal manner, without fixed roles (Boud et al., 2001). Development of individual identity within the group is an important aspect of learning in a community (Barab & Duffy, 2000). In addition, when students interact as peers, they develop a "mature, effective interdependence," a valuable skill for managing interactions in work settings and other pursuits (Bruffee, 1999, p. xiii).

When learning is viewed as a social activity, the advantages of the face-to-face classroom become apparent. Collaboration in an online course is often posited as a necessary method of strengthening connections among physically disparate learners (Palloff & Pratt, 2007). How much more valuable, then, might collaboration be among students who meet in person on a regular basis. The particular value of the physical classroom comes from the opportunity to make use of face-to-face interaction, not only between instructor and students, but also among students in a class. Through working together, they learn not only the course content but also such necessary skills as communication, teamwork, and leadership. The combination of an active learning experience with a collaborative process supports an overall deeper level of learning for students (Palloff & Pratt, 2007). For this reason, the concepts of social constructivism are needed to inform the successful restructuring of classroom-based activity toward a learner-centered experience.

If learning is seen as change, it seems clear that a student will change and thus learn that much more through negotiating the merging of not only an instructor's knowledge with the student's own, but also the knowledge and perspectives of a group of others who are simultaneously negotiating their own understandings. This is the value of learning in a collaborative setting. From an instructor's perspective, peer learning may take many forms, depending on the characteristics and needs of the course, and will benefit from thoughtful course design (Boud et al., 2001). An emphasis on peer learning embodies a further step in the shift from teacher-centered to learner-centered instruction, and may be seen as the final step in the transformation of the teaching archetype.

The ideas presented above demonstrate a range of perspectives and considerations in the practice of teaching undergraduate students. For the most part, the models and methods discussed can be implemented without reliance on technology. However, each of them may also benefit from the considered incorporation of specific technologies that support the instruction and the learning process. At times, instructors may implement a new technology as if it were itself an instructional method. Learning technologies work best as the tools that assist in the thoughtful use of learner-centered models and methods.

Learning Technologies in Higher Education

Learning technologies, specifically learning management systems and podcasts, are an essential part of the solution for adoption of learner-centered teaching in the undergraduate classroom. Learning management systems provide shared space online for course activities such as document sharing, communication, and collaboration. Podcasts are recorded audio or video files distributed over the Internet. Higher education has for years embraced these learning technologies for use in online courses, and more recently has also begun using them for blended courses, which combine online and face-to-face sections. However, the strong focus on online development has caused technology use in classroom-based course models to remain somewhat overlooked. When it comes to classroom teaching, there has been little attention to the possibilities learning technologies offer. The popular dichotomy of online versus on-campus courses, often used as a basis for research and an argument for blended learning (Means, Toyama, Murphy, Bakia, & Jones, 2010; Reynard, 2009), is brought into question by the inverted classroom model.

Models of learning technologies use. From the learning technologies perspective, courses are commonly categorized into three main configurations that form a continuum of technology infusion. *Online courses*, those that include no in-person meetings, are positioned at one end of the scale, with classroom-based courses at the other end. These two were for some time presented as the two available alternatives at many institutions. *Blended courses*, also called hybrid courses, which have grown in number over the last several years, typically consist of fewer face-to-face meetings and more online interaction than classroom-based courses. Certainly, classroom-based courses may incorporate learning technologies, in which case they are referred to as tech-enhanced or *web-enhanced courses* (Dzuiban, Hartman, Moskal, Sorg, & Truman, 2004). These may be seen as using technology as a supplement to the regular course "in an incidental manner" (Woods, Badzinski, & Baker, 2007, p. 203). Now that the proponents of online and blended teaching have joined forces, research on these models continues to posit classroom-based courses as the *traditional* opposite to their presumably more modern methods (Picciano & Dziuban, 2007). Because this continuum is based on amount of technology utilized, even those face-to-face courses that integrate technology well and in innovative ways get put at the low end of the continuum, potentially inhibiting inquiry into alternatives. In addition, as the perspective here is technology-oriented, the value of instructional design and alternative approaches to teaching becomes secondary to the categorization, again leaving classroom-based innovation somewhat peripheral to the discussion.

Another method for defining and assessing technology use in college courses comes from a categorization developed for blended learning. According to Graham

(2005), blended learning courses can be divided into *enabling blends*, *enhancing blends*, and *transforming blends*. Enabling blends incorporate technology in order to make course materials and courses themselves more accessible, providing, for example, greater flexibility in scheduling. Enhancing blends integrate technology tools that provide some elements of alternate instructional methods without changing the primary teaching practice. Graham situates web-enhanced courses in this category. Transforming blends are those that utilize technology in the cause of providing a completely different kind of learning experience. For example, a teacher-centered course redesigned to follow a learner-centered approach would be placed in this category. These same categories, more focused on the experience of the learner than on a measure of technology usage, might also be considered in the evaluation of both online and classroom-based courses.

With these perspectives on online, blended, and classroom-based courses in mind, the discussion now turns to those instructors who are making significant use of technology in their teaching. The studies included discuss the experiences of full-time faculty members specifically, as that group is the primary concern of faculty development studies. In addition, they highlight examples of those innovators who adopt technology ahead of the crowd, with the goal of encouraging others to follow that lead. The insights gained will prove useful in the investigation of instructors who have implemented the inverted classroom model.

Faculty innovation with learning technologies. This section reviews studies on the factors affecting technology use by faculty in higher education. Much of this research is grounded in Rogers' (1962/2003) diffusion of innovation theory and the categories of adopters he outlines (as described below). Two of these studies primarily focus on the

category of early adopters with the purpose of learning more about the motivations and challenges behind their leading efforts (McShane, 2004; Samarawickrema & Stacey, 2007). Other studies address the faculty as a whole, including the needs of those in the additional categories of early and late majorities and technological laggards (McLoughlin, Wang, & Beasley, 2008; Parisot, 1997; Tabata & Johnsrud, 2008). The overall goal of these studies is to find new ways to encourage and spread the use of learning technologies in college teaching.

 Diffusion of innovation theory. The most commonly used theory in the study of technology adoption in education is the diffusion of innovation theory, first introduced by Everett Rogers in 1962. Briefly stated, diffusion theory describes how innovations are introduced and spread within a community over a period of time through a process of communication. Five categories of innovators are delineated: innovators, early adopters, early majority, late majority, and laggards. *Innovators* are those who invent or produce an innovation. *Early adopters* are the first to take on an innovation, often becoming opinion leaders in introducing the innovation more broadly in the community. The *early majority* is a larger group made up of those who, while open to the new, need to understand its immediate value before they adopt it. The *late majority adopters*, an equally large group, are more skeptical and typically wait until they can observe that an innovation is clearly being adopted by the community at large before they join the ranks of adopters. *Laggards* are the much smaller group who resist a change even as they see that a majority within their community have already adopted it (Rogers, 1962/2003).

 Diffusion theory also describes five attributes of innovations that are useful to this discussion: (a) *compatibility* with the needs and values of the adopters; (b) *relative*

advantage compared with existing resources; (c) *complexity* or the degree of difficulty of adoption; (d) *observability* of the results of adoption; and (e) *trialability* or the degree to which a potential adopter can experiment with the innovation before full adoption. These five attributes provide insight into factors that can speed or slow the adoption of innovation. Other factors that can impact the diffusion of an innovation within a community include whether the innovation is required or optional, the nature of the communication channels and social systems through which it is spread, and the influence of opinion leaders within the community.

Diffusion of innovations studies. Early adopters are frequently studied to observe their characteristics and motivations. Focusing on the changing landscape of post-secondary teaching and the corresponding role change for instructors, one study looks at early adopters who are integrating online activities into their lecture-based face-to-face courses, creating hybrid versions (McShane, 2004). The practice of lecturing is seen as a familiar and safe practice, and fully online teaching as more visible (both more accessible and more fully documented) and more likely to require collaboration with other instructors and/or support staff. The online instructor, therefore, has less autonomy and control than someone holding to more traditional instructional methods. This loss may be balanced by the autonomy inherent in the early adopter category; those who first adopt the technology may have greater freedom to choose what to adopt and how to make use of it. This differs from the experience of early majority adopters, who often have the tools already established for them (which they may also prefer as an easier route to the new).

The instructors studied freely chose to make use of online components for their courses, and their selection of tools and methods were varied, based on previous experience and specific purpose. Themes resulting from interviews with the instructors included improved interactions with students, increased need to plan coursework, increased time spent (both for planning and for interacting with students), awareness of increased visibility and resulting accountability. Interestingly, all five instructors interviewed continue to keep lecture as their central practice, which may provide them with a method of "preserving their sense of academic autonomy" while incorporating new and more challenging methodologies (McShane, 2004, p. 14).

Early adoptors are often seen as potential opinion leaders for an organization, though they may in fact not choose to play that role. In their background discussion, McLoughlin et al. (2008) state that before the beginning of their efforts, "most of our faculty members were…computer illiterate although we have always had some who consistently exist on the cutting edge and constantly request new technologies…" (pp. 101-102). They go on to say that while new hires will typically bring technical skills with them, there was a large group of existing faculty members who needed significant improvement in this sphere. This not uncommon dilemma contradicts a common assumption about diffusion of innovation theory, in that the behaviors of those early adopters did not spread to the majority as sometimes happens.

While the wave of new technologies available for teaching and learning can be disruptive to an institution, early adopter faculty—those willing to take risks and experiment—can lead and encourage the use of technology by other, less intrinsically motivated faculty (Samarawickrema & Stacey, 2007, p. 314). Early adopters precede the

early majority, and interpersonal networks and opinion leaders can be instrumental in the dissemination of new ideas (Rogers, 1962/2003). However, the impact of early adopters and their actions can be promotional, neutral, or even discouraging to other potential adopters. Certainly, at some universities and colleges, the early adopters stand alone, while the majority of instructors continue to use classroom lectures for their primary mode of teaching.

Early adopters are also frequently thought to be those with greater technical aptitude and skills. Some findings indicate that those who have greater technical expertise are less concerned about other types of discouraging factors such as compensation and support services (Berge, Muilenburg, & Haneghan, 2002). In contrast, Samarawickrema and Stacey (2007) conclude that adoption of new technologies is not so much about skill as the willingness to experiment, adapt, and develop one's teaching craft.

The issue of autonomy, previously mentioned, may also be of concern to those in the early majority category. In a study of a college of education at a Midwestern university, programs developed to increase the technical knowledge and skills of their faculty were so successful that researchers were able to show a subsequent improvement in the skill levels of their graduating students over a twelve year period. While many colleges offer such programs to low turnout, the broad success of this program, reaching well beyond the early adopter population, was credited to a planning process in which faculty played an active role, making recommendations to the Dean on student outcomes, technology spending, and faculty professional development (including training, support, incentives, and evaluation). Research shows that an institution can do much in terms of

creating an environment that encourages adoption of technologies, including the creation and dissemination of a clear vision and specific policies that address the quality of courses, content ownership, and compensation (Samarawickrema & Stacey, 2007). Giving the faculty a strong voice in the development of the vision and policies and the selection of technology tools may have a significant impact on the adoption rate of the early majority.

Also of interest to the early majority is the ability to see what others have accomplished in the online environment. As mentioned above, observability and the closely related trialability are encouraging factors for many potential adopters. While some have found the sharing of experiences to be a positive factor in faculty adoption of technology (Samarawickrema & Stacey, 2007), one study showed a negative effect (Tabata & Johnsrud, 2008). Many distance education experiences can be seen as negative, involving technical glitches and a significant investment of time for development. While those who share the stories of their challenges may do so with pride, there is the potential for damage, as the sharing of these experiences in the wrong context may discourage others from participating.

Another potential factor in early majority adoption may be the existence of a strong community network. Results from one study showed that having a support system of peers, from which one could obtain assistance with problems, was a motivating factor for technology adoption (Samarawickrema & Stacey, 2007). Challenges for all participants included issues of workload, time commitment, professional growth, politics, and policies; these challenges are also seen in other studies. Collegial support was appreciated when available, and missed when not. The authors state, "Two faculties had

formal, hierarchical, well-developed networks or support structures, which had a major adoption-enabling impact…" (p. 325). Establishing and developing such an environment may improve the adoption rate over time, supported through example sharing and gradual dissemination.

Late majority members prefer to wait until they see that an innovation has become a standard before they are willing to adopt it. As a result, there are a number of familiar reasons they give for resisting, commonly echoing the challenges already met by early adopters and the early majority. In a change effort, it is important to differentiate between the types of obstacles perceived. Environmental obstacles make convenient barriers for those who seek them, but personal obstacles such as discomfort with technology or a simple unwillingness to change can have the greater impact (Ertmer, 1999). For example, the faculty in one study was critical of the existing support and incentive structure for technology use. They felt their efforts were put to better use in research and publication, and resisted any loss of autonomy involved in the process of learning and adopting new technologies for their courses (McLoughlin et al., 2008).

Often among the late majority and laggards are those with a strong preference toward traditional teaching methods. One study utilized the Principles of Adult Learning Scale (PALS) to collect data on teaching preferences from a sample group of faculty members at a community college, with a goal of guiding the college in policy making for learning technologies (Parisot, 1997). The group reflected a strong instructor-centered, rather than student-centered, orientation. In addition, interviews of the sample group revealed doubts about the benefits of technology to the learning process and concerns about changes to teaching methods. Specifically, "some saw it as a challenge to be met

while others viewed it as a threat" (p. 6). This latter stance is quite familiar to faculty development staff members who work with traditional faculty.

From the perspective of these faculty members, time commitment, loss of autonomy, and discomfort with technology and the changes it brings were all factors discouraging their involvement with technology. These concerns are seen at many colleges. In yet another study, on adoption of distance education by faculty at a system of state colleges in the US (Tabata & Johnsrud, 2008), heavy workload and the substantial time commitment required are used to explain the reluctance of those who choose not to make use of technology. However, faculty members who do integrate tech into their coursework experience the same workload and time constraints.

The same can be said for other factors commonly cited, such as lack of institutional vision and available support. In terms of resources such as training, many studies suggest the need for support services to encourage distance education participation. By contrast, this study notes that "those who do not participate perceive the availability of resources, but are unwilling or unable to use them" (Tabata & Johnsrud, 2008, p. 638). This indicates that the availability or quality of resources, while necessary, may not be the true basis on which a faculty member decides to integrate technology, but rather an example of an environmental factor used to draw attention away from personal factors such as discomfort with technology.

This concept of types of disincentivizing factors that impede change efforts can be useful in the effort to make progress on this issue. Another consideration, though, is that the needs of the different adopter categories are not the same; while early adopters may thrive on the autonomy that comes with being first, enjoying the opportunity to explore,

early majority adopters may prefer more guidance and proof of concept. No studies found have included a discussion of addressing the different categories with different methods of support and engagement.

The intention here is not to disregard the concerns of those reluctant to adopt learning technologies. Several serious concerns have to some extent been left unaddressed by many college administrations. In one discussion of the value the institution places on faculty participation, it is suggested that faculty may perceive the development of online courses as a means to boost enrollment, without taking into consideration faculty concern about whether it will impact the quality of instruction (Tabata & Johnsrud, 2008). Here, there is indication that the true concerns of faculty lie in the quality of instruction and control over the content they develop. The autonomous nature of faculty would seem to suggest that such decisions be made in collaboration with that community. Other concerns of this nature include questions of content ownership, compensation, and a lack of institutional vision for the incorporation of learning technologies into the curriculum at large. These unresolved issues, which act as environmental barriers, detract from the efforts to encourage adoption by individual faculty members. It is important to question whether the administration's efforts to make decisions about and enforce changes in this area can be fully successful without the cooperation and collaboration of the faculty.

Overall, the application of Rogers' (1962/2003) diffusion of innovation theory tells us much about existing practices and attitudes of faculty, whether early adopters, early or late majority members, or laggards in the use of technology for teaching. The studies discussed provide an understanding of the benefits of new technologies as well as

the challenges they bring, which can be distilled into guidelines for universities interested in creating an environment of encouragement and support for their faculty. Though these studies primarily focus on technology use in online courses, the same concepts and insights can also inform investigations into other course models. The following section reports on a group of studies from early adopter practitioners of the inverted classroom model. It covers the more practical aspects of the model, such as the activities and technologies used, the altered roles of both instructors and students, as well as the incentives and disincentives experienced.

The Inverted Classroom Model

The learning theories, approaches, and practices discussed earlier in this chapter provide new ways to think about the roles of teacher and student as well as the purposes and goals of education. They also open up the possibilities for structuring classroom-based courses. Instructors have begun to incorporate a variety of activity-based elements into their courses for the purpose of turning their passive students into participatory learners (Fink, 2003; Weimer, 2002). However, often these elements are difficult to fit into the time allotted for a class meeting. Group work becomes homework as instructors struggle to cover expanding course content. Transitioning a course from a lecture format to one built around the active participation of students challenges instructors to find alternate ways of delivering course content. In order to take full advantage of the alternative pedagogies, instructors can make use of new technologies to restructure their undergraduate courses.

The spread of technologies to most campuses has made it possible to share course materials more easily when not in the classroom (Baker, 2000). For example, learning

management systems (LMS), which provide a private online space for each class, enable instructors to not just supplement but complement the classroom experience with learning experiences that take place in students' homes, dorm rooms, libraries, or wherever they may have access to the Internet (Lage & Platt, 2000). In addition, podcasts, audio or video recordings that are easily shared online, make useful counterparts to LMS usage. The use of podcasting as an educational tool has grown rapidly, and is generally promoted as one way to make higher education more millennial-friendly (Campbell, 2005; Gannod, Burge, & Helmick, 2008). Podcasts, as described in more detail later in this chapter, can be created with numerous tools and in a variety of formats, making them a good alternative to traditional content coverage methods. When posted to the class LMS, podcasts provide another way for instructors to deliver course content. Both LMS and podcasts have become widely used in higher education.

In response to the growing interest in learner-centered teaching and the expanding options for technology integration, some instructors now make use of a range of methods in different combinations (Gannod et al., 2008; Wentland, 2004). In some cases these alternate course constructions are unique to a given instructor, implemented in the confines of his or her classroom. However, when shared they may catch on across a campus or among instructors in a given field. One such course structure, which has been documented to a limited degree in the literature, is the inverted classroom model (Baker, 2000; Bland, 2006; Cole & Kritzer, 2009; Gannod et al., 2008; Ladner, Beagle, Steele, & Steele, 2003; Lage et al., 2000; Lippmann, Bulanda, & Wagenaar, 2009; Strayer, 2009; Wentland, 2004). This model provides a way to make use of technologies that supports the restructuring of classroom-based courses to a more learner-centered approach.

The inverted or flipped classroom model may be seen as a useful alternative to the traditional structure of classroom-based courses, giving instructors the fresh perspective needed to transform their classes to active learning environments. In the model, course lectures are recorded and posted online for student access, and class time becomes time for application and practice of skills and knowledge (Baker, 2000; Cole & Kritzer, 2009). Students spend their time outside of class absorbing the lecture content and preparing for in-class activities, often structured as collaborative projects. This model involves rather dramatic changes to the roles of both instructors and students. The following sections will describe documented activities and technologies used in the inverted classroom model. The changing roles of both instructors and students will be discussed. Finally, the benefits and challenges of this structure, from the perspectives of practitioners who have used it in their teaching, will be presented.

Activities. In the inverted classroom model, the instructor provides the primary out-of-class activity through the posting of course material for students to read, listen to, or view. Lecture materials converted to a digital format can be easily accessed by students when posted to an online environment such as an LMS or class website. Some of the common forms include: (a) a video or audio recording of a live lecture; (b) a recording combining the instructor's voice and the visual display of presentation slides; (c) a learning object, or short recording that covers a section of content combined with some form of assessment such as a short quiz. These three forms will collectively be referred to as podcasts for the purposes of this study. The instructor may also provide a written version of the content in place of the lecture, either in prose form or as lecture notes. One form may be used exclusively to replace the lecture, or the instructor may

make use of a combination of these examples and others. In addition, materials from outside sources, such as readings and podcasts, may be assigned. The instructor may organize and make these resources available. Alternately, s/he may have students locate and share resources.

Between class meetings, students enrolled in an inverted classroom course are typically assigned to cover the course content on their own, without the instructor's elucidation. In the parlance of active learning, this would be considered direct learning (Fink, 2003). Various options for covering the materials may be used, including students working individually. However, as this model seeks to make use of social learning concepts such as scaffolding, instructors may assign or encourage students to work in groups.

Once course content has been converted to out-of-class activity, the interesting question arises concerning the activities that take place during class time. In addition, the interaction of in-class and out-of-class activities needs to be addressed. In an inverted classroom, in-class time is spent on students interacting with the professor and each other to apply the course content. Classroom activities vary among disciplines, but usually incorporate small group and whole class discussions, question and answer sessions, and problem-based practices. During class, the focus is shifted fully off the instructor and onto the students, what they have learned since the last session, and whether they can make use of that learning in various contexts.

Some inverted classroom instructors begin by asking questions, both to assess student preparation for the class session and to ascertain the best use of class time. Questions can be posed to students as they are assigned the out-of-class texts and

podcasts, so that they have responses, thoughts, and ideas to bring back to the classroom. In addition, students can bring their questions about the material when they return to class. Some instructors may have their students write out their questions and submit them as they arrive at class (Bergtrom, 2010). Other methods include the required completion of online quizzes or brief papers describing one's reflections on the material and questions resulting from it (Bland, 2006; Lage et al., 2000). These techniques are similar to the JiTT strategy, discussed above, in which instructors post questions shortly before the class session and use student responses to determine the focus of the class session (Novak et al., 1999). These practices are essential opening activities that delineate the connections between out-of-class and in-class learning and establish the direction and purposes of the class meeting.

The instructor may ask the students to address each other's questions, have them work with partners to develop a response, or refer students back to a particular point in the reading or lecture materials to find answers. The instructor may be tempted to offer "mini-lectures" at first, out of habit and expediency, but should only do so when absolutely necessary (Bland, 2006, p. 6). Instructors need to trust the process and help students learn to help themselves. These beginning-of-class practices turn the tables on students who may be used to showing up for class unprepared, expecting that the instructor will cover whatever they need to know in the in-class lecture. With no lecture, and with a class structure focused on the interaction and input of the students, coming to class without having completed the preparatory work is no longer a viable option. While these practices put different, and perhaps more challenging, expectations on students,

they also offer the potential for greater engagement. Student roles and responsibilities will be discussed further below.

The choice of activities and the expectation that students seek out answers rather than sit and absorb them at lecture provides a good basis for the skill of life-long learning (Bland, 2006). Activities must be designed so that they make use of the content from the readings and podcasts the students have watched or read prior to the class session. In this way, the importance of completing the between-class materials is emphasized. In keeping with the effort to connect in-class activities and between-class reading and podcast assignments, attendance should be mandatory. In this way, an instructor demonstrates that each component relies on the other for successful completion of the course.

Baker (2000) presents a series of steps for designing activities for an in-class session. The first step is to clarify student understanding of the material they have covered on their own. The different methods of starting class, discussed above, would fulfill this step. The next step would be to expand on that material by having students contribute their knowledge, experiences, and understandings. This practice supports the social learning and adult learning concepts discussed earlier. Emphasizing the value of student contributions meets the adult need to contribute to one's own learning experience. Including and integrating student knowledge and experiences into the course content demonstrates the shared knowledge-building process of social constructivism. The final steps are application and practice, which will make up the bulk of the class time for many inverted classroom courses. The practices used for these steps will vary widely by discipline, subject, and level of the course. For example, a teacher education course

might include case study work, an engineering class might spend time solving lab-based problems, and an economics course might have students conducting experiments, collecting data, and puzzling out statistics. These steps provide a loose framework for instructors designing in-class activity for an inverted classroom course.

Most of the class time, then, is taken up with collaborative activities that provide application and practice of the knowledge gained from the course materials. Small group activities might include case studies with accompanying questions, with students directed to provide research to substantiate their responses (Ladner et al., 2003). Other types of activities discussed included worksheets, experiments, simulations, role-plays, and interactive projects (Cole & Kritzer, 2009). The size of the work group will vary with the activity. At times small groups will work together and then report back to the whole class. At other times, the whole class will be focused on the project. The key factor here is that class time is used for its most likely purpose—to allow those who have come together to work together. Interactive and collaborative activities replace the individual tasks of listening and note taking.

Activities can be designed to carry over from in-class time to out-of-class time and vice versa. For example, in-class assignments can completed after class when necessary; some instructors may in fact choose to create "multi-part assignments" specifically designed in this way (Gannod et al., 2008, p. 6). Also, discussions can be extended from in-class to an online discussion board (Baker, 2000), again making clear the connection between in-class and out-of-class work.

Questioning as a key practice of this model serves several different purposes throughout the inverted classroom studies, including: (a) preparatory questions to be

considered while reading or listening to podcasts between sessions; (b) review questions for just before or at the start of a session (c) activity questions, such as those posed for a case study discussion. As the use of model develops, we can differentiate between questions asked by the instructor and those asked by students, as well as those students address to the instructor and those they ask of themselves or their peers. It is useful to note that this model regularly both requests and requires that students ask questions and respond to the questions of others.

One observer of an inverted course noted that students did not often ask questions about the online podcasts when invited to do so in class (Gannod et al., 2008). However, another practitioner presents a solution for such an event. He assigns students to submit written questions on the materials covered at the beginning of class, and begins class by leading a discussion on these questions (Bergtrom, 2010). Students earn a few points toward their grade with each submission. Another method for engaging students in the questioning process is to first provide a set of prepared questions for them, which can be assigned with the course material, so that students can consider them while reading or listening to the material. Also, as in the JiTT strategy, questions can be posted for students before the class session, giving them the opportunity to have a say in the direction of the class session.

As we have seen, the inverted classroom model substantially changes both in-class and out-of-class activities, and emphasizes the relationship between them. Baker's steps of clarifying, expanding, applying, and practicing provide an overview and structure for in-class activities. The multiple forms of podcasts and written materials, both instructor-developed and gathered from outside sources, can be organized to provide

consistency or variety, as best fits the needs of the course, instructor, and students. With the considerable changes to the process of teaching and learning this model represents, the roles and responsibilities of both instructors and students also need to be reconsidered. The following section will cover these roles as addressed in the inverted classroom studies.

Roles and responsibilities. The inverted classroom structure requires that an instructor relinquish accustomed habits of teaching and become a different kind of course leader often referred to as a facilitator. Students participating in such a class will need to assume new working methods and responsibilities, and in some cases may need to develop new skills. In addition, unlike a traditional classroom-based course but like many online courses, the inverted classroom may work best when support staff members, such as media specialists and instructional designers, play an active role, working closely with the instructor to design the course and produce online content.

