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Developments of pedagogical beliefs and strategies are constantly changing. Teachers from elementary school through college-level are always looking for the most effective way to present content materials to have students retain more information and enjoy learning. Likewise, teachers are constantly evaluating and redesigning their teaching methods in order to achieve a higher quality educational experience for their students. As with anything else, education also goes through changes based on culture, significant events, modifications to governmental regulations, and research. The implementation of technology into the classroom has been a long-developed change, a paradigm shift for educators and students, and an opportunity to make learning more dynamic and more diverse for an ever-diversifying population of students.

One significant change to the layout of education has been the development of the flipped classroom (also known as the inverted classroom, backwards teaching, backwards classroom, or reverse classroom). The concept of the flipped classroom is that it takes the layout and design of the traditional, lecture-based classroom, and flips it around. The traditional, lecture-based classroom is just that: a classroom in which students are lectured (or presented information) by an instructor. Then, in order to practice concepts that have been lectured upon, students receive practice assignments, or homework, where they take the knowledge learned in the classroom, go home, and complete the assignments on their own time. However, with flipped education, the instructor creates lecture materials that can be viewed virtually at home, and then “homework” is done in the classroom with the guidance and support of the instructor. Technology such as video capture, video lectures, and Learning Management Systems (LMSs) have made the creation, development, and delivery of these educational materials easy for the instructors to organize, and the students to access.

Flipped education, as a concept, still has a working definition. According to the Flipped Learning Network (2014a), the definition is:

*A pedagogical approach in which direct instruction moves from the group learning space to the individual learning space, and the resulting group space is transformed into a dynamic, interactive learning environment where the educator guides students as they apply concepts and engage creatively in the subject matter.*

Therefore, the concept of flipping the classroom is not an arbitrary decision or accidental assignment, but rather, it is a thoughtful paradigm shift of teaching methodology. The Flipped Learning Network has also identified “The Four Pillars of F-L-I-P,” which are: Flexible Environment¹, Learning Culture², Intentional Content³, and Professional Educator⁴. These four pillars further indicate that instructors look-
ing to make the change to a flipped classroom are not only modifying the layout of their classroom or the way that information is conveyed, but also the culture of the classroom, the expectation of student and instructor, and the further development of the instructor as a professional.

For an instructor looking to flip their classroom, a tremendous amount of work needs to be done in the outset of this process. Turning all face-to-face lectures, notes, and materials into video casts or podcasts, uploading them, organizing them on the LMS, and creating appropriate assignments for inside the classroom is an enormous undertaking. The time constraints surrounding the set-up of these materials is undoubtedly what deters some instructors from flipping their classroom, despite their interest and belief in the process. However, as previously mentioned, the changes are not only to the development of the materials but also to all aspects of the classroom including the instructor themselves. Therefore, this process will take time not only in the preparation but also sufficient time for reflection and modification based on experience.

For instructors looking to make the change towards flipped education, there are a number of introductory resources available to support this pedagogical shift. Conferences, workshops, and online resources (such as the Flipped Learning Network) are a few of the sources readily available. Also, texts such as Bretzmann’s *Flipping 2.0: Practical Strategies for Flipping your Class* (2013), Walsh and Walsh’s *Flipped Classroom Workshop in a Book* (2013), Plunkett and Beckerman’s *The Flipped Classroom: A Teacher’s Complete Guide – Theory, Implementation, and Advice* (2014), among many others, serve as guidebooks for instructors looking for the individual support of their flipped experience, in their own home, and on their own timeframe.

Such guidebooks and online resources are invaluable to those looking to make the flip, or those in the process of flipping. Once an instructor makes the change, and begins to critically examine the effectiveness and outcomes of their flipped classroom, they will undoubtedly make changes to their methodologies in order to better suit the needs of the students, or the requirements of the institution. More research and publication in this area of critical analysis need not only to allow instructors to make informed decisions of their flip but also to continually improve upon their flip, and best engage students, parents, administrators, and other instructors who may be interested in, but concerned about the ramifications of flipping.