Instructor role. The instructor's role in the inverted classroom requires different practices and habits from traditional teaching. As discussed above, an instructor first needs to prepare for the course by recording lecture material to be made available online. This process may require unfamiliar skills, and may best be achieved in collaboration with a support specialist. Campbell (2005) recommends that instructors make some effort to learn about the new media they will be using, even if they don't make their own materials, because any advanced knowledge can inform their work with the specialists. In addition, as in any learner-centered course, instructors will spend more time designing course activities and processes. It must be pointed out that for many instructors, the role of collaborator on the design of their own course may in itself be a new experience.

The primary function of the instructor in this model is to engage with the students in the classroom, providing motivation, guidance, and on-the-spot feedback. This role is sometimes referred to as the facilitator (Bland, 2006), because the instructor assists, or facilitates, students' efforts to learn rather than directly supplying the learning through content delivery. Online instructors frequently take a facilitator approach as well (Palloff & Pratt, 2007). One practitioner notes the importance of maintaining the facilitator stance when approached by students with questions, resisting any inclination to revert to the lecturer role out of habit. He suggests methods for responding to students seeking assistance, including directing them to the appropriate source materials or asking one or more questions that clarify and direct their thought process (Bland, 2006).

One practitioner of this model refers to the instructor's role as "teaching naked" (Young, 2009, para. 1), implying that an instructor loses a form of protection or concealment that is provided when class time is spent behind a podium. Stepping out from behind the cover of a prepared speech or practiced presentation may feel unfamiliar at first. Instructors will be required to use and develop alternate skills for this flipped structure, and students will face the same challenge.

Student role. The changed structure of this model clearly begins to raise the issue of the student perspective. If students are accustomed to showing up and sitting quietly taking notes while the instructor works to explain the material, they may not respond well to a model of instruction that puts them at the center of the action. This model, with its complete change of dynamic, compels students to take on more responsibility for their own learning. The term *student* is often replaced with *learner* to indicate this alternate role.

The inverted classroom assigns new and perhaps unfamiliar tasks to students, necessitating changes to their expectations, study habits, and classroom behaviors. Rather than the onus being on the instructor to present all course material in a lecture format, the responsibility now rests on each student to read, listen to, and watch all assigned resources over the course of the term, showing up to each session prepared to discuss and practice what was learned outside of class (Lage et al., 2000). In some documented cases, students have been encouraged to form study groups to assist each other with the out-of-class work (Bland, 2006). In this way, students' work outside the classroom becomes collaborative in nature, following the design of the activities that take place during class time. Allowing the students to choose this practice, rather than making it mandatory, as well as allowing them to determine with whom they want to study, supports the goals of this learner-centered model.

Similarly to students who take courses online, those in an inverted classroom course need to be self-motivated to be successful (Gannod et al., 2008). However, this structure also provides more than the usual external motivation through instructor expectations and the participation required of them as they work with their peers within or outside of the classroom setting. In other words, unlike in an online course, students must show up and be prepared to interact face-to-face. In addition, the benefits of the inverted classroom may result in students being more motivated than for traditional courses. As they make use of the knowledge and skills that they are learning, and as their efforts are observed and guided in person, they may find that they acquire greater confidence in the application of their learning (Cole & Kritzer, 2009).

Technologies. In an inverted course, as in an online or hybrid course, the instructor will make considerable use of a learning managements system (LMS). A LMS provides a private space online that combines file sharing, threaded discussion boards, chat and email, and other functions. The LMS becomes like a second classroom, where instructors post recorded lectures, review questions, and other course documents. Students can download the recordings and listen to them on their own computers or on mobile devices such as iPods and Smartphones. The convenience of this mobile learning aspect is thought to be advantageous to busy learners, whether college-aged or adult professionals.

Following instructional design practices, lectures can be broken into sections, resulting in a series of shorter recordings with faster download times (Gannod et al., 2008). Both the ease of access and the shortened sections contribute to students' ability to cover the material in a timely manner. Whatever the recording format, the options to slow the pace of playback, stop, rewind, replay, or jump to certain points, provide students with more control over their learning experience (Gannod et al., 2008). In addition, the fact that they will be expected to discuss and apply the content at class time provides a strong incentive for getting the work done.

While the term *podcasts* has come into common usage, recorded lectures can take a wide variety of forms. Options include lecture capture, narrated presentations using PowerPoint, Keynote, or other presentation software (Gannod et al., 2008) along with recording software such as ProfCast, Producer, or Impatica, and screencasts using software such as Camtasia, Snapz, and others (Gannod et al., 2008). These recordings can range from formal, full-length lectures videotaped live to informal, spontaneous

webcam or audio clips that address the topic of the moment. There is some evidence that the instructor's voice recorded is a better option than canned recordings from the textbook publisher or other service (Strayer, 2009). The instructor's voice provides a way for the instructor to maintain their presence within the class group and balances out the decreased amount of speaking in the classroom. In addition, the instructor's voice personalizes the recordings, creating more of a connection with their students.

Some of the instructors who wrote about their inverted classroom implementations have tried providing lectures in multiple formats, allowing the students to choose the option from which they learn best. In addition to recorded media, they may provide lecture notes, printouts of the presentation slides, and even sample exams (Lage et al., 2000). Others find that catering to the students in this way goes against the goal of helping them become life-long learners and preparing them for professional work. They expect the students to locate resources as needed (Gannod et al., 2008), a practice sometimes used in problem-based and studio-based learning models.

Over the last ten years, instructors have used various means for distributing lectures, including videotapes checked out of a media center and CD-ROMs or DVDs burned and given out or sold as course materials (Ladner et al., 2003; Lage et al., 2000). With the ubiquitous LMS, popular mobile devices, iTunes U, and the like, the process of distribution has become much easier. Guest speakers can be presented through the use of podcasting as well, eliminating the difficulties of scheduling (Gannod et al., 2008). With the permission of the guest, these podcasts could easily be reused for future iterations of the course. Alternately, existing free-access lecture podcasts by other instructors or specialists in a field may be appropriate for inclusion.

Some practitioners discussed the importance of technology labs where students without equipment/internet access were able to conveniently access course materials. This issue is shared with any online, hybrid, or web-enhanced course a college offers. Labs have become both more common and perhaps less necessary, as more students arrive at college equipped with their own digital devices. The concern about limited student access is already being replaced with the question of how to increase accessibility of course podcasts from the variety of popular mobile devices.

Benefits and incentives. The inverted classroom model provides many benefits for both instructors and students. For an instructor, the pressure to cover the course material during each class session is removed, and some find this method to be "a more efficient use of instructional time" (Cole & Kritzer, 2009, p. 38). Those who find that their students come to traditionally structured classes unprepared (Baker, 2000) will find that this structure strongly addresses that issue. No one will be waiting in the classroom to walk students through the material they missed by not completing the assigned reading. Rather, the focus will be turned on the students, with the expectation that they be prepared to discuss and apply the ideas presented in the course materials. The use of pre-class quizzes, JiTT questions, and other preparatory activities will further incentivize students to prepare (Baker, 2000).

Discussion is another classroom activity that can be seen as time-absorbing. To be done well, a discussion needs time to develop, and time for each student to have a say. Instructors know that discussion is often dominated by a small group of active participants, and that some students avoid participate throughout the course of a semester. Not only does the inverted classroom free time for discussion, but instructors with a LMS

course space also have an additional tool available to them in the form of an online discussion board. Discussions that begin in class can be moved to the discussion forum for further debate (Baker, 2000). This also provides less outspoken students the time to reflect and develop replies. Instructors who actively use the LMS space may want to adopt a learner-centered practice from online learning and include a question and answer forum where any student can post a question, to which the instructor or any other student can reply.

In addition, the instructor loses the requirement of covering all course material in the time allotted for class sessions over the course of the semester. Instead, s/he has the pleasure of being in direct contact with students "during the entire contact hour" (Gannod et al., 2008, p. 5). The instructor can observe the students at work and provide direct feedback in the moment. Activities ensure the application and reinforcement of course concepts (Gannod et al., 2008). Increased and more direct contact between students and instructor provides opportunities for students to clarify their understanding of concepts (Lage et al., 2000). Unlike lecture-based courses, in which the active students are often the best and brightest, the inverted classroom allows an instructor to observe and direct attention to those who are struggling (Gannod et al., 2008). Students who might become confused or misdirected working alone on homework assignments can instead receive timely, corrective guidance from the instructor in class.

Students may also find some real advantages to the inverted classroom model. As in other learner-centered models, the balance of power in this model shifts to include them. Students may become more engaged (Lage et al., 2000) and more motivated, as they can more clearly see the purposes and outcomes of their efforts (Gannod et al.,

2008). As students learn to take more control over their own learning, and become more responsible for it (Baker, 2000), they develop self-directed learning skills (Bland, 2006). The use of multimedia is said to give students a wider range of choices for knowledge gathering and self-expression. They can better contribute as individuals because they have different ways to absorb information and express ideas (Lage et al., 2000). Course content becomes self-paced as they pause, rewind, and revisit it as needed (Gannod et al., 2008). This advantage, combined with the increased hands-on interaction with the instructor makes this model both "constructive" and "customized" (Gannod et al., 2008, p. 5). Student control brings the combined benefits of active learning and life-long learning, providing learning experiences more in keeping with those of professional life (Bland, 2006).

Students gain confidence along with better preparation for future work experience (Baker, 2000). They benefit from learning to explain and apply concepts with peers, thus "reinforcing and solidifying" (Gannod et al., 2008, p. 4) the knowledge for themselves. Through these activities, they develop communication and presentation skills (Lage et al., 2000). Students benefit by having concepts explained not just by the instructor but in multiple ways by their peers (Lage et al., 2000). Observing how others solve problems (Bland, 2006) and building on multiple perspectives are some of the advantages of the inverted classroom experience. In some cases, students frequently presented material in class (Lage et al., 2000) or "[took] on the role of instructor or mentor" (Bland, 2006, p. 7). Such practices reinforce student learning and develop professional skills.

Challenges and disincentives. This model may also involve some disincentives for instructors and students alike. An inverted classroom course requires more

preparatory work from the instructor when first offered. The extra time needed to create the recorded content and other online materials is a key disincentive of this model (Gannod et al., 2008). Instructors will also need to spend considerable time designing learner-centered activities for use during class sessions. However, this model can be more efficient in the long run, since once materials are created, they can be reused for subsequent offerings of the course. Also, once the course has been taught through the first time, prep time for each class session will be greatly reduced (Lage et al., 2000).

Strategies for dealing with the disincentive of extra preparatory work for the instructor include making use of materials available through the textbook publisher. While not everything provided will be effective—chapter-based slide decks would make a poor substitute for a podcast recorded in the voice of the instructor—items such as study guides or end-of-chapter quizzes could prove useful (Baker, 2000; Lage et al., 2000). In addition, many suitable resources can be found through an informed Internet search. Another strategy, useful for an instructor planning to convert from a traditional model in an upcoming term, would be to request to have classroom lectures recorded during regular class sessions in the term prior to the transition (Lage et al., 2000).

Students may also see some disadvantages to the inverted classroom model. They will certainly feel more pressure to complete the readings and course materials before class. They may be uncomfortable with the unfamiliar class time practices (Strayer, 2009) and may also find that they need to develop new study skills and habits. They may be unaccustomed to being questioned by the instructor rather than receiving immediate answers from him or her. These issues are shared with conversion to any learner-centered model, and instructors need to anticipate and address them proactively.

As this model may be completely unfamiliar to students, they may find it difficult to adapt to the new responsibilities and expectations (Bland, 2006). One instructor who would prefer this structure but who has not yet fully adopted it expressed concern that his students would be critical of such teaching methods because they would be perceived as unlike the methods with which they were familiar and comfortable in other classes (P. Heydenburg, personal communication, June 18, 2010). Indeed, the traditional course structure, mirroring the teaching archetype, may still be identified by many students as the correct way to teach, even as more instructors adopt new methods.

Strategies for addressing this challenge include adopting the model program-wide, so that students in a given major experience it in a number of courses. In this way, the model could be phased in gradually starting with introductory courses. In addition, students could be introduced to the practice in some form of orientation event or materials, and study skills support could be adapted to address the skill set needed for student success. Alternate strategies, in cases where program adoption is not an option, include explicit description of expectations (Lage et al., 2000; Lippmann et al., 2009), which can be inserted into the course syllabus, and perhaps even a course contract as sometimes recommended for online or hybrid courses (Garrison & Vaughn, 2008), which also often present requirements unfamiliar to some students.

This discussion of inverted classroom studies has clearly illustrated the impact that the model can have on the learning experiences of undergraduate students. Both the significant change the model requires as well as the value it offers have been underscored. By facilitating a learner-centered approach to instruction, and well as incorporating learning technologies in innovative ways, this model responds to the

current needs of higher education and its students. However, further study is needed to learn more about instructors who chose to implement the model and their experiences in doing so. This research will inform other instructors interested in taking on the challenge of adoption, as well as the faculty developers and institutions that support and wish to encourage those instructors. The following chapter will outline a research project that will further investigate the adoption the inverted classroom model.

Chapter 3. Research Design

Higher education pedagogical support has been, for the last two decades, focused largely on developing online courses, leaving undergraduate classroom instructors with little guidance to cultivate their teaching methods. Meanwhile, the culture and the needs of students, in terms of both technology use and academic skills, have been rapidly changing (Jenkins et al., 2009). Much classroom instruction continues to be based in a teacher-centered paradigm. However, some instructors have created new uses for learning technologies to support a learner-centered approach in their classroom-based courses.

The flipped classroom model originated out of multiple higher education disciplines and has spread to several others, but remains relatively unknown among college instructors. To implement the model, an instructor must make a dramatic shift, moving the presentation of course material out of the synchronous classroom to the asynchronous online environment to make time for a more activity-oriented in-class experience. This shift in practice works together with a shift in principles, from a teacher-centered to a learner-centered approach to instruction. The purpose of this study is to learn more about instructors who have made such a shift in their own teaching practice. It reports on the experiences of instructors who have made the change to this model as well as their purposes and methods in making the change.

Multiple layers of context influence the undergraduate classroom experience. Within the higher education realm, there are many different types of institutions, large and small, private and public, from research universities to community colleges. The undergraduate classroom within this broad range of establishments can take the form of a

large required lecture class or a small, coveted, upper-level seminar, though many courses fall somewhere between the two. These undergraduate, classroom-based courses vary widely by discipline and may take place in a variety of physical settings, though the standard classroom with desks and chairs facing a lectern is quite common. The significance of the professorial role, with its long-standing history and traditions, is juxtaposed with the somewhat more recent trend of assigning the teaching task to TAs or part-time, adjunct instructors. These wide-ranging, institutional contexts can play a significant role in the classroom experience.

Factors external to institutions also provide significant context for this subject. The gradual re-imaging of a college education from an elite privilege to a goal for "every American" (Obama, 2009) has much relevance for this study. That goal, too, is balanced by difficult economic times, which demand a more educated workforce while simultaneously making a college degree a greater fiscal challenge. Most importantly, this study was made necessary by the changing needs of incoming students, in all their wonderful and expanding diversity as they find their way in a world transformed by technology. This diversity of students mirrors the diversity of institutions, instructors, programs, and courses. And yet, within all this diversity, there exists the common thread of the college classroom experience, underexplored in this era of online education growth, but still the mainstay of the post-secondary educational system.

The previous chapter provided discussion of a gradual shift in focus from teacher-centered to learner-centered instruction. The literature suggests growing interest in this effort. A number of factors make that transition exceedingly difficult, and yet we see that there are instructors who have created and implemented strategies for accomplishing it.

Perhaps the biggest challenge is the ability to see beyond the archetype of teacher-as-lecturer and envision a transformed classroom free from the need for extensive content coverage. In such a classroom, students can assume a more active role and accept greater responsibility for their own learning. This study focuses attention on the instructors who have envisioned and brought about this type of transformed classroom through the use of the flipped classroom model.

Evolution of the Study

This writer's earlier research focused on faculty adoption of learning technologies and online teaching practices. Once she began teaching blended courses, she discovered an interesting split in the approaches taken by instructors in the program. Some held that the face-to-face sessions were ideal opportunities for student participation in various forms. Others seemed to assume that on-campus meeting times were meant to afford the instructor time to lecture. Her own inclination was to use the little face time available to allow the students, typically new to blended learning, to interact as much as possible. However, she also found, since the courses were shared and co-designed, she was not motivated to invest time in the creation of online learning modules to cover the course content. As a result, she found herself straddling the two practices. During this time, she came across the concept of the flipped classroom and was inspired to further investigate the somewhat neglected classroom-based side of college teaching.

Her interest in college teaching began, one could say, when she was born to two professors who believed strongly in the value of a good education. After earning two masters degrees and working in multiple higher education administrative roles including academic advisor, supervisor of faculty advisors, trainer of faculty and staff, and briefly,

LMS administrator, she became an adjunct instructor and doctoral student. This background provided her with a well-rounded view of the issues that surround the subject of this study. Despite two decades of professional higher education experience, however, she comes to this subject to some extent with the eyes of a bored student who can achieve comfortably in a teacher-centered classroom but yearns for a more learner-centered environment with its opportunities to participate and contribute. This perspective influences her teaching, pushing her to turn the control of learning over to the students in course design and classroom practice. It also ensured the focus of this study and guided its process and product.

The following sections describe the methodology selected for the study and the reasons for the choice. An in-depth discussion of the research design and process for the study is provided, including sample selection and demographics of the participant set, data collection processes, and the analysis and reporting of data. In keeping with the phenomenological methodology, the chapter closes with a discussion of the researcher's own experience conducting the study.

Phenomenology Methodology Description

This study used a qualitative approach to investigate and describe the experiences of instructors who have adopted the flipped classroom model in an effort to understand the motivations, benefits, and challenges of this transformation. Qualitative research emphasizes the context within which events take place, situating both the event and the researcher in external circumstances. When following a qualitative research method, the researcher can be seen as a human instrument (Yin, 2009), collecting data from a variety of sources in a multifaceted and detailed way. As such, the researcher's perspective and

biases must be acknowledged and taken into consideration. The phenomenon being studied is seen as connected with and deriving meaning from its physical and cultural environment. The individual perspectives of the informants contribute additional meanings. An inductive data analysis process results in a multilayered description of experiences that can provide readers with an evocative and enlightening understanding of the study's subject (Merriam, 2009).

The perspective this researcher brings to the study is based in a pragmatic worldview informed by social constructivist ideas. The pragmatic perspective concerns itself primarily with the results of the research study and the value of the study report for the field. A pragmatic worldview is compatible with the use of multiple sources of data and the adaptation of the research design to accommodate the needs of the issue. This perspective also acknowledges the multiple layers of context that surround an issue or study (Creswell, 2007). Social constructivist theory, based in the understanding that knowledge is created through social interaction, is acknowledged by the choice of qualitative research method and incorporated through the collaborative nature of the phenomenological research process.

The selection of a phenomenological methodology enables the in-depth examination of several instances of the study's subject in order to distill shared elements of the experience and present the themes common to all informants. In this way, the essence of the phenomenon is brought to light. Researchers using a phenomenological approach endeavor to provide descriptive accounts of events from which others, both researchers and practitioners in the field, can benefit. The advantage of a phenomenological study over other qualitative methods is the meaningful depiction it

provides of the common experiences of the informants. Phenomenological methodology is appropriate when studying a set of individuals who have all experienced a specific phenomenon closely connected to their setting and context. The ultimate goal of a phenomenological study is to describe the essential experience of the phenomenon.

Following a review of the literature on phenomenological research, it is clear that Moustakas' (1994) approach to the methodology will be the best fit for this study. Moustakas delineates specific steps to follow in framing the study, collecting and analyzing the data, and developing the descriptive report that results from the study process. In addition, where van Manen (1990) advocates the interpretive role of the researcher, Moustakas calls for the researcher to declare in advance her personal experience with the phenomenon, and then lay it aside in order to meet the research with a open mind. In this way, a researcher allows the perspectives of the informants to lead the analysis process and to be presented without interpretation. Though this researcher has teaching experience and in-depth knowledge of the model and technologies used, she does not have expertise with the model in practice. Allowing the informants to be the experts in this process will better serve the study results. This study will apply the parameters Moustakas has established for the method.

Rather than attempting a random selection of informants from which one can generalize findings to a larger population, as is common in quantitative studies, qualitative studies seek out informants who specifically fit the study. For example, in a phenomenological study, informants need to be carefully selected in order to ensure that they all share an experience of the phenomenon (Creswell, 2007). The process of selecting informants to be interviewed is referred to as sampling. One common type of

sampling in qualitative research is purposive sampling, in which informants are chosen specifically because they will be able to contribute to its overall goal of describing the essence of the phenomenon.

For this study, a type of purposive sampling known as snowball sampling was chosen. Snowball sampling, a method of assembling a group of informants during the course of a study, provides a way to gain access to a population that has no formal organizational structure. In this method, the researcher begins with a small number of names of potential informants. Once a potential candidate becomes a confirmed informant, the researcher then asked that informant to recommend one or more others who also fit the criteria of the study. Ideally, each informant will know at least one other person with the same characteristics, practices, or other criteria, and will be willing to refer the researcher on to that person. The researcher then contacts the new referral, and repeats the process of connecting, confirming participation, and requesting a referral. These steps are replicated until a sufficient number of informants have been identified for the study. In many studies, the process ends when the researcher feels that no new data will be gained by the addition of informants. The snowball sampling method does not produce a random or representative selection of a population (Bryman & Bell, 2007). Rather, it provides a purposive method of connecting with a sample of a relatively small and unknown group of individuals who share common attributes and experiences relevant to the study (Bogdan & Biklen, 2003).

Once the selection of informants is complete, data collection, analysis, and reporting are the main processes involved in the phenomenological methodology. Data collection is a detailed and complex activity that often involves the investigation of

multiple sources of information. Participant interviews are the most common type of data source for a phenomenological study. Transcription of interviews may be necessary if they have been recorded on audio or video. Other sources of data may include site and event observation, and document and artifact review. The assembling of the collected data in some manageable, organized form eases and strengthens the analysis of the data once collection has been completed (Yin, 2009).

For a phenomenological study, the researcher is advised to precede the process of data collection by reflecting on and recording her experiences with the phenomenon to be studied. Called bracketing, this step aids in the validation of the study by providing an acknowledgement of the researcher's previous involvement with the phenomenon. The researcher then works to exclude her perspective during the study procedures so that her views do not impact the recording and analysis of the informants' experiences and meanings (Creswell, 2007). This bracketing of experiences can be a significant challenge for a phenomenological researcher. Some consider the effort impossible (van Manen, 1990). However, others see the effort as a *suspension of judgment* (from Husserl's concept of *epoche*), which may then make possible a stance of interested and inquisitive learner for the researcher (Creswell, 2007).

Data analysis, "a process of making sense out of data" (Merriam, 2009, p. 193), begins in a phenomenological study with multiple close readings of the interview transcripts. From the full interview, "significant statements" about the informants' experiences of the phenomenon are identified and highlighted (Creswell, 2007, p. 159). These statements, taken from all interviews, are combined and sorted into common themes. Themes should not overlap, and should be "conceptually congruent…[or] at the

same conceptual level" (Merriam, 2009, p. 186). From these themes, descriptions are developed of the informants' experiences and the context within which their experiences took place. The final step of the study involves the researcher providing a report from which a reader should be able to understand the overall experience of the phenomenon. The study report would then commonly include a discussion of the themes, using quotes from the corresponding informant statements, as well as a thorough description of the phenomenon.

Phenomenology Methodology Application

At the heart of this study lies the flipped classroom model, a specific combination of a learner-centered approach and learning technologies application. The study investigates in depth the experiences of instructors who have transitioned from a more traditional teaching approach to the use of the flipped classroom model. A phenomenological study offers the opportunity to explore instructors' motivations for adopting the model as well as the benefits and challenges encountered in the implementation process. This study provides a greater understanding of this experience for other interested instructors as well as faculty developers who support instructors. While the participation of multiple instructors uncovered differences in the adoption and implementation path, the purpose of a phenomenological study is to bring to light their shared experiences and provide a description of the essential experience of the phenomenon. In this way, the study both acknowledges and values the experiences of individual instructors while contributing to the development of policies and strategies applicable to a broader range of courses and programs (Creswell, 2007).

Aside from a formal observation of a colleague for a teaching assessment, which often takes place during the pre-tenure period for a faculty member's career, many college instructors do not have the opportunity to witness the instructional practices of their peers. Those instructors who adopt alternative methods may not have an opportunity to share their experiences with colleagues. Lacking opportunities for observation and exchange, they may also not devote time to comparing approaches, exchanging feedback, or collaborating on methods. In addition, those who put in the considerable effort of adopting innovation may well find themselves too occupied to publish or present on this work. Sharing the stories of instructors' experiences as they transform their teaching practices provides them with validation while providing others with greater understanding of their purposes and processes.

Identification of informants. For this study, the informants selected to be interviewed were individual instructors who have undertaken the adoption and implementation of the flipped classroom model in at least one of the undergraduate courses they regularly teach. As such, the courses were classroom-based courses that the instructor had formerly taught in a traditional method, using predominantly lecture in the classroom and homework assignments to assess student learning. Each instructor had taught one or more courses using the flipped classroom model within the past year. For the purposes of the study, a flipped classroom course was defined as one for which the instructor moves lecture content previously presented in class to the online environment as podcasts, narrated presentations, or in other types of digital formats. The instructor devotes the full meeting time to interactive activities, such as students discussing or collaborating in pairs, small groups, or as a whole class; students reviewing and

providing feedback on each others' work; and students taking turns guiding their peers through a concept or project. As expected, the specific uses of class time vary widely, with the common thread being that the instructor acts as guide, encouraging and attending to the actively involved students rather than as expert to whom students must attend.

As part of the participation request process, potential informants were asked to complete a brief questionnaire designed as a premeasure to help assess their suitability for the study. In the questionnaire, instructors were asked to describe their institution, professional status, and the types of courses and students they teach. They were also asked to describe how and when their teaching practice changed. The questionnaire served several purposes: (a) to learn whether the changes the instructor had made in his or her teaching practice correspond with the definition of the flipped classroom used for the study; (b) to discover whether the instructor fit the other study criteria (e.g., had taught at least one flipped course in the past year); and (c) to collect basic demographic information to inform the study.

Snowball sampling method. The use of the flipped classroom model has not been widely researched in post-secondary education, though in the last two years it has become a popular topic in the K12 teaching community. While pockets of college instructors exploring the model appear to have formed in specific disciplines and institutions, its practitioners have no known professional structure centered on the sharing of information and experiences specific to the subject. Therefore, gaining access to a selection of college instructors teaching flipped courses posed a challenge. A snowball sampling process was selected as a potentially viable method for locating an appropriate selection of informants. From only a few initial contacts, this method was expected to

enable the assembling of an informal, peer-recommended network built around the practice of the study. While the nature of any existing network was not known, the connections demonstrated through the publications discussed in the previous chapter, for example, indicated the possibility for success using this referral-based sampling method.

The researcher had planned to begin the sampling process by making contact with an instructor located through research on the Internet who fit the criteria of the study. She also planned to solicit initial referrals from professional colleagues directly or through publically accessible listservs related to instructional practices in higher education (e.g., the INSTTECH listserv for the Instructional Technology special interest group of Educause; the ISSOTL listserv for the International Society for the Scholarship of Teaching & Learning). The weak point in the snowball sampling method, as demonstrated by this researcher's results, lies in the fact that at any point, the chain of informants may be broken. The initial contact may decline to participate, and any one participant may be unable to provide a referral. In this case, the initial participant was unavailable at the start of the sampling process, though he asked to be contacted again in three months. In addition, while the researcher submitted inquiry posts to two professional listservs and followed up on all responses received, none of the leads from the listservs resulted in confirmed participants for the study. It was fortunate that contingency measures had been planned, and additional contacts were located through more direct methods.

The researcher also made connections with two colleagues at a conference who initiated contact with two potential candidates. While those two contacts resulted in confirmed study participants, those participants were not able to provide additional

referrals. The researcher continued her Internet research, gradually uncovering four additional participants through direct contact. The original instructor was contacted again, and subsequently agreed to participate. Finally, the researcher invited the colleague who had taken part in the pilot interview, due to the value found in the data collected during that process. In all, eight participants were assembled who fit the criteria while also representing a variety of disciplines, institutions, and backgrounds. In all, the sampling process took over three months to complete, but resulted in a comprehensive sample of participants whose experience and practice match the criteria of the study.

Demographics and descriptive data from the participant set. As typical of a phenomenological study, the participant set was not large. Eight college instructors were interviewed and provided course materials for analysis. The following section briefly describes the demographics of this set. In addition, descriptive data on the content conversion methods of participants has been included as further introduction to the variety of practices represented. While the data presented here demonstrate the diversity of background and setting represented in the group, the discussion in the following chapter will make clear the commonalities they share. The strong connections between this small but diverse set of instructors underscore the value of this study's results as well as the need for further research into this phenomenon they have adopted for their work.

Demographics. The teaching experience of the study participants ranges from five years to over 30 years, and their experience with the flipped classroom model reaches from about 20 years to just one semester. Their teaching experience has been at state and private universities as well as technical and community colleges. Most are full-time, tenured professors or full-time instructors, though one is a part-time instructor.

Their disciplines vary broadly, with representation from science and technology, business, and the social sciences. Class sizes range from 20 to 60 students, with some instructors experiencing varied or growing enrollments. Each undergraduate class level (100, 200, 300, 400) was represented by two courses, and all were within a specific discipline (i.e., none were general education courses). In keeping with the study criteria, all participants had previously taught using a more traditional lecture-homework model. Also, all have adopted a form of the flipped classroom model as defined for the study, though some refer to it as the inverted classroom or by other terms, while some do not use a specific term to name the model.

 Descriptive data regarding the model. While the definition of the flipped model used for the study acknowledged that online content might be presented in different formats, there was an unspoken assumption that these formats would not represent a particularly wide range (unlike the anticipated wide variety of in-class activities). Specifically, the assumption was that content would be presented in some type of audio-visual recording, such as a podcast, screencast, or video-capture of a lecture. During the sampling process, however, the question was raised as to whether the use of text-based content, specifically web pages and ebooks, would be appropriate to include in the study. The researcher relied on the stated definition of the model, which included other types of digital formats, and chose to include these additional types of online content. This decision proved advantageous. Further research and data analysis have shown that, despite the popular view of the flipped model as being based on videos or podcasts, the formats used for online content vary widely, based on discipline, instructor preference,

and other factors, just as in-class activity does. The stated definition allowed room to include a representative sample of the diversity of the model in all its aspects.

Six of the eight participants provide online content though some variation of audio-visual formats, collectively referred to here as podcasts. The instructors usually have authored the podcasts they use, though they also may provide access to some amount of content from vendors or online repositories such as YouTube. Once again, within this subset of six, a remarkable gamut of methods and styles is seen. The podcasts vary in length from 2 minutes to 45 minutes or longer. Some are simple screencasts, which depict the instructor's actions on their computer screen. Some display only slides with text and images, while others use a lecture-capture system to record a video of the instructor as s/he presents a lecture or works out formulas on a whiteboard. Some are just for listening, while others provide suggestions of activities for students to take part in as they listen, and still others have short quizzes or links to websites and readings built in. Most instructors take advantage of the LMS or blog on which the podcasts are posted to combine the podcasts with additional elements such as short assignments, online quizzes, and other supplemental resources. In each case, the recordings of the instructors provide a perhaps unanticipated aspect to the method, the extension of their presence and personalities out of the classroom and into the online environment.

As mentioned, the remaining two participants post course content online through the use of text-based web pages and open-source e-books, respectively, in both cases authored by the instructor. These instructors also provide supplementary material, and both are making use of video as well, though in other ways. Their methods, the content

conversion experiences of the participants, and further course content issues will be discussed in later sections.

Human subject research considerations. Though the instructors who chose to participate did so on a volunteer basis, it was important to acknowledge any risks associated with participating and to ensure that appropriate considerations were in place for the study of human subjects. An application to the internal review board (IRB) office of the researcher's university was an important component of this study. Human subject research is guided by federal policies put in place to help determine funding of research projects. According to those guidelines, such research is eligible for exempt status when it takes place within an acknowledged educational setting and addresses issues of instructional strategies or classroom management (National Science Foundation, n.d.). Therefore, this study qualified as exempt research.

There are several steps that were addressed to ensure that risks are minimized for study informants. Each informant was provided with and asked to review an informed consent form confirming their understanding of the study and their role in it. This form provided them with an overview of the study and its goals, what would be expected of the informants, and information on confidentiality, risks, and benefits of the study. Since the interviews took place at a distance, the researcher did not have the opportunity to ask the informant to sign the form at the beginning of the interview. For this reason, the form was sent as an attachment to the emailed participation request. The informant's emailed response agreeing to participate in the study was taken as agreement also to the conditions of the study. In addition, at the beginning of each interview, the researcher reviewed the conditions of the study with the informant.

It was anticipated that potential informants, being scholars themselves, would have questions about the study's goals, processes, and product. Every effort was made to address their questions openly prior to confirming their participation in the study. Because the study could not be conducted anonymously, their concerns regarding the confidentiality of their interview responses and any course materials they make available were also addressed. In order to protect the privacy and identity of informants, the study has been reported without using actual names, and other identifying information was excluded from the report. In addition, data collected has not been shared with anyone but the source of the data during the study, and will remain confidential. All study documents have been stored securely during the course of the study and will be destroyed three years after completion of the study, as per protocol. These steps were intended to make participation in the study a positive and protected experience for all informants.

Data collection strategies. As appropriate for a phenomenological methodology, this research focused primarily on informant interviews. Additional sources of data provided by the informants were incorporated both to inform the interview process and to contribute to the validation of data collected from it. The process of working with each informant took place as described below.

The researcher initiated contact with a prospective informant by sending the participation request letter by email. The letter explained the research project's focus and purpose and what participation in the study would entail. The researcher attached the participant questionnaire, which helped determine the potential informant's fit for the study. In addition, the informed consent form was attached. The informant's emailed agreement to contribute to the study constituted his or her consent to the conditions of the

study, as was made clear in the request letter. Interested candidates were able to request more information or an opportunity to discuss the study before agreeing to participate. The researcher addressed all questions and concerns that potential informants had.

Before scheduling each interview, the researcher reviewed the potential informant's responses to the participant questionnaire to determine whether he or she was a good fit for the study. When the researcher determined that a candidate was not a good match for the study criteria, the candidate was sent the participation decline letter, thanking them for their time and effort. When a good fit was determined, the participation confirmation letter was emailed to notify the candidate and to provide details on preparing for the interview. Course materials from before and after the transition to the model were requested. The researcher sent a confirmation email to each participant with the interview schedule attached so that the informant could prepare for the interview. Contact continued by email or phone as needed to make arrangements for the interview. Pre-interview sessions were offered to familiarize the informant with the technology to be used for the interview, but no participants requested a session.

In most cases, participants forwarded their course materials through email exchange prior to their scheduled interview, so that the researcher was able to review the documents in preparation for the discussion. In one case, materials were not received until after the interview was held. To compensate, the researcher did some further Internet research to prepare for that interview. A rubric was created by the researcher for the purpose of assessing course materials, and is described below. Course materials were reviewed as documentation of the changes that took place in the participant's teaching practice. The materials functioned as points of discussion and gave substance to the

questioning process. The course materials, as well as the participant questionnaire, served to validate the data collected in the interview.

To begin each interview, the researcher contacted the informant at the appointed time through Skype. After a brief greeting, she noted the time and stated that she would provide a cue to begin wrapping up the interview fifteen minutes before it was scheduled to end. She then let the informant know that she was starting to record the interview. The researcher briefly reviewed the informed consent process and asked the informant if s/he had any questions before beginning. The researcher then proceeded with the interview questions.

The interviews were conducted with a semi-structured approach, allowing for flexibility in the interview process. Semi-structured interviews seek to both collect specific data and also to permit some amount of exploration of topics with the informants (Merriam, 2009). This interview structure was selected in order to emphasize the collaborative nature of the study as well as to acknowledge and benefit from each informant's position as expert on his or her own experience. To begin, the informant was asked to describe and discuss the course materials s/he had shared with the researcher. During that process, the researcher offered brief prompts to encourage further description as needed, and took notes to keep track of the discussion and any additional questions that arose. The researcher followed that discussion with a small number of open-ended questions, again using a short list of prompts as needed. The focus of the interview was on the experience of the phenomenon and the context within which the experience took place, as appropriate for a phenomenological study.

Because it was assumed that the method of sampling would produce a geographically dispersed selection of informants, Voice over Internet Protocol (VoIP) interviews were planned using Skype, a free Internet application that enables webcam conversations. Effectively, VoIP interviews provide the same benefits and challenges as phone interviews. The advantage of saving on time and expenses is counterbalanced by the potential loss of personal connection and face-to-face observation (Novick, 2007). However, VoIP interviews provide a few additional benefits. For example, the planned use of the webcam is intended to emulate the personal connection of a face-to-face interview. In addition, Skype provides the option of sharing the informant's computer screen, so that the informant and researcher can view the course materials together. Finally, the application allows for real-time transfer of documents and Internet links. Each of these tools increases the functionality of the interview process, allowing interviewer and interviewee additional channels of interaction.

While VoIP interviews have only come into use in recent years, it was expected that the instructors involved in this study would have sufficient technological expertise to participate without difficulties, which proved to be the case. However, the researcher also took care to consider the language and strategies used, particularly at the beginning of each interview, to put the participant at ease and engage him or her fully in the process (Novick, 2007). Interviews were recorded and later transcribed to assure that the discussion had been fully captured. In addition, the researcher typed up and reviewed the notes taken during the course of the interview as further documentation.

As each interview drew to an end, the researcher asked whether the informant wants to discuss anything that had not yet been addressed. Follow-up procedures were

reviewed, with time estimates provided where possible. The researcher then thanked the informant and ended the interview session. On the day after each interview, the interview follow-up and nomination request letter was sent by email, thanking the informant for his or her participation and reviewing next steps. The informant was advised that, as sometimes happens in a phenomenological study, s/he might be contacted to respond to additional questions or for member checking purposes during the data analysis stage. During the later stages of the data analysis process, each informant was emailed a report letter providing an update on the study progress. Attached to each email was a brief summary of the informant's contribution to the study and any additional questions for the participant. Contact with participants will continue as the study nears completion. Each of the informants has been an essential contributor to the success of this study.

Data collection instruments. As discussed above, two data collection instruments were designed to meet the needs of this study. An interview schedule was developed for use in the interviews of informants. This guide was designed for a partially structured interview format, to accommodate flexibility in the interview process. Questions were based on the study purpose and informed by the literature review. In addition, effort was made to address the larger questions of a phenomenological study, focusing on the informants' experiences and the contexts influencing those experiences. The details of each informant's experience were examined, from the initial discovery of the model to the work involved in designing and implementing a flipped course. The informant's description and discussion of the course materials provided was a primary focus of the interview. This discussion provided the foundation for the interview.

In addition to the interview schedule, a rubric was designed to structure the analysis of course materials provided by each informant. The first section enabled the comparison of an earlier syllabus version, from before the informant's adoption of the flipped model, to the syllabus designed for the flipped course. The earlier version was reviewed first and used to establish a baseline for assessment of the later syllabus. The rubric includes a checklist of syllabus sections based on a sample syllabus from Weimer (2003) and assessment rubrics from Blumberg (2009). The syllabi were also assessed for indications of Weimer's five points for transitioning to a learner-centered teaching practice, covered in the previous chapter.

The second section of the rubric provided a structure for the review of course content components. The first step was to identify and describe the components by media type (e.g., audio, video, text-based) and source (whether created by the informant or other person(s)). The integration of course content components with other aspects of the course (e.g., in-class learning activities) was also assessed. The final section of the rubric allowed space to review any additional course materials provided by the informant. This included the online course environment in an LMS or on a website, or any other materials the informant felt would help demonstrate his or her transitional process. The rubric was designed to provide consistency of process when analyzing data from multiple informants.

A colleague experienced with both learner-centered instruction and learning technology integration reviewed and provided feedback on the rubric and interview schedule during the development process. Both instruments were then tested and further

developed through a pilot interview process. That process is described in the following section.

Description of pilot interview and lessons learned. A pilot interview was conducted to inform the data collection process. For this procedure, the researcher obtained the participation of a colleague who has taught at a public university in the Midwest for more than 30 years. The researcher had collaborated with this person on several projects, and the two have a good working relationship. The colleague is familiar with the study and had assisted with the review of the interview script and rubrics at an earlier stage of their development. In addition, this colleague fits the characteristics sought in study informants, having transitioned in recent years from a more lecture-oriented teaching practice to a flipped model for the undergraduate classroom-based courses she teaches.

While this participant works with many technology tools and learns them quickly, she did not have experience with Skype or webcams. Therefore, the researcher set up a prep time to assist her as she downloaded and installed Skype and created a user profile. The researcher then initiated a video call through Skype, which enabled the informant to try out the webcam settings while allowing the researcher to test the recording application. All went smoothly and both felt prepared for the actual interview. As a result of this experience, the researcher included this option for informants during the course of the study.

In response to the participation request, the informant pointed out that a review of prior and current syllabi, which had been part of the original plan, would not fit her circumstances. The syllabus she uses for the course in question is a departmental

syllabus, shared with all instructors of that course. Therefore, she felt it would not reflect the changes she had made to the course over the last four years. While she did provide the syllabus (which was useful for verification of descriptions she gave during the interview), she also provided online access to the current version of her course in Blackboard (LMS) as well as a four-year old version. As the informant had suggested, comparing the two online course structures did provide greater indication of the transformation of the course. This observation resulted in the combining of the two original rubrics into one more comprehensive instrument, as noted below.

The informant also completed and submitted the participant questionnaire developed to ensure that potential informants are a good fit for the study. Her responses for the most part confirmed the usefulness of this premeasure, and only minor modifications were needed. She reported that the measure took little time to complete. It became clear that this measure would be of use to the researcher in preparing for the interview, just as the course materials review would. In addition, the responses on the measure were seen to provide useful data during the analysis stage. Specifically, this informant's responses included significant statements that helped to describe their experience with the adoption process. For this reason, the premeasure was assessed along with the course materials prior to interview sessions for the study.

At the appointed time, the researcher contacted the informant through Skype. After a brief greeting, she noted the time and stated that she would mention the time again fifteen minutes before the scheduled ending time as a cue to begin wrapping up the interview. She then stated that she was starting to record the interview. The researcher continued to note and monitor the time throughout the interview process. The entire

process lasted approximately 1 hour and 15 minutes (15 minutes less than scheduled). The process of noting and tracking the timing of the interview was added to the study process as a result of the pilot.

Overall, the interview process ran smoothly. In addition to recording the interview, the researcher took extensive notes, which provided the ability to refer back to points made and address questions during this mostly unstructured section. The researcher was also able to prompt the informant as needed to keep the discussion on track. In the first section, during which the informant was asked to describe and discuss the course materials provided, the screen sharing option in Skype was particularly helpful. This feature allowed the informant and researcher to view the course materials together. As the interview drew to an end, a request for a referral to one or more other participants was made. The researcher then thanked the informant, reviewed the next steps in the process, and ended the interview session. Finally, once the interview was over, the researcher coded her interview notes to assess the usefulness of the data collected.

As a result of this pilot process, several changes were made to the data collection instruments and process. While the use of the interview script resulted in data useful in answering the research question and sub-questions, some questions from both sections of the interview script were reworded, and in some cases removed or added, to strengthen the experiential focus of the interview. The two rubrics that had been previously developed were combined into one, with a broader focus that allows for greater flexibility in course materials reviewed. Minor changes were made to the participant questionnaire and the informed consent form. The participant request letter was altered to include

information on the technology to be used for interviews. An additional document, the interview confirmation letter, was created to help informants prepare for the interview session. During a debriefing session held after the interview, the informant also recommended that the interview schedule be sent with the confirmation letter so that informants can better prepared for the interview session.

Overall, the effort of conducting a pilot interview proved extremely useful to the study. It must be considered that the informant was a colleague familiar with both the researcher and the study, and the results were from only one interview. However, the specific information gained regarding not only process logistics but also the targeting of the interview schedule and other study documents was found to be invaluable to the quality of the study.

Data analysis methods. In a phenomenological study, data analysis begins with careful review of the interview to understand the informants' experiences as well as the meanings they hold. Just as the researcher made time preceding each interview to review and analyze the informant's course documents, she also followed each interview with a period of time for reflection, review, and writing. While computer files were be created and stored securely, hard copies of source documents were also produced for the data analysis process. Interviews were transcribed and analysis rubrics completed for syllabi and course content components. Due to time constraints, the researcher hired transcription assistance, and carefully reviewed each transcript with the recording of the interview to ensure accuracy. A review of notes and other documents was completed immediately after each interview, detailing impressions from the interview and including self-reflection on the process. All documents from each informant were compiled to

provide an easily accessible resource for the analysis process. As the researcher worked with the different informants, she strove for a balance between consistency in types of data obtained and accommodation of variety in the materials that were provided by the informants.

Data analysis began from the start of the data collection process, as recommended by Merriam (2009). As each data source was received or created, it was examined and analyzed. The researcher reviewed each transcript multiple times, working to identify significant statements that contributed to a description of the informant's experience. She reflected on statements in an effort to uncover their essential meaning (Moustakas, 1994). The statements were grouped together, with the objective of developing themes. An online spreadsheet was used for this purpose to assist with the organization of the large amount of data collected. Preliminary themes were based on the research question and sub-questions. However, the researcher also identified a number of emergent themes during the process of transcript review (Merriam, 2009). Within this examination, she worked to discover and describe both what each informant experienced and the context in which he or she had that experience, including environmental and other influences. A more complete list of themes was gradually assembled as each transcript was reviewed. This list was then used as the basis for subsequent analysis of the data gathered in the spreadsheet, and finally of a last analysis and coding of the transcripts. The resulting coded data were compiled and organized to begin the data reporting process.

From the process of coding the data and tallying and organizing the resulting themes, a final group of themes were drawn. These themes and their definitions are listed below in alphabetical order. In the process of organizing data for final reporting, some of

the themes listed below were designated as sub-themes to others and the reporting order was changed to correspond to the research questions.

- Content Conversion: Any discussion of what it has been like for instructors to create content to be delivered online.

- Course Structure: Include the practices and activities that make up the course (in and out of the classroom) and how these activities and practices are sequenced and connected.

- Differentiation: Opportunities for the instructor to address the individual needs of students and for students of varying levels to work at their chosen pace.

- From Lecturing to Facilitating: This theme includes two sections: (a) explanations of ways in which lecture is still included as part of the course activities, and (b) perspectives on the practice of lecturing in general, it's strengths and weaknesses, and how it compares to facilitation.

- Fun: Most of the participants used the word *fun* to describe their experience. Several meanings were uncovered through careful consideration of the contexts in which this word was used: (a) Taking pleasure in the changed instructor role, (b) The gratification in observing students' learning and growth, (c) The enjoyment of discovering and experimenting with both new technologies and new methods, and (d) the challenge of ongoing improvement of one's teaching practice.

- Instructor Role Change: Discussion of the changed role of the instructor in a variety of ways.

- Introducing Students to the Model: Includes various approaches to providing students with information about the structure of the course. Also includes methods of aiding students in adapting to the new model.

- Peer Interaction: Indications of students working together to aid each other in the learning process.

- Progress Over Time: Indications of instructor's efforts and progress as a teacher and adopter of this model.

- Providing Students with Choices: Includes a variety of ways in which instructors provide or allow for students to make choices about their learning experience in the course.

- Student Feedback: This theme includes two sections: (a) Instructors actively requesting feedback from students either throughout or at the end of the course, through various methods, for the purpose of improving the course; and (b) any discussion of standard course evaluations given by the department or institution at the end of the term.

- Student Ownership of Learning: Indications that the instructor observed or considered the value in students' assuming responsibility for their own learning experience.

- The Other Skill Set: Refers to *learning* skills as opposed to discipline/subject matter skills (e.g., communication and team work skills).

To ensure the usefulness of research, a study should clearly demonstrate both internal and external validity as well as reliability to its readers. The principle of internal validity seeks to establish the credibility of the research findings (Merriam, 2009). In

other words, it asks how closely the observations and interpretations of the researcher (the human data instrument) match with reality. Triangulation was employed both through multiple data collection methods as well as the comparisons between informants during the data analysis process. Member checks were also used to provide internal validation. Informants were asked to review and provide feedback on their interview transcripts and participant reports shortly after those documents were produced. Finally, the researcher practiced self-reflection at the start of and throughout the study to observe and assess the perspectives she brought to the process.

External validity questions whether a study's findings would be valid if applied to additional instructor experiences outside the boundaries of the study. While qualitative studies do not seek to achieve generalizable results, this principle can be beneficial to qualitative research when seen in terms of the reader's ability to assess the value of the findings as applied to the experiences of others (Merriam, 2009). To ensure this form of external validity, this study offers a comprehensive description of informants' experiences, allowing readers to make well-informed assessments of the usefulness of the findings to their own situations. The goal of the phenomenological study is to provide a full understanding of the experience of the phenomenon from which readers can derive meaning and benefit for their own work.

The reliability of a study, in qualitative research, is measured by the question of "whether the results are consistent with the data collected" (Merriam, 2009, p. 221). Here again, practices such as triangulation, member checks, and researcher reflexivity have been used. In addition, the thorough documentation and description of the process

undertaken for this study, called an audit trail, provides a way to demonstrate the study's reliability.

Data reporting. The writing of a study report is an important part of the research process, serving to bring the study process to conclusion as well as to offer the study results to its audience (Merriam, 2009). This study is intended to be of interest to practitioners of higher education teaching and the faculty development professionals who support those teachers. Practitioners concern themselves with studies that present information they can transfer to their own settings for application (Merriam, 2009). A phenomenological study report is geared to be useful to others interested in the phenomenon. The sharing of the lived experiences of flipped classroom instructors provides much of the value of this study, illuminating the experience of transitioning to the flipped classroom for readers of the study.

The final report for this study continued and built on the work of the data analysis process. The report addresses each of the research sub-questions in turn, integrating the themes as needed within the larger questions. One sub-question was added to begin the report and provide a fuller representation of both the study participants and the data gathered through the study. As each section was composed, the corresponding data were once again reviewed, compared, and questioned to ensure accuracy and completeness. Each sub-question section incorporates interview excerpts to both enrich the report and allow the participants' perspectives to be heard. The mixture of strong common traits and widely varying experiences has resulted in a rich report on the flipped classroom phenomenon.

While the study database may be considered and presented as one outcome of a case study (Yin, 2009), the database for this study will not be shared in order to protect the confidentiality of the informants. However, the study instruments are included to provide readers with as full a picture of the study as possible. In addition, the following section describes the researcher's experience of bracketing during the study process. This passage will help to both enlighten the study and demonstrate its internal validity and reliability.

The researcher's experience. The phenomenological methodology calls for the researcher to consider her connections with the phenomenon being studied, to maintain an awareness of her responses and reactions throughout the study process, and to suspend judgment of the informants' experiences and meanings. She must continually make the effort to keep personal perspectives from influencing the collection and analysis of data, and to refrain from interpreting at each step in the process. She is advised to practice self-reflection and include her experiences with the study report as a means of providing additional internal validity and reliability. This section provides a review of the researcher's own experience of the study.

While this researcher has been a part-time college instructor for five years, teaching both classroom-based and hybrid courses, in addition to working in multiple higher education roles over a period of more than 20 years, she has not yet designed or taught a fully flipped course. However, her choice to study this phenomenon reflects her strong interest in the model, and in the adoption of learning technologies in higher education teaching and learning in general. In addition, she has worked closely with a series of professors whose efforts to create engaging learning experiences for their

students often go unnoticed and are at times even discouraged. She tends toward a student-centered perspective and the early adopter tendencies to quickly assess and implement new tools and strategies and to always be open to innovative ideas. As will be seen in the following chapter, she shares these characteristics with the study participants, which made the interviewing process a stimulating and enjoyable experience for her. On the whole, her past experience served to support rather than interfere with the nature of the study.

At several points during the sampling process, the researcher was challenged to keep an open mind while also sticking to the study's definition of the model. Specifically, some prospective informants reported that they still included an amount of lecture in their courses, while others, as mentioned above, were using text-based online content rather than podcasts. In addition, some of those demonstrating both interesting teaching practices and enthusiasm for participating were clearly not good matches for the study. Overall, the sampling process moved at an unpredictable pace and lasted longer than expected, requiring the researcher to be patient and persistent. However, once the process was completed and the final participant set was seen as a whole, it was clear that the deliberate sampling procedures had been worth the careful effort.