Although the initial development of the flipped classroom is time consuming, many instructors who have navigated this process have found their flipped classroom to be more engaging and more accessible for students’ learning needs. The flipped classroom continues to generate momentum and interest from educators at all levels. In a survey conducted by Sophia and the Flipped Learning Network (2014b), some 96% of responding teachers recognized the term “flipped learning,” as compared to 73% of teachers recognizing the term two years ago. Likewise, this study reports:

*The vast majority of flipped teachers (93%) have adopted this method through their own initiative, with three quarters indicating their school administrators support their independent flipped classroom efforts. These statistics clearly show the flipped classroom is no longer something done behind closed door, flipped [sic] learning is in the mainstream.*

As flipped education continues to increase in popularity and utilization, more information will be researched and published on this subject. Not only will the forthcoming research serve as guidebooks for individuals looking to start the process of flipping a classroom, but it will also serve as critical analyses to the various functions, operations, beliefs, and understandings of this type of classroom.
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Therefore, the goal of this edited collection is to present multiple instructors’ perspectives and experiences on the flipped classroom. These perspectives cover concepts such as planning, funding, working within educational or administrative guidelines, core classes, student perspectives, assessment, and technological considerations, among numerous other concepts. This text is not only meant to serve as a resource for individuals looking to flip their classroom, but it is also meant to serve those seeking a more in-depth critical analysis of this pedagogical change. The target audience of this text would be instructors interested in potentially flipping their classroom, those that have already done so, those that are hesitant to do so, as well as administrators who are engaged with, or opposed to, flipped education. The well-rounded nature of this text is not to advocate solely for the effectiveness of flipped education, but to provide sufficient information so educational representatives can make informed decisions about their pedagogies and methodologies.

Below is a breakdown by chapter of the information discussed in this collection. This collection is split into two main sections: the first section includes discipline-specific evaluations of flipped classrooms, whereas the second section discusses more macro-institutional-level considerations of flipped education.

Chapter 1 discusses the author’s experiences in developing, implementing and assessing an online module covering argument development for English 101 and 102, the cycle of First-Year English classes, at University of Wisconsin – Whitewater. The author offers a blueprint for the development of online modules—from planning and funding to implementation and assessment—in order to suggest new approaches to the flipped or inverted classroom that may be of particular interest to disciplines driven less by content and more by concepts and skill-acquisition (e.g. rhetoric and composition). The chapter also offers advice and best practices for instructors interested in developing such modules in order to supplement student learning.

Chapter 2 chronicles a flipped classroom being implemented in an undergraduate mathematics course. There is a need to enhance learning experiences in STEM disciplines, and early level mathematics classes are a crucial component of any STEM-related field of study. The authors seek to redefine the traditional relationship of instructor as the active conveyor of knowledge and the student as the passive receiver of knowledge. They discuss their efforts to plan and prepare for the course and their experiences with its implementation. The authors started with what they wanted their students to learn in the course. Prior to coming to class, students watched video lectures and completed pre-work assignments. In class, the authors incorporated group-work through peer-instruction and lab activities, and the use of a classroom response system. They present the results of their data collection, feedback from student response surveys. Among other results, the students realized the value of preparation and took an active role in the formation of their own learning experiences.

Chapter 3 discusses flipping the composition classroom. Research gathered from approximately 179 students over five semesters demonstrates how using the flipped classroom to teach composition in a face-to-face classroom improves students’ writing. Included is the contrast between student learning via the traditional model versus the flipped model, and a theoretical basis for why the flipped classroom model is successful is established. The author champions the many advantages of the flipped classroom but concedes it is not without its challenges. These challenges are explored and strategies for creating and using screencasts effectively are recommended so that other instructors may successfully flip their own classrooms.

Chapter 4 reviews some of the most common concerns pertaining not only to the quality of higher education in general but also to that of foreign language teaching in particular. It analyzes the reasons that there is a general sense of dissatisfaction with the results of traditional practices to language learning
and discusses the benefits of implementing the flipped model to enhance the quality of instruction. In addition, it underlines the importance of adopting innovative technologies to increase language development in a world in which instructors are expected to be more productive and students have to reach higher learning outcomes.