The researcher approached the interview process by viewing the informants as experts in the flipped classroom model. This method required that she put aside her knowledge of the model and allow each participant to explain it from his or her own perspective. She brought to this task the skills of active listening and questioning, which had been honed through her past professional roles as student advisor and instructional designer. These skills, combined with careful preparation (in the form of course material

review) and note taking enabled her to both guide and follow the informants through their interviews. As the study progressed, the researcher worked consistently to achieve a balance between leading informants through the steps of the study as originally designed and allowing informants the flexibility to contribute their expertise in their own way.

As this was the first series of interviews the researcher had conducted for a study, she learned several lessons in the process. For example, some participants are comfortable speaking at length while others require more encouragement in the form of question prompts to draw out their stories. A few awkward moments took place, but these were counterbalanced by many bonding moments, as the researcher made clear her genuine interest in the details of the participants' experiences. In particular, the visual aspect of the VoIP interviews made it possible to observe reactions and build personal connections in a way that a voice-only interview would not have done. Also, picking up on potentially interesting points and prompting for further descriptions was made easier through visual observation, and demonstrated to participants the researcher's interest in and appreciation for their work. The structure of the study provided a beneficial framework within which to explore the unique narrative of each participant while also collecting a manageable set of data for the analysis and reporting process.

The final stage of the study, which consisted of organizing, analyzing, and reporting of the data, proved to be both challenging and enjoyable for the researcher. The relatively small participant set allowed her to keep each individual instructor in mind as she worked through several iterations of data review to assess and code the extensive data set. Again, practicing patience and using the skills of open-minded observation and quiet reflection, drawn in part from her background as an artist, helped her find her way

through the process without imposing her own meanings and interpretations. In this way, she allowed the data to guide her and was able to enjoy the discovery of the results as they developed. Her strong interest in the phenomenon and personal connection to the success of the study provided much needed motivation while she worked to maintain an impartial point of view throughout the process.

This chapter describes the methodology behind this phenomenological study and the steps taken to complete it. The flipped classroom model and the qualifications for participation in the study are clearly defined. An explanation of the study process includes the methods for identifying, communicating with, and interviewing informants; the data collection process and instruments; and finally, data analysis and reporting. The challenges of working with the snowball sampling method highlight the need for contingency plans. Demographic and descriptive data help to introduce the participant set and, in combination with the data codes and their definitions, provide a foundation for the report to follow. The details of the pilot interview and the resulting changes to specific study procedures and documents further illustrate the study development. All study instruments and communication documents are included in the appendices. Finally, the researcher's experience conducting the study is shared. The following chapter provides the final report of the study, striving for a fundamental understanding of the phenomenon and its meaning in the lives of those who experience it.

Chapter 4. Presentation of Findings

This study began with a strong interest in investigating a combination of issues facing higher education. One issue is the concern for meeting the changing needs of students arriving at college during a time when many question what the future of higher education will bring. Closely related to this concern is the typical lack of preparation among college instructors for the work of teaching that they undertake. The study sought to investigate a specific phenomenon called the inverted or flipped classroom, which may address the needs of students in a more technological and participatory culture as well as provide a viable alternative approach to classroom-based teaching at the college level. The study took the form of a phenomenological investigation of the experiences of college instructors who have undertaken the use of the flipped classroom model for one or more of their undergraduate courses.

This chapter reports the findings of the primary research question of the study: What has been the experience of college instructors who have adopted the flipped classroom model for their classroom-based undergraduate courses? Findings are organized according to the sub-questions presented in the first chapter. One sub-question, *What has changed in their teaching practice as a result of the transition?* presented an immediate challenge. As might be expected in a transition process, much has changed for these instructors. The issue of change is woven into the discussion of most of this chapter's themes. In order to address this question fully, a preliminary question was identified, *How do practitioners talk about the changes to their teaching practice?* This preliminary question will be addressed first after which the data on the original four sub-questions will be presented.

How do practitioners talk about the changes to their teaching practice?

The concept of adoption or transition can suggest a contained implementation process that includes a beginning phase of learning about and committing to a change; a middle phase of undertaking the necessary actions; and an end phase, or final result. The flipped classroom model, like many educational initiatives, may evoke this type of narrative: that the teaching practice had long been structured in one way, but then a new model was discovered and adopted, resulting in a different but equally stable structure for the teaching practice. It could also be seen that the design of this study was based in part on such an expectation, with its questions on motivation and influences (beginning), changes (middle), and benefits and challenges (end results). This perception of change stands in contrast to the equally valid concept of continuous change or improvement. Continuous improvement involves a cycle that might include steps such as assessment, goal setting, planning, and implementation, leading to reassessment and the setting of new goals. These two different perspectives can result in very different approaches to the discussion of an adoption process.

The ways in which the practitioners described their experiences adopting this model reflected the description of a continuous improvement process. For most, there was a clear point when presentation of content left the classroom, or when content began to be posted online, but these were seen as examples of many transition points in a continuum of change. For P6, the transition to a flipped classroom started ten years ago, but took place gradually. His courses only became fully flipped two years ago, when he stopped using any amount of lecture in class sessions. For P2, this transition occurred in two major steps: the removal of lecture from class sessions came two years before he

began posting content online. However, he describes the process as being "like revolution and then continuous improvement followed by revolution, [and then] continuous improvement." The theme *Progress Over Time* was used to track the stories the participants told, which were infused with details of ongoing discovery and application of ideas, tools, and methods. The practices of most of the participants continued to evolve over many years as they evaluated their teaching practices, observed their students' learning experiences, and worked toward improvement in their role as instructors.

P4, one of those with more years of teaching experience, described beginning to teach nearly 30 years ago, stating that, "I just felt there's got to be more to this than simply talking at students and then giving them some sort of a test…" His only prior knowledge of teaching came from his own professors, who had, "just stood there and talked at you." And so, he relates, 'I spent the first several years talking at my students and after two to three years, I started getting bored listening to myself, and I knew [my students] were bored listening to me and I said, 'There's got to be a better way,'…so basically I went on a journey of my own." Over the course of his interview, he describe numerous investigations, insights, and changes he has made over the years, which he refers to as, "the continuing evolution of how to get [students] engaged and involved and reporting out on what they have learned." Steps along the way included take-home exams, many iterations of how group work was structured and presented, moving course content online, and rearranging the presentation of content to get students involved in problem solving earlier in the course. He also discussed specific challenges he continues to struggle with, such as the question of how to best evaluate projects now that he has

eliminated grading by exams. He stated, "I've implemented some things this year that I haven't done before," and that in one particular aspect he is "not particularly satisfied that I'm doing the best job that I can." This ongoing effort to improve, lasting over two decades, clearly demonstrates early adopter characteristics as discussed in chapter 2.

Other participants told of their experiences in similar terms. P1 also emphasized that she has "slowly progressed into the model." She described how she "moved to project-based [assignments] and papers years ago" in place of exams, and how she transitioned from adopting PowerPoint presentations for her lectures, to being able to post the presentations online for student access, to abandoning their use in class and telling students to "watch the PowerPoints yourself." Once she made that change, she found that, "All of a sudden, I had a lot more time in class." That turning point then led to additional developments, such as transforming her presentation slides to interactive learning modules that combine short videos, annotated text-based readings (PDFs), links to web-based resources, and self-assessment quizzes. (The process of content conversion, which also involved ongoing learning and change for P1 and several of the other participants, will be discussed further in a later section.) She, also, spoke of her current change efforts, saying that she "has ten ideas that I want to execute right now."

Even the instructors who have had the shortest experiences with the model described the transition as a series of changes. P5 explained that he "made a lot of changes between year one and year two." He also said, "I started off my career 15 years ago as a pretty traditional lecturer, moving through using cooperative learning and group work" until he discovered the flipped classroom model. P8, who has the shortest amount of experience with the model, "knew there were some steps she could take to improve

[her course]." Now that the model has been successful for her, she "will be considering adding more components in this model, not only to this class, but maybe to some of my other full-time programs, too." P7, who conceived of the model on his own and implemented it almost immediately, talks about his learning process that took place after flipping his class. He stated, "One of the things [that came] later was learning about how students learned and how students are motivated." He describes attending a course offered by his institution's learning center for faculty, where he saw varied examples of the uses for online tools, which aided him in the development of his course structure.

Like P5, P1, and P4, all of whom used some form of group work on their path to the flipped model, P6 was inclined toward the use of "a mixture of methods" including "guest speakers…tours…[and] live demonstrations" in his teaching before being introduced to the flipped classroom model. He stated that, "I tried to mix it up, but it was still predominately a flow of information from the instructor to the student." Despite that predisposition, he undertook his transition gradually, over nearly a decade. He stated, "We started where I actually did still continue to do some lecture and we've transitioned away from that to less and less lecture and more accountability [for the students]." He has only in the last two years applied "the most aggressive implementation of the inverted classroom, with zero lecture." His transition period included the development of course materials, including a self-authored e-book and an extensive collection of worksheets that students use during and outside of class. He stated, "I've been making tweaks and adjustments every year to this process since."

P2, a skilled lecturer, began his change process by interspersing shorter lecture sections with student activities during class sessions. As with P1, he used PowerPoint

slides to accompany the presentation of content. Over time, as he observed the students working together, he found himself "amazed how little they got out of the lecture." As he told it, "I kept trying to do more and more active learning in the classroom. And then one day I just decided that I am going to completely do active learning in the classroom and I'm not going to lecture anymore. And I just went cold turkey, no more lecturing, and we did active learning. And it was definitely an improvement." However, though he had purposely abandoned the practice of lecture, he still frequently felt the need to include it. About two years later, a colleague introduced him to podcasting, and he immediately had the sense that, "my problem is solved." He adopted podcasting as the method for providing content to his students, and since then much of his focus has been on learning to improve his podcasting techniques. His description of his current status reflects that of other participants: "The system works. Now, it's just, 'How do I make it better? How do I take it to the next level?'"

The process of adoption for P3 was nearly the reverse of P2's path, as he came at the adoption process solely from a technological standpoint at first. After being a traditional lecturer for a number of years, P3 began teaching online in addition to classroom-based classes. As time went on, he learned of Captivate, a software program that would allow him to record his in-class lectures for his online students. Interested in this new technology, he began to create his own podcasts. Working solo, P3 found the process challenging, and "it took me a lot longer than I thought it would" to create over 40 lecture podcasts, a complete set for one of his courses. However, once the lectures were completed, "I could really begin changing how the class actually worked. Now [the students] can watch the entire semester online and that really allowed me to change

up…what I was doing in class." He began making some class sessions optional, providing online quizzes for students to self-assess their learning, and requiring that students who attended class bring questions about the material on which he would base the day's discussion. He now finds himself at another turning point, at which, "I don't think I'm going to miss that traditional lecture because I just enjoy that discussion so much more."

One important aspect of this continuous improvement process described by the participants is the way their progression emphasizes the lack of preparation for teaching that is common to college instructors. P4 state of his early teaching experience that, "I really didn't understand the foundational concepts." P1 said that "no one taught [her] to teach" and she had to learn about the pedagogy as well as the technology through her own efforts. P2 recalled his feelings after the visit from the faculty development professional, "Here I thought this was going to be easy, I was just going to give fun and exciting lectures, and I found out I know nothing about teaching." Fortunately, for early adopters such as these instructors, discovering a lack of knowledge ignites in them the drive to learn and improve their skills. The set of characteristics they share, including a passion for teaching well and the willingness to also be a learner, ensure that they will be motivated over time to become better instructors.

It is important to note the significant variations in paths that these instructors took. While their experiences echoed each other's in several ways, and their current practices have many similarities, they also just as often took divergent routes and came up with their own unique solutions to the challenges they met within their distinct environments. In one sense, their stories read as if they were making it up as they went along. The next

question also demonstrates the pattern of similarities that connect the disparate journeys of the participants.

What have been their motivations and influences for this transition?

While the participants referenced a wide range of influences and motivations during the course of their interviews, some commonalities can be seen. For the purposes of this discussion, influences will be defined as originating from external sources, and motivations as internal drives. The separation of the two is not a clean-cut line. The ways in which *external influences* are perceived and valued is often shaped by internal motivations. Also, *internal motivations* may originate from or be strengthened and focused through the influence of an external source. In cases where multiple interpretations were possible, the context and delivery of the information by the interviewee guided the interpretation of the meaning.

As noted in the previous chapter, these instructors work in a variety of institutional settings and come from many different backgrounds, disciplines, and perspectives. As will be shown in this section, their influences and motivations sometimes overlap and sometimes do not. Later sections will show that the amount and type of support they receive differs greatly, as do the technology tools they have chosen or been provided, and as a result, the content conversion methods they use. They, of course, share the commonalities needed to be included in the study, but more importantly, they share the characteristics of early adopters discussed in chapter 2: (a) they are driven to constantly improve their teaching practice, (b) they enjoy experimentation as a way to improve their teaching practice, (c) the are willing to be learners as well as teachers, and (d) they are seen as opinion leaders among their peers due to their experience

implementing new technologies and pedagogical methods. These characteristics will shape the discussion of influences and motivations that follows.

External influences. The influences on the study participants fall into three main categories: *discovery*, *challenge*, and *reward*. The broadest of these categories is discovery, or the experience of learning about new ideas from external sources. This category of influence reflects two early adopter characteristics, the enjoyment of experimentation and the willingness to learn. The challenge category covers direct interpersonal connections as sources of influence, those most likely to have an impact on the adopter's drive to excel. The final category, reward, includes professional recognition from institutional and industry sources, as well as the less common financial rewards that sometimes accompany such acknowledgement. The reward category relates to the thought leader status of early adopters, to whom others turn for guidance with questions and concerns about innovations. These three categories comprise the external learning, interaction, and recognition that influenced the participants in their adoption efforts. In keeping with the discussion of the ongoing change process that most of the participants have experienced, it is important to note that these influences may have come into play at any point over the transition to the adoption of the model.

Discovery. The discovery category is organized around the type of information discovered, and comprises such experiences as: (a) finding out about the flipped classroom model, (b) finding out about podcasting or other ways of putting content online, (c) finding out about pedagogical concepts, and (d) finding out about technology tools and pedagogical concepts in combination. The phrase "finding out about" is used rather than the simpler "learning about" to emphasize the largely unplanned nature of this

discovery process. Participants spoke of these experiences as if they were, for the most part, informal and in some cases even chance occurrences. As college instructors who have typically received no formal education in teaching methods, this type of learning may serve as a replacement. In the language of instructional design, they are learning on-the-job.

Surprisingly, only three of the eight study participants found out about the flipped classroom as a complete model, inspiring them to implement it in their own classrooms. P5 "stumbled across" an account of one of the practitioners cited in chapter 2, and thought, "well, this is perfect" for a new class he was developing. P6, who had been challenged to teach his students how to be better learners, heard about a potentially effective practice being used by the nursing program at his institution and sat in to observe the course model. He stated, "I noticed the role of the instructor was not to present, but rather to facilitate these discussions…These students were engaging with each other and with the source material in ways that my students never did…Then I looked for ways that I could emulate that model in the courses that I taught." P8, the most recent adopter, "came across a TEDTalk that was given by Salman Khan from the Khan Academy" as she was "looking for some new ways of revitalizing" her teaching practice. Still, only P5 undertook a full implementation in the first semester, while P6 and P8 retained portions of their previous lecture practice to start.

Several of the participants took at least part of their influence from finding out about podcasting and similar technologies as these tools became better known and more accessible. The earliest example was P4, who saw new opportunities when shown the course website of a colleague in the mid-90s. He immediately understood, "I can take all

my [content] and put it online." P3 remembers being "wowed" by a vendor presentation on an early version of Camtasia at a conference, and soon after began recording his lectures to post on his website. In both these cases, the instructors were developing online content before their institutions had LMS where their work could be stored and shared.

P2 had already stopped lecturing during class time when he heard a colleague talk about podcasting and recognized it as a way to reinstate the presentation of content without taking up valuable class time. Others simply learned of technological possibilities such as iTunes U and the MIT online initiative through common information channels. The commonality here seems to be the draw to experiment with new tools and not the tools chosen or the way in which they were discovered.

Six of the eight participants also were influence by finding out about pedagogical concepts from a variety of sources. P1 was exposed to different learning models through her own early education, while P5 remembered specific active learning experiences from his graduate program. P5 also received a useful suggestion from a teaching mentor in graduate school, while P7 received one from a colleague at a conference in his discipline. As mentioned above, P2 was introduced to Bloom's Taxonomy by a faculty development professional, and three of the other participants also referenced that paradigm as an influence. P6 brought up an obscure presentation paper on the obsolescence of the lecture system given by Robert T. Morrison in 1986. Other authors cited singly range from John Dewey to Marcia Baxter Magolda, and from Seymour Papert to Chip and Dan Heath. Once again, the participants appear to share an openness to new ideas, though not a common educational background.

More than half of the participants were exposed to influences that combined both technological and pedagogical ideas. These include teaching online and/or hybrid courses, participating in training to teach online, attending and participating in institutional teaching seminars or teaching conferences run by professional organizations, and developing relationships with individual faculty development and instructional technology personnel. P1 emphasized the value of her connections with several faculty support staff members, stating that she "wouldn't know [about many new ideas] if I didn't have those relationships." She also mentioned conference experiences working with faculty from other disciplines, "but we're on the same plane developing online content and thinking about inverting classroom experiences."

It might be expected that teaching online courses could be a common influential factor in the development of the flipped classroom model, both in the broader world of education and in the specific experiences of the study participants. In fact, only three of the participants taught online prior to adopting the flipped classroom model. After P1 began to teach fully online classes, she "felt bad" for the students in her classroom-based courses, who did not have access to the same course materials. This echoes P3's statement that, after developing podcasts for his online students, "I quickly discovered my face-to-face students could also benefit from [them]." P8 mentioned that she also taught online and hybrid courses, but did not draw any connections between those methods and her adoption of the flipped classroom.

The study participants have gathered influences from many different technology tools and pedagogical concepts. They share a love of discovery and learning, if not a consistent experience of how they came to adopt the flipped classroom model. They also

share an enjoyment of responding to a challenge from an influential source to become a better teacher. As will be shown, this type of influence typically comes from within the instructor's institution.

Challenge. Two of the participants were challenged early in their teaching career to make significant changes to their teaching practice. A faculty development mentor visited P2's class when he first became a professor. This visitor praised his ability to lecture well, and then suggested that there was more to teaching than that. The mentor introduced P2 to Bloom's Taxonomy, explaining the different levels of learning behaviors. P2 immediately grasped that his gift at oral presentation would not have the impact he expected on his students, and from that point on "my motivation has always been…how do I get away from lecturing and do…active learning in the classroom."

P6's early impetus came from a different type of mentor: an industry advisor assigned to him by the technical college where he teaches. This advisor told him that, "The most important thing students can learn is how to learn." He challenged P6 to change his teaching practice to accomplish this result. According to P6, "thus began my quest to meet this new educational objective." Much to his satisfaction, he can now report that the advisor is "very, very happy" with the solution P6 discovered, implemented, and developed: the flipped classroom model.

Other challenging influences include feeling competitive with a department colleague, being assigned to teach a new course with a limited configuration, and being assigned to teach a much harder course after flipping one that was easier to teach. While the participants did not mention many specific challenging influences, it is important to keep in mind the inherent tendency for early adopters to challenge themselves. One

participant mentioned being influenced by growing up in a family that expected the best from him, whatever he undertook. Some type of early environmental setting that encourages excellence may well be common to the early adopter type.

Reward. The final influence category, reward, relates to the opinion leader role of early adopters. Though seven of the eight participants touched on this category, it contains the fewest examples. In addition, the examples given were described by the participants without the enthusiasm with which they talked about their discovery and challenge influences. This relative lack of interest in external rewards can be explained through the early adopter lens. While early adopters connect intrinsically with the processes of discovery, experimentation, and learning, their role as opinion leaders is externally assigned based on their standing in a community. For this reason, they do not value rewards as highly, though they do appreciate them and consider them part of the benefits of their work, as discussed later in this chapter.

The rewards received by the participants may come either from within the institution or from some external source. Institutional teaching awards were bestowed on both P2 and P4, while P8 was asked to present at an internal faculty conference on her experiences with the model. P7 was granted both funding and a temporarily lightened course load by his department to support him in his implementation efforts. External recognition was earned by P1, P2, P5, and P7 in the form of opportunities to present on their work outside of their institutions. Both P6 and P7 earned appreciation and, in P7's case, funding from industry representatives who have an interest in hiring graduates from their programs.

Internal motivations. The influences on adoption of the model have been discussed within a framework of early adopter characteristics. As the discussion turns to the motivations of the study participants, an additional framework will provide further insight into the examples of instructor motivations. This added framework builds on a particular theme that developed during data analysis: the theme called *Fun*. As will be seen, the meanings within this theme correspond, to some extent, with the traits of early adopters.

The most surprising aspect of the interview process was the repeated use of the word "fun" by most of the participants to describe their experience. The researcher also observed less frequent but equally enthusiastic use of related terms such as "exciting" and "engaging." It is important to note that participants also spoke of a number of challenges, which will be presented in later sections. However, the overall impression was one of positive feelings toward their experience of the new model, even for those who found the transition most demanding. Looking more closely, it became clear that their expressions of fun were aligned with their positive motivations. In other words, what they called fun was precisely what motivated them to work harder, take risks, and ensure that their students were having the best learning experience possible. By listening to the interview recordings and reviewing and coding the transcripts, several distinct meanings behind their use of these words became clear.

The following meanings derived from the theme of *Fun* will be used to structure this section on motivations: (a) the internal challenge of ongoing improvement of one's teaching practice; (b) the enjoyment of finding out about and experimenting with both new technologies and new ways of structuring courses; (c) the pleasure derived from the

changed instructor role, with a particular focus on increased interaction with students; and (d) the satisfaction gained from involving their students in this journey and observing the students' resulting learning and growth. The motivations, or internal drives, of the participants will be viewed in terms of these four definitions.

In a few cases, the participants expressed motivations in negative terms when talking about their experiences before flipping their classrooms. For example, P7 felt pressure to be a more efficient instructor as a way of protecting his relatively small program. He described his motivation as "fear." While clearly he felt this as a challenge, he was not experiencing fun. What he did experience, however, was the insight that led to his altered teaching practice, which led to other forms of enjoyment through experimentation, learning, and a changed relationship with his students.

Several of the study participants frequently expressed gratification derived from the ongoing challenge of their work. They push themselves continuously to do a better job, and they also took on external challenges, as discussed above. When asked what it was like to put in many extra hours for the conversion of content, for example, P1 replied, "It's really fun…I get really excited about projects." P6, when discussing the challenge of students asking difficult questions during class sessions, stated, "It's very challenging from that perspective but I like that kind of challenge. I dig that." P4 talks about the "repeating reinforcement…that I've come to enjoy," that of working with "new crop of brains every semester."

Some study participants also indicated enjoyment derived from learning about and trying out new tools or ideas. P4, one of the veteran instructors, spoke with a delighted grin as he described an activity he was planning to introduce at his upcoming class

session. P7 mentioned that through the adoption process, "I have exposed myself to a lot of new technology and new pedagogies, which has been great for me." P1 may speak for many as she says, "The different technologies, as they become available, influence me. As the technologies get developed, it excites me to see that kind of push [when] you can draw connections between things that we couldn't before." This motivation from learning and experimentation can be seen as closely linked to the influence of discovery discussed above.

Participants also derived satisfaction from seeing their students succeed in a variety of ways: students being challenged, working at a higher level, coming around to a model of teaching and learning that is new to them, and enjoying the work. P8 introduced this motivation from a negative perspective. She said, "I wasn't happy with the level of success the students were having." This dissatisfaction led her to adopt the flipped classroom model, after which she observed that her students "were creating…they were encouraged to create something and they were feeling comfortable and confident." P5 simply stated, "It's fun, because they're really working hard and really learning, so I'm good with that." P6 shared that, "What's really fun is to see a student who comes to you with a resistant attitude to this way of learning, and to see them come around and not only accept it but also excel…That to me is really rewarding." P4 spoke of earlier experiences "where I…[would] talk with one of the students and ask them questions about some really fundamental things…and they just didn't have a clue." These experiences "got me trying to figure out other ways to impact learning." He goes on to say, "In retrospect, it's obvious to me now, getting them to be active, engaged,

involved…" and that now "they continue to blow me away with [the quality of their work]."

Most of the participants spoke about their changed role as instructors and the resulting increased interaction with students. P4 related that, "one of the things that keeps me excited and interested is the interaction with students, their engagement, their excitement." P3 said that class session are "more engaging" and that "I just enjoy that discussion so much more." P2 stated, "When the students are having fun, I am having fun." P7 spoke about the class sessions being "a pleasurable experience" and that "it's just a more social environment." The downside of the motivation was expressed by P6 when he mentioned that "when a class starts getting larger…[it's] more difficult to manage an in-depth discussion." As with the previously mentioned negative motivations, this issue was a factor in his adoption of the flipped classroom model, which enabled him to work more closely with students despite increased enrollment. He now finds that, "the classroom experience is more joyful for me." (The changed role of the instructor will be discussed further in a following section.)

The influence of students on their early adopter instructors cannot be overlooked. Students have the potential to influence instructors in many ways, as sources of learning, of challenge, and of reward. This issue is included under the following sub-question discussion, integrated into the theme of *Involving Students in the Practice*, most notably in the sub-theme of *Student Feedback*. It also arises in response to the question on the benefits of the adoption process, where participants note benefits not only to themselves but also to their students. One observation, which speaks to this point most clearly, is that the participants, when asked about their own experiences with the transition,

inevitably turned the conversation to the experiences of their students. This student-centered focus forms the bedrock of their teaching and can be seen to shape their outlook and direct their choices as they transition to this alternate practice.

What has changed in their teaching practice as a result of the transition?

As mentioned at the beginning of this chapter, the study participants have experienced many changes during the process of their transition from a traditional mode of teaching to the flipped classroom. Their experience of the changes and the way they talk about them were covered in a previous section. This section addresses the question of what aspects of their teaching practice have changed. During the data analysis process, four primary themes were developed that address this question: (a) *Instructor Role*, (b) *Content Conversion*, (c) *Course Structure*, and (d) *Involving Students in the Model*. Three of these themes also contain sub-themes discussed in their respective sections. In all, 10 themes and sub-themes are presented in this section, reflecting the extensive changes that the study participants have experienced during the course of their transition to the new model.

Instructor role. The theme of *Instructor Role* discusses the ways in which the experiences of the participants have changed in terms of the roles they play as college instructors. The two main elements in this change are the move away from the role of expert and lecturer, and the move toward the role of facilitator and coach. In keeping with that first element, this theme contains a sub-theme titled *From Lecturing to Facilitating*, which includes both explanations of ways in which participants still include lecture as part of their course activities, as well as their perspectives on the traditional lecture/homework paradigm.

Put simply, the role of the instructor in the flipped classroom model is markedly different from the traditional instructor role. As P6 makes very clear, "My role now is completely reversed…The goal is to move away from the model of the instructor as the disseminator of information…because quite honestly, that's the easiest part of teaching…What I think is a far better use of my time and my ability is helping students become better thinkers, and I can't really do that very well if I'm just talking to them." He acknowledges that a Socratic discussion, as discussed in chapter 2, can work well with a small enough group of students, but once enrollment increases, that method loses it's viability. P7 echoes, "The focus is more on helping them learn rather than me describing some topic well." P4 goes on to say, "I have shifted all the way from being a 100 percent lecturer to being essentially what they call a facilitator."

This new role, alternately referred to as facilitator, coach, or guide, is seen somewhat differently by the different participants. As P8 explained it, "My job now was to sit with [the students] and help them if they needed extra help, to guide them through their creative process, to give them good advice and feedback, and encourage them." P7 describes his experience as, "I go around and ask, 'Do you have any questions?' and prod them and coach them, but I don't have to prepare for that. It's a pleasurable experience." P5 see things a bit differently, stating, "I was exhausted after teaching this class…because I had just been running and thinking. I'm trying to keep six different groups of three people going. All of them had six completely different issues they're dealing with, non-stop for 75 minutes. It is tiring." P6 presents yet another view, "What really matters is freeing up that classroom time so the teacher can…actually engage with students, see how they think, what the misconceptions are, where they're making

mistakes and how they can improve. To be that coach, to see how they're reasoning

through problems…and give them productive, constrictive tips on how to improve, that's

the really hard work of teaching." While the participants come at this role from different

perspectives and bring to it different strengths, the commonalities in their approaches

make it clear that they have significantly changed the way they function as instructors.

Moving away from the expert role can be viewed through two specific methods of

relating to students that, combined, pose a significant shift for many instructors: (a)

responding to student questions with questions rather than answers, and (b) allowing

students to see that the instructor does not have all the answers. P5 mentioned, "I'm

much more inclined now to…ask students questions than I am to tell them what to do…to

give a question that says, 'What does this look like? What happens when you do this?'"

P6 stated, "If they ask me questions I will often answer with another question. I really

want to prompt them to think." Another shift brought up by P6 also relates to responding

to student questions in this model. As he sees it, "As a teacher you have to be humble.

You have to show [students] that you are a learner yourself and it's OK to not have the

answer right at hand." As he points out about the changeover from lecturer to facilitator,

"It's easy to have all the answers when you get to control the questions. But if you let

students ask their own questions, you're stepping into some new territory and as an

instructor you need to be ready for that." Through these experiences, participants found

they need to move away from their expert status in order to take on the facilitator role.

Another significant alteration in role involves the shift from in-person lecturer to

online content developer. P2, who as mentioned earlier excelled at lecturing, has adapted

well to this new method of content presentation. He calls himself "a professional

storyteller" and demonstrates in his podcasts a strong ability to engage his students with the use of imagery, humor, and a conversational style. P7, who also records his own lectures, sees yet another function, which has been called content curator (Bhargava, 2009). He stated, "At least the last year and a half, I've done a lot more organizing and collecting of content. I'm going to industry websites looking for just the right links. I'm searching YouTube for good videos, and, of course, students can go find their own, but there are so many of them and I want to find the two or three short videos that will really help." (More will be said about the work and methods of online content delivery in the *Content Conversion* section below.)

Finally, the early adopter's role of thought leader for their professional peers bears mentioning here as well. By adopting this relatively untried model, these instructors have become, or are gradually becoming, influential within their professional communities. P8, as mentioned earlier, has been invited to present to her colleagues, and she is already fielding questions on an internal social networking site used by her institution's faculty. P2 states, "I started using Clickers about 4 or 5 years ago, and now, all of a sudden, everybody is on this Clicker bandwagon." P7 had two colleagues follow his lead and flip their own classrooms shortly after he made the transition. In addition, half of the participants have presented on their experiences with the model outside their institutional setting. While the participants focus most intently on their role interacting with and educating their students, these and other examples demonstrate the influence early adopters can also have beyond the classroom.

From lecturing to facilitating. This sub-theme of *Instructor Role* presents participant views on lecture in the context of the flipped classroom model. While a

number of the participants find fault with the traditional lecture/homework structure, 5 of the 8 participants still incorporate lecture as part of their practice. To begin, P6 provided one definition of the lecture model as "predominately a flow of information from the instructor to the student." This definition recalls the discussion of teacher-centered learning from chapter 2. P6 also proposed that students are "so accustomed to the lecturer having all the answers and that's very simply because the lecturer gets to make all the questions." He calls the practice of assigning reading and then lecturing on that reading in the next class session "wishful thinking," and asked, "If students…fully expect the teacher to go thorough every portion of the lesson, why read ahead?"

One commonly heard student complaint is that lecture is boring (Silverstein, 2006). From the following participant statements, it appears that some instructors are also bored by the lecture practice. P2 stated, "I would never go back to teaching old school…I would probably change professions because it would be so painful to…give a lecture every day." P4 spoke of "getting bored listening to myself," and P1 said she "couldn't stomach it anymore." P6 explained, "Honestly, it feels tiring after a while just to lecture on the same thing year after year after year." This perspective on lecture should be no surprise as it comes from a group of early adopters who thrive on learning and experimenting with new practices.

The participants as a whole shared some criticisms of lecture as it is typically viewed, and several flaws were found with the practice. P8 expressed concern about her students' long days full of lecture classes and asked, "How many of them do you think are going to really retain that information? And then when they sit down to do their assignment, they're going to stare at [it] and think, 'I don't even know where to start.'"

P3 suggested that in a traditional class, a student "has got to get that material right then and there, because if they were having a bad day or whatever, it's gone. There's no rewind." P4 talked of his discovery of learning styles, and recognizing that, "I was teaching to me, to people like me, and…there weren't many of me out there." P6 noted that as a lecturer, "You may see people nodding" but you don't really know if they "have grasped the material." These and other comments indicated that the participants understand lecture as an imperfect method of teaching.

Three of the participants spoke specifically about the practice of combining periods of lecture with periods of group work during class sessions. P5 spoke of working in that way for some of his courses, "25 minutes of lecture and 25 minutes of group work, or something like that…you're working in groups but the things that you're working with you just learned five minutes ago." He finds that the content would be "almost too fresh" for students to be able to engage with it. P2 explained that, "I would lecture for 15 minutes, and then we would…do some active learning…maybe a though question or [I would] put them into groups. He said that, "Students liked it," but also that, "I was always amazed though how little they got out of the lecture." P7 stated "There's always been a push to do active learning in the classroom and I had really been trying to do [that], but I just ended up seeing that as kind of a half measure, that we should just throw the lecture out entirely." P7 also indicate concern about the lack of innovation in the practice, pointing out that "lecture content information is becoming a commodity that's available everywhere. And so what exactly is the role of a teacher?"

Despite the criticisms of lecture expressed by many of the participants, 5 of the 8 participants still incorporate some element of what they termed lecture in their flipped

teaching practice. As they describe their practices, it is interesting to note that the way lecture is defined comes into question. The continued inclusion of lecture in the flipped classroom may be a point of contention for some (Bland, 2006). For this reason, each participant's stance on this topic will be presented, beginning with those who continue its use.

P1 called her practice "60 percent inverted," and explained that she gives what she calls mini-lectures when a topic comes up during a class discussion for which she has not yet created an online module. She would prefer not to mini-lecture, but finds that, "I just can't produce enough [modules] fast enough." P3 has moved gradually away from what he called "re-teaching sessions," which were essentially repeats of his recorded lectures, to "customized discussions" which were still primarily instructor-led but based on questions submitted by students. He related that, "I'm just now at a point where there's not going to be as much lecture," largely because "I just enjoy that discussion so much more." P4 estimates that out of 45 class sessions, "I might get a dozen full-length lectures in the semester." However, he does not use these lectures to recover the online material, but rather to help students see how to work through the materials and draw connections to the course activities. He states that in addition to those formal lectures, "I'm constantly giving feedback, talking about the process of how we do things, how you work in groups, how you solve cases…If you count that as lecture, I actually do a lot of that."

P7's classes have both a lecture session and a lab session weekly. He stated that "slightly more than half" of his lecture sessions are active learning periods. During other sessions, "I spend time going over the results of the previous session. I'm preparing them

for the next session. All the [recorded] lectures are in 10-15 minute content chunks, so there's not an overall big picture perspective, and so I'm frequently giving that in class." P8, who had only one semester's worth of experience with the flipped classroom when interviewed, "decided to maintain this lecture format, in-class demonstration format, for [certain] components of the course. She explained that for those components, "I have slides; I'm talking to the slides and providing lots of examples. There's a certain element of hands-on as well, so it's not just me going on for three hours." She stated, "Maybe next year I'll roll some of those other pieces into [the flipped] format as well."

Only three of the study participants have eliminated lecture entirely from their class sessions. As mentioned earlier, P2 stopped lecturing in the classroom completely even before he began recording lecture podcasts. P5 followed the flipped model closely right from the point when he adopted it, devoting his in-class energies to working with his students in small groups. P6, as noted above, transitioned to the model over a span of 10 years, gradually including fewer lectures. He said that now, "I'm not there to lecture at all…I only interact with [students] in small groups."

The changes to the instructor role, particularly the move away from a traditional lecture practice, have had significant impact on the experiences of the study practitioners. They now see themselves as acting as facilitators or coaches, working more closely with their students. They may also find themselves functioning as a guide for their peers who are interested in the flipped classroom model. Finally, they have taken on the added work of online content development, a task that comes more easily to some than to others. The following section will take a closer look at their experiences with this new and sometimes challenging process.

Content conversion. The theme *Content Conversion* covers the participants' experiences of creating content to be delivered online, including reasons for choosing their methods, issues of (in)convenience and (dis)comfort, opinions on type and quality of podcasts, and some unexpected results of sharing their content. The term podcast is used to denote the recorded lecture products, though they are called by many names, including videos, screencasts, snippets, and learning objects. The term podcast originally indicated a syndicated broadcast of recorded content, but is now commonly used as a name for any video-based file available online.

For some, the term flipped classroom includes by definition the use of online podcasts. The definition used for this study allowed for any digital content sharing, which led to the inclusion of two participants who use text-based digital formats: webpages and ebooks, respectively. However, these participants share with the others the key elements of the flipped classroom model. They also have good reasons for using these alternate formats. In addition, they both incorporate some use of video, though more as a way of capturing student work and student experiences than as content dissemination. For example, P4, who uses webpages, has a 5-minute "overview of the course" video, which he shows his students to introduce them to the course structure and give them some idea of what to expect during the semester. P6, who uses ebooks, provides his perspective on the question: "The method that a teacher might choose to offload the presentation from classroom to student time, whether it be through videos or text materials or audio or whatever, I think it is incidental. It doesn't really matter, whatever is appropriate for the material."

The range of content sharing methods is broad within this small group, even among those who use podcasts. The type of online content each participant creates varies greatly based in part on the respective discipline and the personality of the instructor. For P4, who described himself as "a little bit of a techie", it was an obvious step to convert his documents to websites when he saw that a colleague had done it. However, for P2, though he had already removed lecture from the classroom, it was not until he learned about podcasting—a method more in keeping with his self-professed "storyteller" nature—that he could envision putting his lectures online. P3 and P5 both used the same software program, but in different ways with vastly different results, in part because of their very different subject matter.

Content format variation can also be attributed to the technologies selected by the participants. In fact, there is little overlap in specific technologies used. Some choices of technologies are no doubt due simply to what was available and familiar to participants when they began converting content. For example, when P3 began creating podcasts, the files were too large for his students to download, so he copied files to disks and distributed them through the school library. Finally, technology choices may often have been a direct result of the choices made by the participants' respective institutions based on budget, perceived need, and knowledge of the options at the time. P2 began creating podcasts with the lecture capture system his institution had invested in at that time, but later changed to a simpler application designed for individual users.

Several of the participants shared ideas about why they made podcasts of their content (and in one case, why he didn't). P8 made her podcasts specifically to flip her upcoming course, explaining the benefit that, "I can use the same videos, recycle them

every year. So it's a bit of work off the top, but you reap the rewards for sure." P3, on the other hand, responded to the technology first, stating that he "didn't see the full benefit of [podcasting] until the technology improved and…once I had all the video recorded." For him, "the primary motivator was that [having the podcasts] would be a good secondary tool, [but it] ended up really changing the way things work."

While P7 made a full series of lecture-capture style videos for his flipped course, he finds that it is less important that he make his own podcasts. He suggested the possibility of inviting industry advisors to be guest podcasters and using that content to "stitch together [a] whole course…and maybe I would have my own videos in there" or, he implied, maybe he wouldn't. He feels that "the value of the teacher, the added value, is what happens in the face-to-face sessions—to be a good tutor, mentor, coach in these problem solving sessions…that's why they're going to take my class." Similarly, P1 makes her own videos, but also finds much of what she needs already available on YouTube and other Internet sites. However, P5 shared an opposing view of using materials not authored by the instructor: "One of the big differences between year one and year two is in the first year I did not make my own screencasts. I didn't feel I could improve on what [the vendor] was already doing. They had a really nice set of screencasts…they had embedded multiple-choice quizzes…it was a really nice job. But [the students] felt like it was over their heads and they felt more comfortable with me doing it." He added the impression that the students felt that using vendor podcasts was like "having people do my lecture for me."

P6, one of the participants who does not make content podcasts, explained two reasons why he has chosen to use ebooks instead. First, "My industry advisors tell me

that being able to learn from a text is absolutely essential in this career. When a technician goes into the field, they're not going to have training videos for the most part. They're going to have equipment manuals and white papers and research reports and that is going to be their primary source of information." He goes on to explain that a text-based format is much easier to keep updated. He found that self-publishing his work on the web brought him "a world full of editors." He also reports that, "students gave me the most honest feedback as to how well the book was working… what made sense and wasn't making sense." Since he was then able to "go back that night and make the revisions," his students gained "a sense of ownership" by having contributed to the online textbook. While there are many good reasons for the use of podcasting content, it is possible to demonstrate the validity and relevance of other formats for flipped courses.

One of the challenges of the flipped classroom for some lies in the undertaking of this new practice of podcast creation. Once again, the experiences of the participants varied widely. P3 invested in the necessary equipment to make recordings at home because he kept getting interrupted while recording at his on-campus office. He stated, "One of the things I discovered was that doing the podcasting is not as easy as I thought it would be." He described a long and frustrating process, but said that now he has developed a method that is comfortable for him. P7 recounted, "I spent that whole month [before fall classes started] on the initial work with hardware, lots of failed attempts at cameras, and connections, and firewall cables, and software, and then getting up and just practicing how it would work." He continued, "I want to be very flexible, I want to be able to write on a blackboard or whiteboard, I want to hold something in my hand and show it, I want to go to the computer and show the computer screen, I want to just discuss

things. These are all different modes that would happen one right after the other in class. I wanted a software package that could handle that and not all of them could and some of them were more awkward. So there was a lot of experimenting with that."

In contrast, P8 reported, "I spent about five or six days in the summer preparing," a process that included outlining the videos beforehand, creating and editing them, and organizing them on her blog. P5 was less specific, simply stating, "I certainly spent a lot of time making screencasts," though he also called the process, "a labor of love." P1 said that podcasts were "not difficult to make once I got the template going." However, she also called podcast creation "the hardest part of inverting," and seemed to be wishing for an easier way when she said, "It would be really cool if I could just video tape every single class, I guess I could, and then I'd have it and I could chop it up." It is relevant to mention here that P1's podcasts are among the most complex of those assessed for the study. They typically incorporate videos, clickable diagrams, website links, annotated text files, quizzes, and other interactive elements, providing an integrated learning experience for her students. While she can imagine a simpler process, she, like the others, continues to challenge herself for the benefit of her students.

In addition to the challenge of designing content podcast, this undertaking also typically comes with the expectation that the instructor record him- or herself presenting the content. Several of the participants mentioned the discomfort they felt or heard others express around this experience. P3 stated, "If you're on film and lots of people are going to be watching you, you tend to be a little more critical." P7 shared that "Other faculty say, 'Oh, I look bad on camera. I'm awkward on camera.' I just realized it was like getting in front of a classroom in the first place. The first couple years I was awkward

and stiff in the classroom, too. And after 100 times, you're a pro at it. I am much more comfortable making a video [now]." P8, who seemed comfortable with the experience herself, explained that, "The hardest part for most people is getting over hearing their own voice recorded. Teachers who stand up in lecture halls in front of 120 students, they have no issue with that, but the are horrified if they have to listen to their recorded voice." In addition to P8, the others using podcasting seemed to experience no discomfort about being recorded. P2 specifically expressed his enjoyment of the process, stating that, "for me it was always natural to be in front of the camera."

Motivated both by his own research and by student feedback, P2 has experienced a long learning curve in his quest to create high-quality podcasts for his flipped courses. He stated, "In my mind there is a real art form to creating these outside lectures that keep the students engaged." His efforts show in the distinct differences between his earliest and most recent podcasts, which were assessed for this study. The first podcasts he made were hour-long videos of him talking through his presentation slides in an engaging manner, as he presumably would have presented a lecture in class. As he describes it, he has "radically transformed" his podcasts since that early approach (which is, in fact, a fairly common style of podcasting). He has made changes such as eliminating the 'talking head' video completely, focusing on the slides, where he has reduced the use of text, stating that "I try to tell my stories with the use of pictures." As a result of his research into presentation methods and related topics, the podcasts are now much shorter, and include humor and examples rather than "a lot of theory talk." Reflecting his attention to his students' input, he reports that they "liked the concept [of podcasted lectures], they just didn't like my original round of podcasts [because] they were boring."

P2's energetic personality, combined with the early adopter drive and love of learning, have kept him motivated in his efforts to excel at creating online content.

This issue of podcast quality arose in different ways for a few of the other participants as well. P3, for whom the process of recording himself did not come easily, tried at first to achieve a level of professional recording quality, but came to realize that "This doesn't have to be a TV show. It doesn't have to be perfect and edited and refined. The idea is to get the content out there." One frequently mentioned benefit of recorded lectures is the ability for students to pause, rewind, and re-watch the recordings as they choose. P7 valued the features of the system used to record his lectures, citing the options students had for viewing, including the option to zoom in. "[Students] can read everything I write on the board and see all the pictures right up close as if they were sitting in the front row." P8 focused on the importance of well-constructed podcast content. "When you're learning something, you need to have context, you need to understand it in the context of what you're trying to achieve. I wanted to make sure that I clearly set out [the goal]. This is the result, now here are the steps we're going to take to get to that result." These multiple perspectives on the quality of podcasts provide different approaches to the content conversion process.

A few of the participants discussed an unexpected byproduct of posting course content openly on the Internet: the experience of connecting to the online community at large. P5 related, "I started putting my videos up on YouTube. I started getting a lot of hits, but they weren't from my students. They were from Pakistan, and Italy, and England, and they had these comments, and compliments, and questions, from people all over the world. I thought, 'Well, this is great. I'm not just teaching my students…This is

sort of a community service." This experience he had in the process of becoming a podcast creator was not unlike that of P6 once he published his first ebook and began receiving "useful constructive feedback" and other responses. P8 also mentioned that her blog posts on the flipped classroom "have more traffic than any other blog post I've done since…I started [blogging]." For these participants, the early adopter role of thought leader has extended beyond their institution and discipline, reaching into the world of social media, where it overlaps and aligns with the sharing and commenting practices of a wider community.

Converting content to online formats is a key practice in the transition to the flipped classroom model. Challenges include potentially difficult learning curves for technology tools, instructor discomfort with being recorded, and the multifaceted process of designing a product of value. The question of whether the instructor must be the creator of the content has come up, recalling the concept of the content curating role from the previous section. In addition, the ways in which instructor personality and institutional resources figure into choices made have brought up important considerations. The following section will provide a fuller picture of the flipped course in its entirety, including the ways in which online content is integrated with the other elements and practices that make up the course structure.

Course structure. The *Course Structure* theme brings together several key components of the flipped classroom model, including the out-of-class work, the in-class activities, and the assignments, quizzes, and other practices that connect them. With the instructor role shifting to both content creator and in-class facilitator, much has changed for their teaching practice. This section covers the multiple connections they must build

to form the flipped model into a cohesive learning experience. Included in this section are two important sub-themes: *Peer Interaction*, which some see as an essential component of the in-class experience, and *Differentiation*, or the ability of instructors to adapt their interactions with students based on each student's individual needs.

To provide a depiction of a typical structure, P6 explains the progression of events for his course: It begins with a worksheet, "basically a set of questions that students are tasked with…doing their best to answer before they come to class…These questions are sequenced… [to] cue the students to doing the preparatory reading that they'll need to do to have a gainful classroom discussion. Then…we begin the class with a quiz just to keep them honest and make sure they've done the preparatory work. Once they're in the classroom they break up into small groups and share what they found with each other. And when they feel they have a good mastery of that day's material, they call me over…[I] certify that each and every person has got the concept." This description presents one method of interweaving the essential elements of the model.

This section will begin with what students do outside, before, and between classes: connecting with the content and preparing for the in-class activities. Both out-of-class assignments and pre-class quizzes will be covered. Some thoughts will be included on the idea that students need time to think between the presentation and practice to make their own mental connections. Following that will be a discussion of what students do during the class session: taking quizzes and participating in other activities that connect out of class work with in-class work, as well as connecting with others to accomplish those activities. Finally, examples of ways in which instructors are able to make more immediate connections with students will be presented. However, it is important to keep

in mind throughout this section that these separately discussed elements must be carefully interconnected to create a successful flipped classroom implementation.

Out-of-class assignments. The flipped classroom model includes content being provided to students online, typically as podcasts, though as seen above, some instructors use other forms of digitized content. Students are assigned to take in the content on their own schedule between class sessions. While many podcasts consist primarily of lecture and demonstration, some also include interactive elements. In addition, six of the participants give their students some type of assessment that shows they have absorbed the material.

Some practitioners give students brief and simple assignments that serve to review the content for the student and demonstrate to the instructor that it was covered. According to P7, "They're ridiculously easy if you paid attention to the lectures." P5 estimated the level of difficulty of his post-podcast assignments as "2 out of 10, probably." He stated, "I have made it very structured throughout the week. One of the things I learned was…you really have to provide a lot of support, a lot of structure to help them get a handhold." For example, for his midweek class, he requires that students submit at least one section of the assignment over the weekend, to ensure that they do not put off all the work until the night before. "This forces them to engage at some level prior to 12 hours before class starts."

Out-of-class quizzes. Some practitioners use pre-class quizzes in place of or in addition to other types of assignments to ensure that students have completed the podcasts or other content. These quizzes are usually designed in the LMS to enable automatic grading. These quizzes can serve as self-assessment, as each student can view

his or her own grade, and instructors can also get an overview to assess the understanding of the class as a whole. As with just-in-time teaching, described in chapter 2, some instructors use this method to plan in-class activities for the following session. P3 stated, "I have some quiz questions that are built into [the online] lecture, multiple choice, fill in the blank. Those are not graded; those are just to give some immediate feedback." Then, after completing the podcast, his students take an online graded quiz, which they have the option to retake after attending the class session.

Time to think. Three participants added the observation that students benefit from having time to think after watching the podcasts to make their own connections before participating in the more challenging activities that are typically part of the in-class sessions. P5 represents this idea by stating, "I refined my group work over time, but I wasn't really satisfied with the way [it] actually went. It always seemed forced…You're working in groups but the things that you're working with you just learned five minutes ago. How engaging can the problem be to students? With the inverted classroom, the information transport takes place and it sits for a while. It gets a little bit of fermentation happening and then you can start working on some interesting problems because you've seen [the content] and you've been thinking about it for a couple days…I think that the inverted classroom sets up the potential for creative flow to happen much more than just a straight cooperative learning group situation."

In-class quizzes. Some participants give quizzes at the beginning of each class session to assess student learning of the assigned material. P2 related, "In the beginning I just had the honor system…but when times got tough, they could blow off my class. So after that semester, I said, 'We start the hour with a five-question quiz.' There's research

that shows that if you quiz every day, learning goes through the roof, so we know that from a learning standpoint it's better. It enforces accountability…I don't make my quizzes exceptionally difficult. It's kind of like a reward. If you watch the podcast and you get the basic ideas…you're going to do reasonable well on the quiz."

In-class activities. The beginning activity for each class session typically ties back to the podcast content, even when quizzes are not used in class. P3, who gives quizzes online, asks students to bring their questions on the podcast with them to class. "They knew that coming in, they couldn't just come and sit and be a casual observer. And I would go around to each one and…write their questions on the board, and that formed our discussion for that day." P8, who did not use quizzes or required pre-class assignments, stated, "One of my fears was that they wouldn't…watch the videos as their homework. I explained to them, 'If you're not prepared when you come to class, then you're going to lose that time. If you take the first hour and a half of class [to watch the videos], now you only have an hour and a half left [to do your in-class project].' So a lot of them caught on to that pretty quickly." She took a different approach to starting her class sessions: "I would start off the class by being really clear with them what their goal was for that day. 'You've got three hours; here's where you need to be by the end of that three hours. If you get further than that, that's great, and if it's going to take a bit longer, you need to figure out how you're going to manage that.'"

Some participants set up a flexible working environment during class times. P8 explained that while she expects students to have watched the videos before class, "They could sit there [in class] with their iPods and smartphones, watching the video and then doing [their projects]. They were flipping back and forth between YouTube and [their

work]." P7 stated, "The work in class is all open notes, it's all group work, they're asking me questions, but then those are worth a lot more points [than the out-of-class assignments] and I'm grading them a little harder on it…I try to structure it so that they're rewarded for being prepared ahead of time…I want to make it hard enough that if they haven't watched anything, they're going to be lost." Several participants talked about combining easier assignments or quizzes pre-class with more difficult work during class sessions, when peers and instructors are available for support.

Three participants make use of case studies during class sessions, which their students usually work on in small groups. P4 described his students' enthusiasm for the cases he gives them, stating, "It's probably the first time in their lives where they've learned a bunch of stuff that they can actually apply to solve a real life problem." P1's description of her case study activity helps explain her use of active learning: "In class I'll give them all the same case but I'll break them into pods of three and say, 'Okay, I want you to find these elements.' As I walk around, the students have questions, and those questions are being generated from their experiences of getting stuck in analyzing the case. Whereas before I would have preempted their questions and lectured…" thereby answering their questions before they thought to ask them. As she sees it, "The learning is reversed." As with P1 and P4, most participants have their students working with peers in pairs or groups for at least some portion of each class session.