Chapter 5 critically examines flipping an introductory-level accounting course. The flipped learning experience provides learners with pre-class activities that allow them to understand subject matter. This understanding is subsequently used during the class to develop higher-level appreciations of the subject through problem-based and collaborative learning activities. The reoriented roles and dynamics of learning afforded by flipping provide opportunities for active learner-centered learning; however, these opportunities are sometimes not considered or underappreciated. This chapter rethinks the structure and dynamics of flipped courses and explores the instructional possibilities offered. In particular, it considers the opportunities and challenges of flipped instruction and examines the author’s experience in flipping an Introduction to Accounting course. The chapter provides suggestions on how instructors and learners can best take advantage of the opportunities created when the learning experience is flipped.

Chapter 6 shows a qualitative pilot study that investigated how 19 students enrolled in an entry-level college writing course responded to the use of video technology to supplement and flip class curriculum. Students were provided 10 video podcasts to augment course content and flip four class lessons. Collected through six student surveys and video download data, the results, including students’ podcast viewership behaviors and attitudes toward the videos, are presented. The data revealed the college writing students involved in this study were generally satisfied with the flipped classroom and preferred it over the traditional lecture format. Download patterns indicated, however, less than half of the students watched the podcasts. Despite low viewership, the results suggest that the incorporation of video technology brings writing teachers opportunities to optimize class time by delving deeper into course content and expanding the number of course assignments.

Chapter 7 demonstrates the pedagogical effectiveness of flipping by describing the methodologies and assignments used in a flipped organic Chemistry I course and by assessing the performance and experiences of students in a flipped course in comparison to those in a not flipped control section. Historical data and learning outcomes of students in not flipped courses is discussed as indicators of why the flipped pedagogy was implemented. Both quantitative and qualitative data are analyzed, along with the challenges and best practices for flipping. The findings have useful implications for educators interested in flipping their own classrooms, as well as for the researchers and administrators who support them.

Chapter 8 addresses spatial considerations of the flipped classroom. Many institutions across the United States and internationally have adopted the flipped classroom pedagogical model for its potential to enhance learning and retention by creating interactive classroom environments. While the flipped model has plenty of promise, the technology involved—including access to online videos, readings, and other materials—can be problematic for students on campuses in rural settings. Furthermore, traditional classrooms designed for lecture also inhibit student mobility and flexibility, which complicates the implementation of flipped models. The authors examine the challenges faced by those attempting to incorporate flipped strategies when electronic spaces are intended to supplement physical ones.

Chapter 9 discusses challenges of flipping a class. Adoption of new practice only occurs if the proposed change is perceived as being beneficial and if the challenges associated with implementing the new practice are not overwhelming. The teaching method of flipping the classroom is a newer practice that has received a lot of attention in current literature, where the potential benefits are thoroughly discussed. The challenges associated with flipping the classroom are more obscure in the literature. The purpose
of this chapter is to outline challenges associated with flipping the classroom and propose solutions to overcome each of the challenges described. Challenges of implementing a flipped classroom can occur at the institutional or individual level and can be categorized as technological or non-technological. Specific challenges to be discussed include technology delivery challenges at the organizational and individual level, lack of technical support, IT infrastructure challenges, inadequate technical and non-technical training resources for instructors, instructor and student resistance to using non-traditional teaching methods, the inability to assess student comprehension using traditional strategies, increased course preparation time, and lack of student preparation or buy-in.

Chapter 10 discusses what is needed to prepare students for the flipped classroom. Flipped learning is a pedagogy that emphasizes higher levels of learning by inverting the traditional in-class faculty lecture and information-discovery phase with the typical out-of-class student practice phase through homework activities. In this chapter, the author shares experiences in creating and implementing flipped learning using traditional textbook reading out of class and active learning strategies in class. The initial experience of flipped learning led the author to determine that university students require preparation for flipped learning, especially when students are required to read the textbook as out-of-class preparation and to engage in collaborative activities in class. The purpose of this chapter is to provide strategies for preparing university students for flipped learning. A brief review of the literature related to flipped learning and a look at the author’s initial flipped learning experience are reviewed to provide support for the need for student preparation.