Peer Interaction. This sub-theme includes examples of students working together to aid each other in the learning process. For P5, "That's the core in the inverted classroom…they're working in groups of two or three and with my guidance as they go." P4 also makes group work integral to his course, explaining, "A lot of what I do now is to

get them to share with each other, to teach each other, to put them in an environment where they're not only learning from me, learning from the content, learning from the activity, but learning from each other along the way." Regarding his long-term efforts to design effective group work, he stated simply, "It ain't that easy." He emphasizes the need for students to be accountable to their groups, and has them evaluate each other as part of their grade. P7 takes a more open approach. He explains that students work in groups, "but I don't tell them to. It does morph a little bit. Sometimes groups of two will come together to be a group of four. Some students will find that they just cannot think when they're in a group and they need to sit and do it by themselves and that's fine, too. And maybe that creates some sort of disparity, but I let them choose."

P2 combines group work with competition to engage his students. He introduces a scenario, and students vote individually on the best solution. Then they get into their teams and have about two minutes to debate the question. He related from the previous day's class, "I am listening, I am right in the middle of it…[and] hearing brilliant arguments back and forth on these teams. They're teaching each other." Several other participants brought up indications of students teaching students as well. P4 points out that students are "peer teaching within their groups as they're doing activities." In addition, "in several cases…they're sharing with and teaching the rest of the class." P8 related, "I would overhear these little conversations going on between two students. One was struggling with something and the other one was saying, 'Here's what you do,' and they're helping each other out. And that benefits everyone." She went on to say, "That was totally unexpected, that just naturally happened, because I'd set up this [open] environment." P8 did not address peer learning in her interview. Her portrayal of

student interaction during class sessions recalls instead the studio-based learning model as described in chapter 2, which may be a model more common to her discipline.

Differentiation. Through the use of digital content, the flipped classroom allows students to determine for themselves how much time they need to spend with the course content outside of class. In addition, this sub-theme highlights the opportunities instructors have to address the individual needs of students, and for students of varying levels to work at their chosen pace, during classroom sessions. Both P4 and P7 spoke of realizing that some students learned differently from the way they themselves did. P4 explains, "I was teaching to me, to people like me and…there weren't many of me out there. So it's been a journey to try to figure out who they are, [and] how to interact with them." The issue of differentiation has particular relevance in light of the increasingly diverse community of students attending college, as mentioned in previous chapters.

P8 talks about having a mix of beginners, experienced students, and "a group of people in the middle, who were the smallest group." This middle group would do well with the traditionally formatted course, but as she explains, "I wasn't feeling like I was getting across to these other two groups, who were the majority of my students. I either had people who were completely lost, or I had people who were bored and talking in class." After she flipped her class, "I was able to spend extra time with the people that needed extra help, I was able to let the [advanced students] go off and create really amazing projects. Those people in the middle were just having fun, they were just enjoying the process of learning and creating something new, so the whole mood of the classroom changed, for sure." She went on to state, "Using this model I was able to [see that] the students that were technically weaker, they were doing better, their grades were

improving, they were more motivated, they were feeling good about it, and my attendance was better than it has ever been."

Several participants spoke of feeling more closely connected to students and to their abilities and needs. P6 related, "Having that intimate feedback between student and instructor is something that really never happened very well in lecture, but happens every day on a deep level in this format. Within the first day or two, I can tell which students will struggle, who is getting the As on the exams, who's going to be getting the Cs and the Ds, who's going to need the most help. Then as time goes on I get to find out their individual challenges. What's causing them to not do as well? Is it a personal issue or a learning disability? And we can strategize ways to overcome those barriers and help those students succeed…What I've found is that [the flipped classroom] tends to make the classroom a more differentiated place…What happens in my classroom is that, for example…if students check off early, if they actually complete their objectives for the day early, they're free to go. So the student to teacher ratio changes as the day goes on. Towards the end of the day, the only people left in the classroom are the people who need the most help. So what happens is you get more focused attention from the teacher to those who need it."

Making connections between course elements. Throughout the discussions of the different elements of course structure, a common thread appears: that of making connections. Out-of-class learning through digitized content connects to assessment of that learning, which then connects to a more challenging learning experience during the next class session. Blending online learning with regular classroom meetings requires a particular focus on the interweaving of course elements into a coordinated and cohesive

experience for students. This section brings together a few additional examples of how participants include connections for their students.

- Connecting in-class activities to the next set of podcasts: During the class session, P2 will "give them three really hard questions about [the topic], and they bomb it." When students are surprised they got the answer wrong, he tells them, "'The next podcast will help you figure that out.' So I am giving them teasers."

- Connecting instructor-made podcasts to those from other sources: P7 stated, "If I had a lecture on a certain topic…I could right next to it…have a link to a YouTube video on a related topic…maybe another link to an industry website. And so it allowed me to package the content differently and put up all kinds of video or links with lecture and make that a whole package..."

- Connecting students to project examples from past classes: P4 tells his students, "Before you start your project, go in there and see what they did before. See how they did it. Then do better."

- Connecting group learning to individual learning: P7 explained, "you need to solidify their individual knowledge after the group exercise…[Students] need to have an individual session where [they] think it through [themselves] to really bring together all the ideas that the group had…It's been difficult to make that work, but I try to integrate that."

- Connecting the various elements of the course through lecture: P7 explains that his use of lecture now entails "giving the 10-minute explanation of where [the topic] is today and trying to piece together the details and the content that are posted as lectures."

The *Course Structure* theme provides a description of the practices and activities that make up the course (in and out of the classroom) and how these activities and practices are sequenced and connected. The interpersonal connections among students, and those between students and the instructor, are underscored through the sub-themes of peer interaction and differentiation. Each of these elements can also be seen through the lens of involving students in the practice of the flipped classroom model. With more responsibility for content comes the ability to watch podcasts on one's own schedule and at one's own pace. With an increase in quizzes and questions comes the ability to help determine the focus of the class discussion. With the work of peer groups and presentations come opportunities to share in knowledge creation and even the teaching practice. The flipped classroom model is inherently geared to involve students. The next section will look at specific methods participants use to connect their students to this newly adopted model of teaching and learning.

Involving students in the model. This theme clusters together three sub-themes with a shared purpose, that of getting students involved in this newly adopted classroom model and their own transformed learning experience. The first sub-theme, *Introduction to the Model*, addresses various approaches to providing students with information about the structure of the course, usually at the first class session, but sometimes throughout the term. It also includes methods of aiding students in adapting to the new model. This theme might well have been included under the theme *Course Structure*, in that it could be seen as a necessary component to a well-designed flipped classroom. However, it is included here both because not every participant spoke about it, and also to emphasize its place as the first step in involving students in the flipped classroom model. *Student*

Choice describes a variety of ways in which instructors provide or allow for students to make choices about their learning experience in the course. The *Student Feedback* theme incorporates two sub-topics: (a) Instructors actively requesting feedback from students either throughout or at the end of the course, through various methods, for the purpose of improving the course; and (b) any discussion of standard course evaluations given by the department or institution at the end of the term. While not every participant addressed every sub-theme related to *Involving Students in the Model*, the overall theme appears in some form for most of the participants, and their common intentions behind the individual practices led to uniting the sub-themes. As has been shown throughout this chapter, the participants are themselves in the process of developing their practices with this model, and they are, on the whole, very attuned to their students' needs.

Introduction to the model. Four of the participants emphasized their processes for introducing students to this model of teaching and learning, while two more touched on the topic briefly. Their accounts could be seen as providing a range from cautionary tale to success story, demonstrating once again both the independent choices made through discovery as well as the ongoing growth integral to the early adopter experience. Further, they emphasize the differing perspectives of the individual instructors as well as the variance in their institutional settings.

P5 had a difficult time when he introduced the model to his students. He explains, " I underestimated the amount of explaining I was going to have to do. I just figured students would say, 'Okay, whatever,' and just go with it and maybe complain about the workload, but not reject the premise. When I laid out what was going to happen in the course, the students were sort of looking around at each other [as if

thinking], 'He's not serious, is he?' One of the first things I said was, 'Once you watch the screencast and work through the exercises…if you ask me [in class] how do I do what was covered in the screencast, I'm going to say you learned that in the screencast.' They didn't like that at all." He goes on to relate, "I had a rebellion on my hands…I think about half the class came in with drop slips...I stepped completely across that line with the classroom. At that point forward, it was like damage control and PR for the next 15 weeks, every week…I was constantly saying things like I am here as a resource to help you through any part. When I told them that I didn't answer questions if they can answer them themselves…students began to interpret that as meaning, 'We are not allowed to ask him questions about anything.'" He said he had to "bombard them" with the fact that they could ask him questions to make up for that misunderstanding. Despite the trials he experienced with his first flipped attempt, he stated, "When it worked it was awesome. When the students saw that it worked and they agreed with you that it was working, it was even more awesome…You know that a flipped classroom approach is going to bolster skills that they are absolutely going to need, even if they would prefer not to have to work so hard at it. You're still going to try to make it work, that sort of tension was what it felt like."

P6 also experienced the challenges of introducing students to the model. "When we shifted to…the inverted classroom, the hardest part was selling to the students the idea that, 'You are now responsible for first contact with material, not me, you are.' He went on to state, "I found that pretty much every new group of students I get in every quarter, I need to pitch the idea. 'Here's why we're doing it. Here are the results we saw with the old [model]. Here are the results we're seeing with the new [model]. This is one

area I need to do the most work in because…I still see the resistance persisting." He talked about something new he tried this past term. He shared with the students the negative evaluations from the previous term, and then told them, "I want to take the next hour and explain why I'm doing this and where I came from and what the progression has been [over the last 10 years]." After that talk, the students expressed appreciation, and he is now considering giving that "one hour history talk" at the beginning of each term.

P4 relates that as he introduces students to the course, telling them, "this is the way it's going to be, group work, projects, and so on," that students can experience "uncertainty and sometimes even a little bit of anxiety." He puts a particular emphasis on the in-class experience, "giving them ideas of how to work effectively in their groups." As an example of his continued progress, he has "implemented some things this year that I haven't done before, to try to help them get a better idea on day one what this course can be all about." These new efforts include the introductory video he created, which was mentioned earlier in the chapter. He also has students complete a learning styles inventory and recently added a multiple intelligence assessment for them to take. He explains that, "As I've been learning theory, I've been trying to pass on those ideas to them." Rather than teaching them the theory behind the course structure, he wants to "just let them go through it" with the hope that "they will recognize, 'Okay, I'm this kind of learner but my group mates are not necessarily like I am.'"

P2 talks about needing to get "buy-in" from the students right from the beginning of the class. He explains to them that they will need to watch podcasts before each class and take quizzes in each class session. He related, "The first two weeks, we talk about what is great teaching, what is boring teaching. And they watch a podcast on teaching

and learning." He emphasizes the topic because "the first time I [used the model], I maybe didn't do that as much, and I would get people complaining…Now we get the culture set in the first two weeks…That's been maybe the most important thing."

Two additional participants mentioned this sub-theme as a first-day activity. P3 "takes the first hour" of the first class session to introduce the model, telling students "this is going to be a class like you've never taken before." One of his concerns, because many of his classes are optional, is that students understand and appreciate the differences at that first class session. For that reason, he makes sure to cover all the details upfront. P8 also mentions that she spoke to her students about how the class would be structured and how activities and projects would be handle. She relates that, "Some of them were a little bit weirded out by it…[while] others said, 'Well, this is interesting, we'll try it and see how it works.'"

Student choice. A total of five participants contributed comments on the subject of providing students with choices. One component of classroom-based courses, attendance, came up frequently in this discussion, and P3 stands out as quite flexible in this regard. As mentioned above, he allows students to decide whether to attend certain class sessions, based on their grasp of the material covered in that week's podcast. He feels that students appreciate the "feeling of being in charge" and also that he gets a more involved group of students if they show up by choice. P3 states that, "I told students, 'If you have one question and that's the only question you have…just let me know [you would] like [me] to cover that first.' If they wanted to leave after that question then they were free to do that. If they just needed help on this one area, then we could get that taken care of." It should be noted that he also feels strongly about the potential for

merging online and classroom-based courses to provide more options for students, and invites his online students to attend classroom-based session at any time. P6 and P7 also allow their students the choice of leaving class early if they have shown that they have completed their work. P8 shared that with her traditional format, "usually, by the third week you're down to about 65 percent [attendance]," implying that students can choose whether to attend. After she flipped her class, "I had 80-90% every week for the duration of the course…I must've been doing something right."

P7 describes the choices he provides during class sessions: "I let them choose their own groups because it's open everything. You can bring a laptop in. You can watch the lectures during the face time; go to YouTube. You can bring your book. You can bring anything. You can ask me any questions." He mentions the common practice of students working in an assigned or self-selected group, but "it's a well-defined group." In contrast, in his current configuration, "students may be floating from one group to another and it's more flexible in terms of whom they're working with." P6 defines the choices inherent in this model from a different angle: "Every student now has the freedom and the space to explore [the content] on their own terms. They can come to you with questions from their own unique perspectives. The diversity of opinions…and perspectives that students bring to the table…is far more broad and more interesting than yours would be, which is the same year after year." P5 provides in-class choice to students in terms of "what they get to do in their labs" as well as in determining with whom they work. He stated, "I'm already imposing a lot on them, they should get a chance to choose their own groups." Several participants pointed out the flexibility

inherent in the out-of-class work, where podcasted content gives students the option of spending more or less time on topics as needed.

     Student feedback. Of particular relevance to this sub-theme of _Involving Students in the Model_, five practitioners discuss the ways in which they actively solicit feedback from students either throughout the term, at the end, or both. P2 uses discussion boards set up in the LMS for each class in which he asks what they like and don't like about the podcasts. "So right off the bat my students know that they can give me feedback and they can rip on my podcast…I listen to their advice on how I could fix it." He also stated that he explains the principles behind his teaching methods to his students, "So they know what I am shooting for and they critique me. It helps me refuel, and it's also helping them learn those principles." P1 "always puts out surveys" and stated that "some of my students have pushed me forward." She relates that it's really great when students say they learned more in my class than in any of their other classes." However, she also shared that, "Students also say there's more work; they can't believe they're supposed to watch this, go here, take this test, all these kinds of experiences." P3 stated, "I have my own little survey I give at the end of class. I have taken to heart a lot of their suggestions. You know students sometimes are brutally honest, and you get some [suggestions] that clearly I could never do. But I have gotten a lot of good [feedback]…that led to some changes in the way that things were done." P5 gave his students a follow-up survey during the following term, asking what students learned in the class that they felt was helpful to them. P8 relates, "I was really asking them a lot what they thought and how they felt." She recommends that instructors "not be afraid to try new things with their classes…and get the feedback from the students as you go."

One practitioner, P5, also reported on unsolicited, negative feedback he received. "I had to hold a whole bunch of really abusive comments from students on the comments queue [of the course blog]. Some of them said things like, 'Your expectations for us are too high. You need to dumb this course down now because you are not teaching it the way that we're supposed to be taught.'" As mentioned above, P5 also had about half his original students drop due to their dissatisfaction with the use of the flipped model.

Three additional participants mentioned receiving student feedback from course evaluations, typically distributed at the end of a term by the department or institution. While these assessments are not optional for instructors, their relationship to the topic provided enough of a context to include the comments on them here. The results, as might be expected, were somewhat mixed. According to P7, "The first time I taught [using the flipped classroom model] was the first time I ever got a perfect 4.0 evaluation score from my students in 12 years, so that was exciting." P8 related that, "The feedback that I received from them in my course evaluations…was that the environment was very relaxed, that they felt like they had creative freedom, and that they felt like they had a better handle on the material by the end of the course."

However, P6 found that, "My last review…was not good. There were some very negative comments about the structure, [with students saying], 'I want more lecture. I shouldn't have to do this much reading.' Just on and on. I have to say I've become almost immune to these comments after seeing them year after year because you realize what you're doing is not only in the students' best interests, but it's working." One specific issue, from his perspective, is that, "with a lecture model, students tend to assume that the instructor is some kind of infallible authority." He stated, "I would see

the ratings for instructor knowledge [were] lower in the new format than they were before. Students graded me as a more competent person when I was lecturing than when I was doing the inverted model. Now, my knowledge hasn't gone down. In fact I've been learning even more. But for students to see, 'Hey, he doesn't have the answer,' it shatters that image."

For these practitioners, the interactions they have with their students guide their adoption efforts. Involving students in the model shows up as a set of methods they are developing as they shift from the familiar traditional teaching to their new practices. As has been discussed above, the process of adopting and evolving toward a more student-centered model provides motivation and may be seen as benefits by these early adopter instructors. Additional benefits, as well as the challenges that accompany them, are the topics of the next research question.

What have been the benefits and challenges of this adoption process?

Many benefits and challenges of this transition have been touched on within the responses to the previous study questions. In particular, the benefits for instructors relate closely with their influences and motivations. They benefit simply through their own drive to learn and succeed. Additional benefits and challenges noted by participants are presented in this section.

Benefits. The study participants discussed benefits for themselves as well as benefits for their students, with parallels between those two categories. The flipped classroom model was seen to increase learning for students, but also for the practitioners. In addition, the model affords greater flexibility in and out of the classroom. Finally, this model can provide professional benefits for both instructors and students.

Increased learning, for both students and instructors, was frequently mentioned as a benefit of the flipped classroom model. For instructors, this benefit was discussed in the section on motivations above. Participants expressed the enjoyment they found in learning about new technologies and pedagogical concepts that enhanced their teaching practice. They also observed their students enjoying this benefit. P8 stated that she "saw evidence of [students] producing the best projects I've ever seen," and described "watching them learn in a better way and become more confident with the tools because of this method." P4 echoed that statement by stating, "Students, both individually and in groups, continue to blow me away with what they come up with. The products from their learning are just incredible." P2 provided a specific example with his description of the rising exam scores in one challenging class. He also stated that, "interest in the topic [area] is up, because they like the whole process of learning." P5 summed up the theme of increased learning: "There are a lot of opportunities to help students become better learners; that's maybe the biggest benefit in [the flipped classroom] approach."

Another benefit cited was increased flexibility for both instructors and students. This benefit recalls the earlier discuss of instructors providing students with choices, with P7 and others describing the options they allow students in class and out. P8 related that, "The students, overall, were just a lot more relaxed. The class was a lot more relaxed because they weren't feeling this pressure of 'I need to keep up with everything that she's telling me, because…if I don't remember it [when I'm] trying to do my homework, I'm stuck.'" P3 also pointed out the flexibility inherent in having a video lecture to which a student can return multiple times if needed. Added flexibility was also seen as a benefit for instructors. P3 stated that having a full set of podcast lectures "allowed me the

change the formatting of the class…it freed up time." P7 related that the other instructors who followed his lead in adopting the model share this feeling. [It has] improved the experience and allowed the other instructors to…try other things now they've got time freed up to do that." P2 summed up this benefit with his comment: "I don't feel so rushed in the classroom…we're able to be more flexible in our teaching and learning."

As discussed in the section on influences, above, the study participants have benefitted professionally from their efforts adopting the flipped classroom. In addition to the teaching awards, industry support, and opportunities to present their work, participants mentioned other professional benefits. P7 noted the positive experience of being recognized by his peers for the work he is doing. P8 mentioned the benefit of "opening up new dialogue within the college" and the connections she has made with peers through an internal social networking application used by her institution. P4 found that the greatest value from the professional award he received was the opportunity it provided to collaborate and share ideas with colleagues, "a validation of some of the things I have been doing."

A few participants also noted career-related benefits for their students. P7 simply stated that the way in which students now collaborate to solve the assignment problems "is actually more typical of the kind of problem solving they'll be doing in the jobs." P2 described the high praise his students received from an industry professional to whom they presented their final projects. P6, in particular, provided details about the hiring practices of his industry, stating, "I can show results in terms of…the jobs students are able to obtain after going through [this] program. The gains have been remarkable…and I can trace [those] gains back to the changes we made in the curriculum."

Challenges. While the term "challenge" was used in the section on influences, above, the data presented there do not demonstrate the same connections as between the benefits and motivations sections. Here, "challenges" refers to the difficulties encountered in the adoption process, rather than the ways in which external influences and internal motivations drive the participants to excel at their efforts. The discussion of the challenges presented by the adoption process includes two main themes: (a) student resistance to the new model, and (b) the work of developing course materials, in particular the content conversion process and the technology issues that can accompany it. P1 demonstrates participant commitment to the model despite the challenges encountered, stating, "If I weren't 100 percent convinced that this was a better way to educate and a better way to learn, I would have given up."

Perhaps the most challenging issue participants encountered was student resistance to the newly adopted model. Though P5 provided the most commentary on this problem, he was not the only one who encountered this issue. Four others also brought up the issue specifically. Not surprisingly, those who described more successful efforts introducing students to the model (P2 and P4) seemed to have the least difficulty with resistance. P5's struggles with his implementation process are touched on above under the sub-themes *Introduction to the Model* and *Student Feedback.* He explains the "rebellion" he faced as a result of traditional academic practices, which were dominant at his institution. He saw an unspoken agreement between faculty and students: "faculty don't give students a hard time, and students give faculty good evaluations." He understood that he had "stepped completely across that line" with his adoption of the flipped classroom. P6 reported a similar situation: "The biggest challenge is the cultural

resistance to [the model]…Another challenge is holding students accountable to doing the work outside of class because some students will resist and look for easier alternatives." P7 explained, "it's been a challenge shifting the responsibility of learning to students." He, too, referenced the cultural issue, with the idea that "if everybody was doing it," student expectations would also be different. In other words, the problem is not the model itself, but the contrast between what is typically expected of students and what the model requires them to do. Other participants raised this issue with less emphasis, but clearly, the context of academic culture, discussed in the following section, plays a significant role here. P5 provides the final word on this challenge: "It can be rough on you emotionally as a teacher. It was a rough go the first time I taught [using this model]."

The challenges of content development for this model were discussed under the *Content Conversion* sub-theme above, with participants noting the challenges of learning new technologies, finding the right tools, and becoming comfortable recording oneself. Also, several participants noted the increased workload, particularly before or during the first implementation effort, of not only converting all lecture material but also redesigning homework assignments or in-class activities to fit the model. P7 explained that, "There was a lot of prep time just to get a 15-minute video out." P6 pointed out the challenge of "having enough material of sufficient depth and breadth to completely replace the lecture. P1 expressed that the most difficult challenge is in "translating" the content from lecture format to podcasts, and also in portraying the material in a pedagogically sound way. In addition, technology issues such as software malfunctions and ADA compliance requirements were mentioned by some participants.

It is clear that the participants have been encouraged by the benefits and have not been dissuaded by the challenges they encountered. More than one downplayed their difficulties and stated that the benefits outweighed any issues. However, these instructors often have little direct knowledge of the issues their peers face at other institutions. The contexts within which each of these participants teaches overlap at times but often do not. Additional challenges, as well as benefits, will be seen in light of these contexts described below.

What contexts have influenced their experiences with this model?

When analyzing any phenomenon, in this case the adoption of a new teaching practice, it is important to consider the contexts, or surrounding environments, within which that phenomenon took place. The primary contexts for this study's participants include the broader academic culture, their own institutions and colleagues, and industry connections. The faculty development and technology support offices and staff members at individual institutions were of particular consequence for some participants. Though the contexts were consistent, the positive and negative effects of those contexts varied. It should be noted here that while contexts can have significant impact on an implementation process, the early adopter nature of the study participants often impels them to make choices without advanced considerations of external factors. Just as early adopters are not strongly influenced by external rewards, they are also not greatly deterred by difficult circumstances or unreceptive aspects of their environments.

Four participants expressed their institution's expectation of excellence in teaching. P7 stated, "You really have to be an excellent teacher at this school." P4 lists teaching seminars, workshops by colleagues, and an annual faculty retreat as ways in

which his institution supports the quality of teaching. He stated that, "There's always been a high value on teaching." However, he finds that in terms of his particular teaching methods, he is "more the exception than the rule," and that, "There are a lot of people around doing non-traditional things…but we're still a minority, I think, across the board." Others told similar stories, not wishing to disparage colleagues' teaching practices through their enthusiasm for their own innovations.

P6 and P7 shared their experiences of being fully supported in their institutions, though P6 sees the broader academic culture as less oriented to the change. He stated, "Lecture is so deeply ingrained in our educational system that it's considered to be the defining act of teaching: if you're not lecturing, you're not teaching." P5 also talked about traditional teaching methods being embedded in the culture. He referred to the "damage control" efforts he had to undertake after his students went to the administration to complain about his use of the model in a less actively supportive environment. At the same time, P7 found significant support all around him: within his department, among his peers, from the industry advisors for his program, as well as from his discipline's professional organization. "I presented it to my department and my department chair was all excited for it and even committed funds for it." He added, "Two other faculty [members] in my department were pretty excited about it and they started doing it that first year, also."

P1 represents a typical mix of positive and negative input from her surroundings. She states that she is "somewhat" supported by her institution's faculty development office and colleagues. However, both the professional staff and her peers also look to her to aid their own efforts. She recounted specific negative comments from colleagues at

her institution, and explained, "Those kinds of comments zap my energy and make me feel like I don't really care to do anything more." She also related that her discipline's professional community is "way behind" in terms of technology use. She has found the most encouraging context to be the distance learning and technology conferences and their communities with which she interacts.

The issue also arises of participant perspective on what support might look like, as they typically are mostly aware of their own institution and don't have much with which to compare it. For example, P7 appeared quite appreciative of the strong support he received, which included funding and comp time. P8 seemed to appreciate her department's support equally, though it consisted primarily of being given clearance to "do what you think is best." Further, P3's efforts seem to have been almost entirely independent. While his institutional setting incorporates a mix of technology support and resistance (a situation echoed by other participants), his story indicates that he is simply going his own way. When asked if he had worked with his institution's instructional technologist, he replied that he "might see him on occasion" at the meetings for a committee of which they are both members.

Many of the institutions provided some type of support to instructors through the provision of faculty development, instructional technology, and/or technical support offices or staff. The amount and configurations of this type of support vary among the institutions. P7 and P3 both received formal training on learning technologies through their institutions, but more often participants' experienced were less structured. P2 explains that his attempts to work with the technology staff were unsuccessful, but that he later connected with an instructional technologist who became "indispensable" to P2's

podcasting efforts. He stated, "He's a technology guy who understands learning and what learning should be." P1 also gave credit to her relationships with the instructional designers at her institution, stating, "People that know technologies in ways that I don't show me things that I can then begin to incorporate."

Finally, industry was seen at a context for participants in two ways. P6 and P7 have direct contact with industry representatives who act as advisors to their programs and with whom they meet regularly. As discussed earlier in this chapter, one of P6's early influences was an industry advisor who challenged him to teach students how to learn. P6 stated, "We're required by policy to formally meet with our industry advisors at least twice a year." P7 described his advisors' response to the flipped classroom model: "They were excited about it…They felt that the focus on hands-on, group problem solving rather than rote lecturing would be a better learning environment for the students." As mentioned earlier, P7 also received funding from his advisory board. For four other participants, the "real world" context of their student's future work roles provided sufficient reason to connect students to the realities of careers appropriate to their discipline. These participants discussed incorporating such methods as authentic case studies, and work-oriented field trips and group projects for this purpose. While in some cases industry played a notable role, the combination of academic culture, colleagues, and institutional settings had the greatest contextual impact.

This chapter presented the study data organized in terms of the four original sub-questions and one added question. The results of each of these sub-questions contribute to addressing the primary purpose of the study, to examine and describe the experiences of instructors who have adopted the flipped classroom model. The stories of the

participants as they transitioned from a traditional teaching model to the flipped

classroom introduced the chapter and provided the groundwork for reporting on the

remaining questions. As discussed, their transitions took the form of continuous change.

Some began over 20 years ago, and all are still in process. This introduction emphasized

the variations within their common path. A discussion of their external influences and

internal motivations followed, underscoring their shared early adopter traits. Also

introduced were the different meanings grouped under the theme of *Fun*, which provided

an additional framework for the discussion of instructor motivations. The question of

changes in teaching practices grouped a number of themes and sub-themes related to the

altered instructor role, the work of converting content, the elements of restructured

courses, and the ways in which instructors involve students in the model. In addition, the

benefits, challenges, and contexts experienced by the instructors were described. The

following chapter will summarize the study and propose some interpretations of the data

presented here. The strengths and limitations of the study will be discussed. Finally,

recommendations for further research and concluding remarks will be offered.

Chapter 5. Transforming Teaching Practices in the Undergraduate Classroom

This study was developed in light of the changing needs of college students and the lack of instructional education provided to college instructors. The purpose of this phenomenological study is to understand the lived experiences of instructors of undergraduate classroom-based courses who have adopted an instructional model called the flipped classroom. This model incorporates learning technology developments with long-standing ideas of learner-centered instruction, bringing significant changes to an instructor's teaching practice. The study tells the stories of eight instructors who have chosen to adopt the model for at least one of their courses. While these instructors come from a range of disciplines, institutions, and backgrounds, and each of their stories is unique, they share significant similarities from which higher education instructors, faculty development professionals, and administrators can learn regarding the potential of the model to help meet the needs of a diverse student population.

Summary of Study

This study begins with a concern for two specific needs of college students: the need to participate to a greater extent in their own education and the need to learn about and make use of current technologies as they prepare for careers and adult lives. The focus of the study, however, turns quickly to those who determine the educational experiences of students. College instructors, most of whom have little background in education, appear to have few alternatives for their teaching practices. They may teach as they were taught, or they may try to develop new knowledge of teaching as they teach. Some form of faculty development support is typically provided, but much of that support has been focused on online teaching and learning in recent years. As a result of

these factors, the quality of undergraduate teaching remains unreliable and largely outdated for the needs of undergraduate students.

The ongoing development of instructional technologies has provided additional alternatives for instructors, some of whom are willing to learn and experiment in order to improve their teaching practices. In particular, those instructors with interest in a more learner-centered practice can make use of lecture-capture systems or podcasting tools, not to duplicate their classroom lectures but to move the lectures online, thus allowing for other learning activities during class time. This flipped instructional model provides greater opportunities for peer interaction, differentiation, and student involvement in the teaching practice.

The primary research question this study asks is: What has been the experience of college instructors who have adopted the flipped classroom model for their classroom-based undergraduate courses? Four sub-questions were initially posed, with a fifth added during data analysis.

- How do practitioners talk about the changes to their teaching practice?

- What have been their motivations and influences for this transition?

- What has changed in their teaching practice as a result of the transition?

- What have been the benefits and challenges of this adoption process?

- What contexts have influenced their experiences with this model?

To address these questions, a qualitative study was designed, for which eight college instructors took part in in-depth online interviews and provided course materials for analysis. These participants were chosen based on their experience using the flipped model for one or more of their undergraduate, classroom-based courses. Their teaching

experience ranges broadly in discipline and setting, and their experience with the model ranges from about 20 years to one semester. Similarly, their selection of technologies and methods for both content conversion and in-class activities includes a wide variety. They have in common that their earlier teaching methods were of the more traditional, teacher-centered model. In addition, they share typical early adopter traits. They are driven to improve their teaching, are willing to take the role of learner, and enjoy experimenting to find what works best for their practice.

Individual VoIP interviews were scheduled, recorded, and then transcribed for each of the participants. Interviews were semi-structured, with an open discussion of course materials and experiences followed by a series of questions linked to the research sub-questions. In addition, course materials from each participant were analyzed with the use of a researcher-designed rubric. Several iterations of transcript review took place, beginning with a careful review of the recording for corrections and ending with the final coding of the transcript. During this process, the researcher gradually developed a set of codes for this purpose. The instruments used for interviewing, course material review, and the coding process can be found in the appendices.

The data collection and analysis process produced a rich set of data that provides a multilayered view of the lived experience of adopting the flipped classroom model. Findings of most significance for other instructors interested in the model speak to the complexity of the model, the variety of possibilities for its implementation, and the significance role of relationships and collaboration for both students and instructors. Findings of most use for faculty development personnel and administrators address the role of discovery in the adoption process, the instructors' focus on the needs of their

students, and the relative importance of instructional issues over technological innovations. These points are briefly made here, and elaborated on in the following section.

The model consists of much more than the production and posting of podcasts and the assignment of group activities during class time, as it is commonly discussed. While there is much diversity in the ways the model is applied, it is, at its best, a complex model requiring careful instructional design and implementation. In addition, podcasting is not the sole option for content conversion. Some participants use other formats, or a mix of formats. The focus of course design centers on a series of inversions that take place and the series of connections that must be made for the model to be successful. The primary goal is an active learning environment in the classroom.

The experience of the model builds on the relationships it affords to both instructors and students. Instructors appreciate the opportunity to get to know their students at a deeper level. This opportunity leads to a greater capacity for differentiated instruction, as instructors see their students at work on a regular basis and are able to observe their successes and struggles more closely. Instructors can make use of this model to increase student involvement with the subject matter as well as the course design, creating a more learner-centered experience. Students may gain from working more actively with their peers, demonstrating their own knowledge and learning from a variety of perspectives. They also benefit from the instructor's more direct observation of their work, and the chance to interact one-on-one with him or her. Finally, students may choose to contribute to the design of their own learning experience.

The participants of this study see teaching as an activity that they are learning over time through a process of discovery. These are early adopters of this model, and as such, they demonstrate a drive to improve their craft and openness to learning and exploring new ideas. While they may be influenced by the ideas and challenges of others, as well as any professional rewards they earn, their primary motivation is to enjoy and continually improve their work. Further, their concern for the learning experiences of their students directs their choices and efforts. They appreciate the autonomy inherent in their role, as it enables them to act in response to their students' needs as they observe them.

The varied experiences of the participants in terms of faculty development and related services indicate that there is still work to be done in the area of supporting instructors in the classroom. Adopter categories and attributes would be useful to consider in the designing of support services. Further, the shift from lecture to podcasting should not be seen as the purpose of the model. Rather, instructors are reaching for more learner-centered approaches, making use of the tools and methods they find along the way. The emphasis on technology use and online teaching may steer many instructors away from opportunities to receive guidance and assistance in improving their classroom-based teaching practice.

Interpretation

This study provides a wealth of information and ideas about not only the flipped classroom, but also about early adopter instructors and their teaching practices. The data describe an instructional model both complex and flexible, requiring changes to all aspects of traditional teaching structures. The blend of insights into both the motivations

and the practices of flipped classroom adopters suggests a complete transformation of the teaching experience for college instructors. The following interpretations are intended for use by interested instructors as well as faculty development and instructional technology professionals.

Learning new ways to teach. The study participants are highly motivated early adopters of the flipped classroom model. They have both a strong ethic to do their best at their work and a strong desire to do their best for their students—to make sure their students learn deeply, enjoy the experience, and come away with knowledge and skills of value to their future endeavors. These instructors enjoy experimenting with new tools and ideas, echoing the trialability attribute of innovation (Rogers, 1962/2003). It could be said that they use their classrooms as their own learning labs, performing small and large implementations on a regular basis. They are risk-takers who do not think of themselves as risk takers, perhaps because of a combination of assurance and enthusiasm on which they base their investigations. They are in fact routinely taking risks in their serial experimentation, but it appears to be their norm. For example, P2 says that he "can't help but to want to invent new and better ways to do things." These instructors have an inherent willingness to investigate the relative advantage of new methods and tools as they become available.

In keeping with their desire to improve their teaching practices and their urge to try out new methods and tools, the study participants all demonstrated an ongoing willingness to be learners in addition to teachers. They are teachable, open to ideas from colleagues, outside sources, and even, perhaps especially, their own students. As each interviewee shared their story of how they came to transition to this model, the researcher

developed a strong sense of them finding their path as they went along, from discovery to discovery, and from inspiration to idea to implementation. As one participant considered the question of what had changed for him during the transition process, it became clear that the question might be better put, *What has stayed the same?* The consistent aspect of his and the others' experiences has been the drive to do a better job of teaching, which had motivated an ongoing, and still in progress, series of transformations and adjustments.

One of the most telling results of this study has been the importance of enjoyment, or *Fun*, to the process of learning and adopting new instructional methods. The study participants do not present themselves as overburdened with professional responsibilities or overwhelmed by technological options, but rather as energized and inspired by possibilities. They appear to channel whatever fears or frustrations might arise from their work into motivation to improve their own practices. They are keen observers of their students' experiences, and use their observations as the incentive to make improvements to their classes. They are rewriting their own job descriptions, changing what is commonly understood in their institutions as the requirements of teaching, with the understanding that their main job should be to make sure students learn.

As noted in the previous chapter, *Fun* was shown to hold several meanings for the participants, including those that overlapped with the characteristics of early adopters: the challenge of improving one's work in an ongoing process, and the pleasure of discovering new ideas and tools with which they can experiment. These new ideas and tools then are integrated into their ongoing efforts at improvement. Early adopters can be

said to generate their own motivation, preferring and enjoying the activities inherent in the adoption process.

In addition, meanings for *Fun* were found that did not correspond with typical early adopter definitions but were specifically connected to the work of teaching. These included taking pleasure in the changed role made possible through the flipped classroom model. This finding is significant in light of the extensive changes required by the flipped model, and will be expanded on in the following section.

Perhaps most importantly, the participants valued the changes related to their interactions with students. Participants appreciated the increase in opportunities to work with students one-on-one or in small groups as well as the opportunity to get to know students better, enabling the instructors to respond to student needs in a more informed way. Also, these instructors gained significant satisfaction from involving students in this new model for teaching and learning. For example, P8 related, "I felt a lot more connected to the students…I was able to spend the time that everybody needed and that was extremely important to me." Students were, in most cases, allowed input into their own learning experience: they were given additional choices and were asked for more feedback. Finally, the participants seemed to get their greatest satisfaction from seeing their students benefit from the flipped classroom model and demonstrate successful learning through their group work and projects. This experience is "awesome," student projects are "just incredible" and "the best I've ever seen," and students demonstrated "a quantum leap of learning." For the participants, these results provided the evidence to show that they had chosen wisely and their efforts had been worthwhile.

In the Influences section of the previous chapter, it was noted that only three of the eight participants learned about the flipped classroom model as a whole concept. It is important to point out that five of the participants came to this model through their own discoveries and adoption processes. In part, this demonstrates the timeliness, and perhaps inevitability of the model, for which there are several attributions of invention to various individuals over more than a decade. As mentioned, P7 came up with the idea of flipping his classroom literally overnight, while focused on the challenge of using his time more efficiently as an instructor (e.g., teach more classes and/or students). It was only after he began to develop his idea that he learned of others who were using the same practice. The remaining four participants simple found their way to this model gradually, without thinking of it as anything other than the way they teach.

To a great extent, these early adopter instructors are gradually creating for themselves a new way to teach, and progressively transforming their own experience of teaching. They are performing the role of change agents in their organizations, although their efforts are largely unplanned and unshared, taking place without the aid of strategic planning committees. The practitioners attend to the needs of their students and combine their observations with ideas they discover, using this input to determine their next steps. The term *flipped* seems to suggest a quick change, and could be seen to echo the completeness of converting a classroom-based course to an online environment. However, the comprehensiveness of this transition indicates that it is best not attempted as a single point of adoption. The complexity of the classroom environment, with its historical connection to the traditional model, may be best served with gradual change. A series of transitional points, interspersed with periods of assessment and led by the

instructor's ongoing observation, reflection, and investigation, can gradually add up to significant changes in his or her teaching practice.

Some of the study participants acknowledge an early lack of preparation for teaching. Perhaps one result of that lack of preparation are the indirect paths they each found to the model: through frustration with the status quo and confidence that improvements could be made, followed by a search for, discovery, and trial of new ideas. Participants used a variety of tools and pedagogical approaches but shared the willingness to experiment. They came from a variety of backgrounds but shared the openness to new ideas needed for such an experimental process. Most interestingly, they all found their way to this model of instruction through their individual paths. This type of informal learning process seems to replace a formal education in teaching methods. It is similar to the on-the-job training alternative made use of in corporate settings, without the peer support typically available in that environment. College instructors may be seen as finished learning when they enter the classroom as teachers, but it would be more advantageous to view them, and support them, as continuing learners, transforming themselves into expert teachers over time. P4 summarizes his transitional experience in this way: "I think the biggest impact is going from a state of mind in which I felt a certain obligation to teach, to one where my responsibility is to help students learn, and I don't think those are the same thing at all."

While the participants' efforts to improve their teaching practices are commendable, and their experiences apparently enjoyable, numerous examples from the interviews suggest that their learning is somewhat random. The potential for an improved method for their learning appears to be high. At the least, improved

communication between support services personnel and instructors appears to be needed. Greater attention to the successes of early adopters would be useful to those who wish to follow their lead. Perhaps even better would be efforts to partner such instructors with instructional technologists, informing the learning process for the instructors while the technologists gain insight from direct student observation and learn about discipline-specific concerns, among other issues. The stories of this study's participants provide many points for faculty development professionals to consider in their planning of support for the instructors they serve.

Transforming the instructor's role. The participants of this study talk about the changes to the instructor role as one aspect of what they find enjoyable about implementing the flipped model. In effect, the role of the instructor is completely reversed from the traditional model. While participants expressed their gratification in this reversal, they also acknowledged the challenge it offered. P1 emphasized the extent of her efforts by saying, "If I weren't 100% convinced that this was a better way to educate and a better way to learn, I would have given up." Clearly, participants were both challenged and enticed, moving forward because of both the motivation of enjoying their work and what they perceive as necessity. According to P7, "Within the week, I basically decided and committed that I'm going to do this, I'm going to change everything about the way I teach, and this is the way to the future. In fact, anybody who doesn't change to this [model] is going to be out of a job in 10 years, that's what I believe."

A closer look at the idea of changing *everything* reveals the extent of the differences these instructors are adopting and to which they are gradually adapting. Four

significant changes can be seen as potential components of the transformation of the instructor role in the flipped model: (a) ceasing the practice of lecturing; (b) taking on the craft of online content producer and curator; (c) adopting the role of facilitator in the classroom and in all class interactions; and (d) reconceptualizing the stance of expert and the correlating perception of students as passive recipients of the instructor's expertise. Combined, these separate aspects of the transformation process demonstrate the significant shift that awaits the flipped classroom instructor.

As discussed in the previous chapter, study participants view lecture in a somewhat ambivalent light. They see it as perhaps not the most recommended practice, but also as a practice they find difficult to stop completely. It is, for at least some of the participants, their default approach to teaching content, and they find themselves continuing to use it for various reasons, or alternately, having to declare a commitment to no longer use it. For many instructors, it is likely that abandoning this familiar practice completely would take some time and effort. This idea is echoed by one of the flipped classroom practitioners discussed in chapter 2, who wrote, "In order to maintain my learning intervention goals, it is very important to not revert to the role of a lecturer" (Bland, 2006, p. 7). In addition to the habits of the instructor, lecture is often expected by an instructor's students, peers, and institution. Making this switch goes against the common view of what an instructor's job entails. It requires changing the expectations of both self and others. It may be necessary for each instructor to sort out, for their own purposes, what qualifies as lecture, what strategies s/he will use to replace the broader practice, and what aspects might be worth continuing, if only during a transitional period. Despite the challenges, however, the significance of removing lecture from the classroom

should not be underestimated. P6 explains, "By removing [the lecture], that precious classroom time gets to be devoted to stuff that really matters and is hard to teach. That's the magic of the inverted classroom."

Secondly, the new practice of creating podcasts or other online content plays a pivotal role for the flipped classroom instructor. Each instructor must determine what content format, or mix of formats, will work best for his or her course. At its best, the process of creating content includes selecting and learning technology tools as well as becoming familiar with alternate pedagogical concepts relevant to online presentation of content. Instructors will be faced with concerns about aspects of visual design, pacing, and other aspects of viewer experience, as well as the often unfamiliar exercise of recording oneself. If instructors choose instead to curate content from the ever-expanding resources available in the Internet, they will need to focus instead on the ability to assess and combine existing content objects to meet the specific needs of the class and students. Also, a careful consideration of ways to infuse one's own presence in the students' online experience becomes more important when making use of content from other sources. In either case, the typical concerns of online delivery, ranging from the need for increased bandwidth to the variety of student device preferences, also accompany this aspect of the flipped model. The centrality of online content usage to the model, as well as its technological and pedagogical complexity, makes clear the need for the guidance of well-designed support services.

As they abandon their lecture practice, instructors begin a new role as facilitators in the classroom. As noted in chapter 2, facilitative instruction puts the needs of the learner first. The facilitator role requires instructors to step out of the spotlight and focus

on their students. The classroom becomes an incubator where students are nurtured as they learn and grow (J. Jarvis, 2010). Through this process, instructors must relinquish some control of the classroom environment and activities, sharing that control with their students. They become less the leaders of the class and act more as guides focused on promoting the efforts of their students. By designing an active learning environment, instructors create opportunities for students to direct their own learning. The focus is no longer on how the instructor chooses to teach, but on how students best learn (Weimer, 2002).

Closely related to the move to a facilitator role, the flipped model pushes instructors to relinquish their traditional expert stance and instead revise this aspect of their work to model the coaching role. As coaches, instructors resist the traditional practice of providing answers to student questions, just as they resist providing lectures to disseminate content. Instead of providing information to students, instructors can respond to student questions with other questions geared to clarify and guide student thinking and prompt students to find their own solutions. In the coach role, instructors can also provide students with a clear understanding of the flipped classroom approach and their reasoning behind adopting it. According to P5, "There is an opportunity here and a challenge to teach students about their own learning process…When you put something out there as different as a flipped classroom is for students, you have to talk about why you're doing it…what exactly does it mean to teach something, what exactly does it mean to learn something." Through the coach function, instructors empower their students to accept responsibility for their own learning experience.

As with the other changes described, switching from lecturer to facilitator and from expert to coach requires learning and practicing new skills, as well as adjusting expectations of self and others. Students need to adapt to not only having different expectations of their instructors, but also to meeting the new expectations their instructors have of them. Both instructors and students are challenged to develop new practices in the flipped classroom model.

Upending the instructional model. The traditional classroom practice undergoes a series of inversions when transformed into a flipped class. The most apparent of these is the transferring of lecture to the online environment and homework activities to the classroom. Through this exchange, both the lecture content and the activities are transformed in a variety of ways. For example, while recorded lecture content could be seen as more reified, it may also become more visual, infused with media, and in some cases, interactive. It is often broken into small sections to provide more flexibility for listeners. Homework activities, often intended to be completed by each student individually, may look quite different when prepared for small, in-class groups to work on together. The prominence of collaborative activity in the classroom demonstrates a shift in the relative importance of that activity over the formerly centralized presentation of content. This shift reflects Weimer's (2003) description of the changed function of content discussed in chapter 2. Addition inversions reflect Weimer's other points of change: the role of the instructor, the balance of power, and the responsibility for learning.

The instructor role of online content provider replaces the lecture obligation. Discipline and personality traits merge with technical skill and available tools as

instructors determine the best formats for their courses. This study represented a wide range of formats, and likely many additional options exist. As stated earlier, the content does not need to be provided in the form of podcasts, though this is common for the model. The question of whether content must be created by the instructor came up both in the interviews and in the chapter 2 discussion of the model. Instructor-created content has the benefit of providing a sense of instructor presence in the online environment. On the other hand, the incorporation of multiple voices and varied media present students with different perspectives and additional choices. In any event, the selection of content format is best made with the institution's culture in mind.

Equally important, the instructor's in-class role is inverted, changing from that of didactic expert and lecturer to facilitative guide and coach. The study participants emphasized the value of this shift, expressing enjoyment of the closer connections built with students as well as, for most, the increased flexibility and decreased pressure they experienced during class sessions. The counterpart to abandoning the work of lecturing is the move away from the expert function. This transition, while rewarding, may also be the most difficult task required by the model, as instructors abandon familiar, perhaps habitual, practices and develop multiple skills concurrently.

The balance of power in the class, while not completely flipped, attains a more equal position. An inverted learning process requires that students have first contact with content on their own, allowing them to reach a point where they need to ask questions. This replaces the process of the instructor's lecture providing them with the answers they need to record for later testing. As instructors become facilitators, students take on more responsibility for content and in turn may be rewarded with opportunities to make

choices and have input into their learning experience. Most significantly, in some participants' classes, students have at times taken on the role of teacher. P4 spoke of students teaching each other during group work, as well as both individuals and groups presenting to the whole class. P2's students have begun taking the next step by podcasting the content of their projects and flipping their class presentations. As students take on the task of teaching, they no doubt teach their instructors as well, demonstrating a final inversion for the model.

For the flipped classroom model to be most effective, a series of connections can be made throughout the design of the course. These connections help to form the different elements of this model into a cohesive whole. Connections can be made between students and course content, between in- and out-of-class work, between students and the instructor, and among the students in the class. The inclusion of each of these types of connections ensures a stronger course design.

Participants make use of a number of alternatives to connect students with the online content, and online content with the in-class activity. These include assignments that accompany podcasts, interactivity built into podcasts, pre-class or beginning-of-class quizzes, the provision of assigned questions to be considered, or the requirement of student questions to be submitted. In-class activity can also be connected on to the online environment through the use of what P2 calls "teasers," questions raised that promote student interest in the next podcast, and also through the use of LMS discussion boards, among other methods. Finally, several instructors spoke of using brief lectures during class time to draw connections between the various elements of the course to provide students with a *big picture* perspective. Encouragement of student responsibility for

active involvement with both out-of-class content and in-class activity, combined with thoughtful guidance between the in- and out-of class transitions, provide the cornerstones of this model.

As discussed, participants highly valued the increased connection with their students that this model affords. P6 describes how the model made possible "a degree of intimate dialog with students I just never had before…It helps raise the level of empathy in the class because now I'm seeing the struggles they're dealing with. They're not just a face in the crowd; they're a person I'm dealing with on an individual basis." This description clearly indicates a measure of connection that is not common to the traditional lecture-intensive class. Results such as this provide instructors with ample justification for transforming their courses.

Instructors can begin the process of building connections through the personalization of online content. P3 points out that instructors do not need to emulate professional recording standards in order to make good podcasts. The researcher's experience confirms that a sense of an instructor's personality infused into a recording can engage students more than a canned production. As mentioned above, instructors who primarily make use of content from other sources will be best served by finding additional ways to make personal connections online.

Instructors can continue the creation of connections with students by involving them in the course model. Participants use various strategies, including introducing students to the model at the beginning of the course, requesting feedback throughout the course or at the end of term, and providing students with choices on things like project topics or peer group formation. These strategies balance the increased responsibility of

students with greater involvement in their own learning experience. In addition, instructors can build into the course design opportunities for differentiation. Several participants found that the increased flexibility of their in-class time allowed them to interact more with students individually. They were able to assess their students' needs more quickly and determine whether additional guidance was needed. It is likely that students benefit as much as if not more than instructors by these strengthened connections. P8 describes her students demonstrating a higher level of confidence in their classwork because, "the classroom…was a more safe environment… I was there, their classmates were there, we could work together and actually achieve things rather than just leaving them on their own, to their own devices."

Finally, this model's emphasis on peer interaction in the classroom provides the student-to-student connection. The construction of group work varies among the study participants, with some providing greater structure and others allowing more flexibility. Case studies, team competitions, project development, and problem solving figure prominently, all with the goal of having students build knowledge collaboratively. P2 related an exchange that he felt demonstrated the best of peer learning: "One student said to me, 'Hey, I don't mean to hurt your feelings, but I learn more from my team members than I learn from you.' And I smiled, and I said, 'No, no, actually you didn't hurt my feelings at all.'"

P4 discusses the challenges inherent in designing quality peer experiences for students. One of his strategies involves assigning groups at the beginning of the term, giving students some time to work in those groups, and then reassigning completely different groups for the second half of the class. In this way, students can potentially

learn from their early missteps and make a fresh start with their second group. P4's design of group work also includes the use of peer evaluations and considerable coaching on teamwork skills. His expertise, developed over a number of years, underscores the importance of carefully considered and well-designed peer activities for this model.

The results of this study demonstrate the complexity of what may seem on the surface to be a simple instructional model. Not only is the in-class and out-of-class activity flipped, but a series of inversions takes place in a well-constructed flipped course. Also, a series of connections may be designed into a course to create a cohesive learning experience for students. These considerations demonstrate the need for instructors who are open to learning and willing to experiment, as are this study's early adopter participants. The study also indicates the need for improved support of instructors in their efforts.

Unexpected Outcomes

In addition to the concepts discussed above, several topics arose from the data analysis process that suggest additional concepts but did not produce sufficient supporting data to be included in the previous chapter. Two of these topics, *Teaching to The Other Skill Set* and *Student Ownership of Learning*, were originally developed as codes that compliment the set of issues under *Involving Students in the Model*. The question of class size and physical space, was touched on by only a few participants. In addition, the need to teach students how to watch instructional videos was brought up by only one participant, but merited mention based on its potential connection to other topics covered. These topics hold potential value for future discussions.

The Other Skill Set refers to the importance of students gaining lifelong learning skills in additional to learning the content of a given course. Only three of the participants represented this theme, but those three collectively made a strong case for the idea. They each spoke of this learner skill set being as essential, if not more, than the subject matter learned in the course. At the end of each term, P4 asks his students to reflect on what they have learned about themselves by participating in the class. He relates that, "A lot of them say, 'I feel more comfortable. I feel more confident to speak up in a group [and say what I think].' They do make progress. That is more personally satisfying to me than what they remember about [the course topic]. It's not just the content [that's important], but it's also this other kind of skill set…The content is almost secondary, frankly." P5 stated, "The more I thought about it, in a college setting, it seems like lifelong learning is the ultimate goal…For a lot of these students…once they're done with college, they're done with formal schooling forever. So it's on me and my colleagues to make sure that these students are equipped to 'feed themselves' once they're done." He went on to say, "I feel like even if they don't remember [the course content], they acquired lifelong learning skills." P6 echoed, "Although I think there's good objective evidence to support the claim that [this model] does actually teach the material better, I would do this even if it didn't…because it does teach the students how to be self-directed learners." This idea of learning to learn, or becoming a life-long learner, relates closely to the sub-themes of *Student Choice* and *Student Feedback* discussed in the previous chapter, in terms of involving students with the flipped model.

Student Ownership of Learning presents indications that the instructor observed or considered the value in students assuming responsibility for their own learning

experience. While there was little data found on this topic in the study, it is often discussed in connection with the flipped classroom model, and so has been included here as closely related to *Involving Students in the Model*. Giving students choices and letting them see the changes that result from their feedback are both ways of encouraging student ownership. P5 puts ownership into context: "The inverted classroom, problem-based learning, and inquiry-based learning, all these instructional methods encourage [students] to acquire ownership." According to P6, student ownership of learning begins with "…holding them accountable to being the people responsible for initial contact with the material." The first time P6 used the flipped model, "By the end of the year it was phenomenally successful. Students were performing at levels that astounded me. They were learning things they hadn't learned before. They were actively engaging. If they encountered a problem, instead of just running to me and asking for help, they'd actually try to solve it on their own. I didn't see that happening before." Instructors can create opportunities for student involvement in their own learning process, but in the end, ownership of learning is something students have to take for themselves. Research studies that focus on the student experience of this model may result in more data on this topic.

The study showed some indications that early adopter instructors do not place a high importance on potentially discouraging factors such as class size and physical space. Granted that class size for this group ranged from 20 to 60 students, while some large lecture courses may have enrollments well over 100 students. However, both P2 and P6 spoke about specific methods they felt could be used to accommodate larger classes as needed. P2 stated, "I do a lot of peer-to-peer learning with the Clickers, and team-based

learning. It seems to work in any size classroom." In addition, P4 responded in what may be a typical early adopter fashion when he mentioned being assigned a classroom not meant for group work arrangements. He stated, "There were some issues of the classroom that I teach in, [the institution] recently has bolted down tables, so there are just lines of tables and then chairs behind the tables. That's not conducive for the group. I figured out, it doesn't matter, turn your chairs around, it's okay." Statements such as these suggest that early adopters may also be skilled adapters, willing to be flexible and modify their plans as needed to reach their goals. This characteristic helps them find new solutions where others might find insurmountable obstacles, or at least passable excuses.

One participant, P5, introduced the concept that students need to learn how to watch instructional videos. He compares this to students reading a book or listening to a lecture for class. For such activities, it is the norm to assume that students need to learn study skills such as note taking, questioning, and outlining. However, he states, "One of the things I learned early on was that students…don't have a nuance way of watching video content…It's the same mindset that sets in as if you were watching an action flick or America's Funniest Home Videos. It doesn't require a lot of brainpower. But if it's an instructional video, you obviously can't approach that with the same mindset. As he puts it, "Being media savvy doesn't mean that you can learn from media." On his course blog, he builds a structure around the podcasts through the inclusion of a weekly overview, a competencies list, problem sets, and clear expectations to guide students through learning from the podcasts between class sessions.

More and more video content is available online through sites such as YouTube and Khan Academy, and the ability to share this type of content so easily and broadly is

relatively new. However, it is important to remember that audio-visual content was introduced in classrooms decades ago through the use of filmstrips and television. Accordingly, a body of research already exists that can inform the use of video for instructional purposes. For example, a review of the literature on the subject reports that, "Television allows for the presentation of 'content' materials while freeing the instructor for individualized help," but also that "Televised instruction tends to encourage a passive type of learning instead of active and seeking" (Klima, 1976, pp. 7-8). Further investigation into this area of research may aid the development of flipped classroom methods.

Strengths and Limitations

A primary strength of this study has been the depth of engagement made possible through the willingness of the participants to engage and share their innovative work. The study provides valuable guidance for instructors interested in developing a more learner-centered environment in their classrooms. It also offers useful information for faculty development professionals and higher education administrators involved in the support of classroom-based instructors. Of equal significance is the opportunity to provide the higher education teaching and research community with a deeper understanding of the motivations and experiences of innovative classroom-based instructors.

This study has several limitations due for the most part to size and time restraints. Though multiple participants were included, the size of the study leaves many innovative instructor experiences untold.   The time restrictions of the study also created significant limitations, requiring the use of VoIP interviews rather than site visits. While the use of

webcams provided some sense of personal connection, and the visual recording allowed the researcher to review the participants' expressions and gestures as well as their words, she is left with a sense that in-person interviews might have elicited deeper connections. In addition, site visits and observation of the physical spaces in which the participants teach their classes could have provided a greater sense of their day-to-day experiences. In all, VoIP interviewing brings significant value when other options are not possible, but cannot be considered a full substitute for face-to-face interviews.

The planned use of snowball sampling was not possible to fulfill, as participants were unable to provide referrals to colleagues also using the model. This circumstance underscores the individual nature of their experimentation and discovery processes. These early adopters do not yet have a network of peers with whom they are connected in terms of the use of the flipped classroom. They knew of no other instructors either at their own institutions or elsewhere. Several spoke of connections with peers whose teaching they respected, but who were using different models or methods. Others had found followers within their home institutions who were looking to learn from them. They are not completely alone in their interest in and efforts to teach in a more learner-centered way. However, they are, to a great extent, working without collaborative support. The researcher's efforts in gathering a suitable participant set was made more difficult by this lack of direct connection among innovators of the model.

Though the unstructured nature of the interview process resulted in a rich data set, there were also inherent limitations found. As coding progressed and merged with data reporting, the researcher noted that some topics did not produce data across all interviews. One example of this would be the question of how students are evaluated.

While it can be assumed that all the study participants must evaluate their students' work, they mentioned little on this topic in the interviews. While some follow-up questions were sent to participants, it became clear that a quantitative survey in combination with the qualitative interviews might have uncovered more complete results on specific issues.

Little research has been done on the flipped classroom model in higher education. This study was understandably limited in scope, but laid important groundwork for future investigation. Now that this broad overview study has been completed, more specific questions can be identified and addressed through future research. The following section provides a detailed list of possible research directions.

Recommendations for Further Research

The study of the flipped classroom model provides a number of possibilities for further research. To begin, the approach this study took is worth repeating. While interviews were in-depth, it was only possible to include a small number of instructors. Future practitioner interviews might benefit from the addition of a quantitative survey based on the codes and themes from this study. More information on topics such as the design of peer interaction in different settings and strategies used to involving students in the model would be useful for instructors making use of this model. Also, the observation of one instructor's practice in detail over a longer period, as could be draw from a case study, would provide for a more complete picture of methods and practices. Such a study could also include an examination of student engagement and satisfaction, as well as learning outcomes.

In addition, a different phenomenological study, one focused on the experiences of students who are enrolled in or have completed a flipped course, would compliment

this study well and provide another rich area for research. What results might be discovered by speaking with or surveying students from the classes of instructors being interviewed? The student perspective on the flipped classroom has been addressed through the work of individual practitioners surveying their own students, such as those whose studies were discussed in chapter 2. However, this type of limited study can tell only part of the story, and a more broadly based study would be a significant contribution. The student perspective seems particularly relevant to such a learner-centered model. Both qualitative and quantitative research could be valuable in this area.

While this study's participants described the increased learning and in some cases the enthusiasm of their students for the model, nothing of these issues was documented in any way. Clearly, quantitative studies that measure student success with the model through the lenses of engagement, improved learning, and improved retention of learning would contribute much of value. Also, some investigation of different implementation strategies used in different disciplines would be of interest.

Finally, additional research into broader questions about instructors is suggested. For example, the connection between early adopter faculty and their strong student connection is worth investigating. There were indications that these instructors are more motivated by interactions with students that with their peers. This trait cannot be accounted for through the literature on early adopters, and may be a particular factor for early adopters who are also teachers. Also, this researcher's inquiry and the recent popularization of the model have brought up the question of other active learning models being used in colleges. There is little data to be found on teaching practices in higher education. Such data would be useful to faculty development professionals and

administrators in planning support services for instructors. Overall, it is clear that there remains much more to study within this area of research.

Concluding Remarks

This study has discussed at length the changes experienced by college instructors when they adopt the flipped classroom: their roles as instructors, the structure of their courses, and most importantly, their relationships with their students. In fact, these instructors purposefully caused the changes they have experienced and continue to experience. They chose to alter the ways in which they function as instructors, in and out of the classroom, for the benefit of their students as well as for their own professional satisfaction. They have taken the steps to implement teaching practices that correspond with their own priorities: to continue learning themselves but more importantly to provide the best possible learning experiences for their students. They have been willing to shift the balance of power toward their students, even when those students have questioned and challenged that shift. They are actively changing their students' experiences in the present as well as having a positive impact on their futures. Their primary reward for these efforts comes through observing their students' efforts, progress, and successes.

There are, at this writing, many calls for change in higher education, and many beliefs about the best way to bring about change. This morning's news brought articles assessing the use of the immersion method of instruction (Kotsko, 2012), announcing a new massively online open course (MOOC) initiative called edX (Kolowich, 2012), and responding to the idea of robots grading essay assignments (Fister, 2012). In addition, practices and perspectives closely related to the flipped classroom model are actively being investigated and debated. The most recent include *peerology*, which emphasizes

the social nature of learning and the instructor's role as "expert learner" (Crompton, 2011, para. 3); the *bring your own device* (BYOD) movement (Venable, 2012), which promotes the use of personal technology devices in the classroom; and TED-Ed (Rubin, 2012), an initiative meant to provide instructional videos that can be customized with added features to suit the needs of individual classes. However, it must also be noted that the concerns about teaching and learning at the post-secondary level are not new. Specifically, professors have been calling for a shift from the expert role and lecture model of teaching to a more active learning model for decades (Atkinson, 1970; Hakes, 2007; Lambert, 1963; Morrison, 1986). Alternate methods, such as those described in chapter 2, have been proposed and practiced for many years.

So where does the flipped classroom fit into all these concepts? The researcher's best answer to that question is this: It is not that no one thought of or tried innovative teaching and learning practices before. However, we now have accessible tools that make these practices more viable for more instructors. It is not that these tools are the only way to achieve these goals. Yet, they do offer exciting new alternatives from which to choose. It is not that there are no challenges with using these tools, but rather that they offer benefits to learners that make overcoming the challenges worthwhile. Finally, it is not that the flipped classroom model is a panacea for all the problems higher education faces. Nevertheless, it is a valuable paradigm that will prove advantageous as we move into the future of teaching and learning.

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APPENDIX A

Participation Request

Dear [Name],

I am a doctoral candidate in the Department of Educational Technology at Pepperdine University. In partial fulfillment of the requirements for the degree of Doctor of Education, I am conducting a study on instructors who have transformed their undergraduate classroom-based instruction. [Your name was suggested to me by [informant or colleague].]. I hope you will consider contributing to this research. If you are interested, I ask that you complete a brief preliminary questionnaire to determine whether you are a good fit for the study.

If you are selected to participate in this study, your participation will include a 1½ hour interview, which will take place online using Skype video calling. The purpose of this in-depth interview will be to learn about your experience transforming one or more undergraduate courses. You will have the opportunity to review the transcript and the written report for your interview, as they become available. A shorter follow-up interview may be requested if needed to cover additional questions and to confirm initial study findings.

Other requirements: Prior to the scheduled interview, I will ask participants to share with me copies of, or access to, course materials from before and after the transition for one course. In addition, participants will need to have the Skype application installed on a computer, and have an account set up with the service. They will also need a webcam and microphone.

Your participation in this research would be completely voluntary. All identifying information will be removed from the study before presentation or publication, and your documentation and identity will be kept in strict confidence. The findings of this study may benefit other instructors who undertake a transformation of their classroom-based courses. As such, your participation in the study will contribute to the scholarship on undergraduate instruction.

Please review the attached consent form before replying. Your emailed agreement to contribute to the study will constitute your consent to be a part of the research described therein. Also, please take a few minutes to complete the brief questionnaire attached and return it to me by [date] with your emailed agreement if you are willing and able to contribute to the study.

Let me know if you have any questions or concerns you would like to discuss before deciding whether to contribute. I look forward to hearing from you.

Sincerely,
Anna F. Brown

APPENDIX B

Participant Questionnaire

In order to ensure a good fit for the study, please answer these few questions.

1. Please describe the institution where you teach (size, public/private, etc.) and your professional status there (title, discipline, years of service).

2. Please describe the types of courses and students you teach.
For example, *English 125 – Introduction to Victorian Literature – A survey of Victorian writers and the social-historical context in which they were writing. Class meets twice a week for 90 minutes. It typically enrolls lower division undergraduate English majors. Class size runs about 20.*

3. Please describe how your teaching practice has changed, and when.
For example, *I now rely on podcasts to disseminate lectures. I use electronic files instead of library reserves. I have taught one year with these changes in place.*

APPENDIX C

Informed Consent Form

I authorize Anna F. Brown, a doctoral candidate under the supervision of Dr. Linda Polin in educational technology at Pepperdine University, to include me in the research project entitled *A Phenomenological Study of Undergraduate Instructors Transforming the Classroom Model.* I understand that my participation in this study is strictly voluntary.

This research project is designed to study the experiences of undergraduate instructors who have made transformative changes to classroom-based courses within the last few years. I have been asked to participate in this study because I am an undergraduate instructor who has transitioned from the traditional teaching model in one or more of my undergraduate courses.

Participation in this study will require several activities:
1) Taking part in an initial interview of approximately 1½ hour;
2) Completing pre-interview prep, including a brief questionnaire;
3) Providing course materials, or access to materials, prior to the initial interview;
4) Responding to possible follow-up questions, or request for feedback on study findings, by email or in an additional interview session of no more than one hour.

I understand that all interviews will be conducted via Skype video calling and that I will need to have access to the necessary hardware and software required for this process. I understand that the interviews will be recorded (both audio and video), and that the digital recordings will be used for research purposes only. The digital files of the recordings and the course documentation will be stored on a password-protected server and destroyed after three years. All hard copies of the interview (transcripts) and course documentation will be stored in a locked file cabinet and destroyed after three years.

I understand that no information gathered from my study participation will be released to others without my permission. If the findings of the study are published or presented to a professional audience, no personally identifying information will be released. The data gathered will be stored in locked file cabinets, or on a password protected server, to which only the investigator will have access. The data will be maintained in a secure manner for three years, at which time the data will be destroyed.

I understand that there is no direct benefit from participation in this study. However, I understand the possible benefits from my participation may include the satisfaction of assisting other instructors. In addition, the benefits to higher education teaching and learning may include contributing to the research on undergraduate instructional practices. I understand that I will receive no compensation, financial or otherwise, for participating in this study. I will receive an executive summary of the study once it has been completed.

I understand that the potential risks of participating in this study are fatigue and discomfort from self-reflection during the interview process. In the event that fatigue or discomfort are experienced during the interview process, a break will be provided. I understand that I have the right to refuse to participate in, or to withdraw from, the study at any time. I also have the right to refuse to answer any question I choose not to answer. I also understand that there might be times that the investigator may find it necessary to end my study participation.

I understand that if I have any questions regarding the study procedures, I can contact Anna F. Brown to get answers to my questions. If I have further questions, I may contact Dr. Linda Polin. If I have further questions about my rights as a research participant, I may contact Dr. Yuying Tsong, Chairperson of the GPS Institutional Review Board, Pepperdine University.

I understand to my satisfaction the information in the consent form regarding my participation in the research project. All of my questions have been answered to my satisfaction. I have received a copy of this informed consent form, which I have read and understand. My emailed agreement to participate in the interview process constitutes my consent to participate in the research described above.

APPENDIX D

Participation Confirmation

Dear [Name],

Thank you very much for agreeing to contribute to this research project and for returning the preliminary questionnaire. This message confirms that you have been selected to be interviewed for this study, and I look forward to talking with you about your experiences.

I anticipate that interviews will take place during [month(s)]. I will be in contact the week of [date] to schedule a date and time for your interview. At that time, I will ask that you provide me with copies of, or access to, course materials from before and after the transition for one course that you have converted. I will need these materials at least two weeks before the interview so that I will have time to review them.

As a reminder, the interview will be conducted using Skype video calling. You will need to have the Skype application installed on your computer, and have an account set up with the service. You will also need a webcam and microphone for the interview. If you will need any assistance preparing the hardware and software for the interview, please let me know. We can schedule a brief session to test your set-up before the day of the interview, if needed.

I am using a snowball sampling method to discover and contact potential participants for this study. I would appreciate any suggestions of other instructors you may know who have also transformed their teaching practices for their classroom-based courses. Please share my contact information with any colleagues who you believe may be able to contribute to this study, and ask them to contact me at their earliest convenience. Alternately, if they express interest in participating but would like me to follow up, I would appreciate you forwarding their contact information to me.

Please contact me if you have any questions or concerns. I look forward to speaking with you, and thank you once again for agreeing to take part in this study.

Sincerely,

Anna F. Brown

APPENDIX E

Participation Decline

Dear [Name],

Thank you very much for your interest in my research project, and for the time and effort you have contributed. This message is to let you know that due to study criteria, I will not be able to include you in this study. I was interested to learn about your teaching practice as described in the questionnaire, and I regret that we will not be able to work together further.

Please contact me if you have any final questions. Thank you again for all your help.

Sincerely,

Anna F. Brown

APPENDIX F

Interview Schedule

Interview Introduction

We are starting at [start time] so we can expect to be finished by [end time]. I will mention when we get to [15 minutes before end time] so that we can begin to wrap up. I will turn on the recorder now, and then review the study information before we begin the interview.

This research is being done in partial fulfillment of the requirements for the degree of Doctor of Education in the Department of Learning Technologies at Pepperdine University. Dr. Linda Polin is supervising the study.

The primary research question for this phenomenological study is: What has been the experience of college instructors who have adopted the inverted classroom model for their classroom-based undergraduate courses? The purpose of this in-depth interview is to learn about your experience transforming one or more undergraduate courses to the inverted classroom model. Accordingly, questions will be posed concerning your personal experiences during the process, as well as information about your institution, professional career, and teaching practice. I will also ask you to discuss the course materials you have provided me from your inverted classroom course.

As covered in the consent form provided to you, this interview will be recorded and transcribed, and you will have the opportunity to review the transcript of your interview and a written report on your portion of the study. You will also receive an executive summary of the study once it has been completed. All identifying information will be removed from the study before presentation or publication. Your identity and all study documentation will be kept in strict confidence.

Your participation in this research is completely voluntary. You may choose to not answer any questions in the interview process, and you may decide to withdraw from the study at any time. Your emailed agreement to participate is taken as your agreement to the consent form provided.

Do you have any questions or concerns before we begin?

Interview Questions

Could you walk through the course materials you provided and talk about how your course has changed? [Remind the informant that s/he can share his/her computer screen if desired.]
Prompts:
- How do you now deliver course content?
- How do you now make use of class time?

- [Use additional prompts as needed based on case, e.g, Could you talk more about…?]

Could you describe your experience transitioning this course to the new model? [Remind informant to switch out of screen share mode at an appropriate time if needed.]
Prompts:
- [Use additional prompts as needed based on case, e.g., Could you talk more about…?]

What influences led you to this model? What motivated you to change?
Prompts:
- How did you first learn about this model?
- Are there particular learning theories or pedagogical concepts that inspired or guided you?

What has changed for you in your teaching practice?
Prompt:
- Were there pivotal points that you recall from the process of transitioning?

What have been the benefits and challenges of this adoption process for you?
Prompt:
- What was most rewarding for you?
- What aspects did you struggle with the most?

What contexts have influenced your experiences with this model?
Prompt:
- These might be your institution, department, discipline, colleagues, students, or other influences.

Are there any points we have not covered that you would like to discuss? Anything that may have come to mind during the interview?

Interview Closing

For this study, I am using a sampling method that requires the collection of referrals from study participants. Do you know of one or more instructors who would fit the study? If so, would you be willing to ask them to contact me regarding participation in the study?

Thank you for taking the time to talk with me today. I will follow up with you to provide you with a copy of the transcript of your interview and the written report on your portion of the study as they are completed. I may also request a shorter follow-up interview later in the study if needed to cover additional questions or request confirmation of findings. I will contact you by email as needed. Please feel free to contact me also if any questions or issues arise. Again, thank you so much for your contribution.

APPENDIX G

Course Materials Analysis Rubric

Instructor ID: _____ Date(s) Reviewed: _____

Course Title: _____ Course Program & Level: _____

Circle one of the following: pre-transition materials   post-transition materials

Process description: Review the pre-transition materials to establish a baseline, noting primary items provided and specific points that indicate teacher-centered (TC) or learner-centered (LC) instructional approaches. Following that review, begin a new rubric to review post-transition materials. Compare the new materials to the baseline developed, noting any changes. Be open to the inclusion of both TC and LC elements in both the pre- and post-transition materials.

Course materials are reviewed to both inform the informant interviews and validate the data collected through them. This checklist includes syllabus sections based on a sample syllabus from Weimer (2003) and assessment rubrics from Blumberg (2009). In addition, key points on course design were based on the 2010 Blackboard Exemplary Course Program Rubric, which is used to nominate online and blended courses that make extensive use of the Blackboard LMS.

SYLLABUS REVIEW

Introduction to course model

Title of section:	Location: [page # of #]
Description of section:	
Indications of TC or LC approach:	

Listing/description of course content components (readings, podcasts, etc.):

Title of section:	Location: [page # of #]
Description of section:	
Indications of TC or LC approach:	

Listing/description of assignments:

Title of section:	Location: [page # of #]
Description of section:	
Indications of TC or LC approach:	

Grading:

Title of section:	Location: [page # of #]
Description of section:	
Indications of TC or LC approach:	

Course schedule:

Title of section:	Location: [page # of #]
Description of section:	
Indications of TC or LC approach:	

Other relevant section: (Repeat as needed.)

Title of section:	Location: [page # of #]
Description of section:	
Indications of TC or LC approach:	

CONTENT COMPONENT REVIEW

Note any indications of connections between components described and in-class activities.

Media	Component Details
☐ Text-based	Source (instructor or other): Description:
☐ Audio-only	Source (instructor or other): Description:
☐ Video	Source (instructor or other): Description:
☐ Interactive	Source (instructor or other): Description:
☐ Other type(s)	Source (instructor or other): Description:

ADDITIONAL MATERIALS REVIEW

For any additional materials provided (e.g., LMS course site), provide a brief description of the materials, their purpose for the course, and specific points that indicate teacher-centered (TC) or learner-centered (LC) instructional approaches.

Description of materials:
Indications of TC or LC approach:

Description of materials:
Indications of TC or LC approach:

OVERALL COURSE REVIEW

List and describe indications of the following points (based on Weimer, 2003; Blumberg, 2009):

The function of course content:

The role of the instructor:

The students' responsibility for learning:

The balance of power:

The purpose and process of evaluation:

List and describe indications of the following points (based on the Blackboard Exemplary Course Program Rubric):

Clear communication and participation protocols:

Encouragement of student-to-content interaction:

Encouragement of student-to-instructor interaction:

Encouragement of student-to-student interaction:

Describe the balance of synchronous and asynchronous activities:

Additional notes:

APPENDIX H

Interview Follow-up

Dear [First Name],

I'm writing to sincerely thank you for allowing me to interview you for my research study, and for sharing with me access to your course syllabi and content components. Your time, effort, and generosity are greatly appreciated.

As previously discussed, I will provide you with a copy of the transcript of your interview and the written report on your portion of the study once they are available, and appreciate any comments or input that you may have. In addition, I may contact you for a brief follow-up interview if needed as the study progresses. Once again, all identifying information will be removed from the study before presentation or publication, and your documentation and identity will be kept in strict confidence. An executive summary will be sent to you once the study has been completed.

I hope you will let me know me at any time if you have further questions or comments on this study. I will also be in contact to keep you informed of the study's progress. Please know that your contributions to this research are greatly appreciated.

Best Regards,

Anna F. Brown

APPENDIX I

Report Letter

Dear [Name],

I am pleased to be following up on your interview for my study by sending you a brief report on your contribution as well as a copy of your transcript. My work on the study is going very well. I am immersed in the data analysis phase and have begun drafting sections of the findings chapter. I have a fairly short timeline planned for the completion of the work. I ask that you keep the attached documents confidential until you have received the summary of the study, which I anticipate will be within the next few months.

I hope you will be able to take the time to review at least the brief report and send me any corrections, thoughts, or other input you might have. [You are not required to respond to the additional questions I have included, but your assistance with them would aid me in my work.] I realize that this message may have arrived at a very busy time in your spring term, and appreciate any additional information you choose to provide.

In addition to your contributions on the main issues of influences, motivations, benefits, challenges, and contexts within which your experiences have taken place, there are a number of topics I have drawn from the interviews for which you have provide useful commentary. Those topics and their definitions are listed in the report. Please note that your contribution to any one topic may have been more or less substantial, but added in some way to the larger discussion. What I can tell you at this point is that your overall contribution was of enormous significance to the study, and is appreciated frequently as I go about the work of organizing everyone's input into one final product.

A note about the transcript service: they did a very good job at an affordable rate, but as you will see there were some inaccuracies. I want to assure you that I carefully compared my printed version of the transcript with the interview recording, and made corrections on paper. I was not able to go back through all the digital versions and correct those as well. If you are interested in receiving a copy of the recording of your interview also, I would be happy to share it.

I look forward to reporting back soon with further progress, and hope to also hear back from you if you have any input for me.

Best wishes,
Anna

Anna F. Brown