Chapter 11 discusses peer instruction in the flipped classroom process. Peer instruction flipped learning blends the concepts of flipped classroom and peer instruction in order to maximize the strengths of both techniques. Peer Instruction, a student-centered learning approach developed by Eric Mazur of Harvard University, engages students in the learning process through small group discussions. Flipped classroom, credited largely to Jon Bergmann and Aaron Sams, reverses the roles of traditional lecture and “homework” in order to maximize student learning. This chapter discusses the research on peer instruction and flipped learning, the details of implementing the peer instruction flipped learning model, and the benefits of using a peer instruction flipped learning model. This chapter also details one high school’s experiences with these strategies.

Chapter 12 analyzes the flipped classroom as a space. Teaching in flipped or “reversed” classroom mode builds on established student-centric teaching practices that have been in use for decades. Next Generation Learning Spaces (NGLS) further transform the way collaborative learning can enrich students’ learning experiences. This chapter discusses expectations, perceptions, and experiences of teaching in flipped classroom mode. In addition, it explores the experiences of students in a senior undergraduate rhetoric and composition course in Australia. This chapter reports on studies that assessed students’ perceptions of how the space they learned in, and the flipped classroom mode, impacted on the way they approached interaction with their teacher and peers, and how participation in collaborative activities enhanced their learning. It frames the teacher’s experiences of adaptation to the new teaching method and environment, and to the creation and evolution of collaborative assignments, both formative and summative, which are suitable for use in flipped classroom teaching.

Chapter 13 discusses specific considerations of creating materials for the flipped classroom. Screen-casting and screen capture technologies have been used extensively by teachers in flipped instruction, placing students as passive recipients of knowledge. This chapter proposes a way to engage students as users of screen recording software in order to learn the research process. By visually recording various
steps as they conduct research, students reveal authentic successes and mistakes in their research, ultimately resulting in an experiential understanding of an effective research process. The purpose of this chapter is to prepare teachers to implement this strategy as they teach students how to conduct research, and it includes software comparisons, suggestions for overcoming challenges, and benefits to students.

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REFERENCES


ENDNOTES

1 According to the Flipped Learning Network (2014b), Flexible Environment refers to the following: “Flipped Learning allows for a variety of learning modes; educators often physically rearrange their learning spaces to accommodate a lesson or unit, to support either group work or independent study. They create flexible spaces in which students choose when and where they learn. Furthermore, educators who flip their classes are flexible in their expectations of student timelines for learning and in their assessments of student learning.”

2 According to the Flipped Learning Network (2014b), Learning Culture refers to the following: “In the traditional teacher-centered model, the teacher is the primary source of information. By contrast, the Flipped Learning model deliberately shifts instruction to a learner-centered approach, where in-class time is dedicated to exploring topics in greater depth and creating rich learning opportunities. As a result, students are actively involved in knowledge construction as they participate in and evaluate their learning in a manner that is personally meaningful.”
According to the Flipped Learning Network (2014b), *Intentional Content* refers to the following: “Flipped Learning Educators continually think about how they can use the Flipped Learning model to help students develop conceptual understanding, as well as procedural fluency. They determine what they need to teach and what materials students should explore on their own. Educators use Intentional Content to maximize classroom time in order to adopt methods of student-centered, active learning strategies, depending on grade level and subject matter.”

According to the Flipped Learning Network (2014b), *Professional Educator* refers to the following: “The role of a Professional Educator is even more important, and often more demanding, in a Flipped Classroom than in a traditional one. During class time, they continually observe their students, providing them with feedback relevant in the moment, and assessing their work. Professional Educators are reflective in their practice, connect with each other to improve their instruction, accept constructive criticism, and tolerate controlled chaos in their classrooms. While Professional Educators take on less visibly prominent roles in a flipped classroom, they remain the essential ingredient that enables Flipped Learning to occur.”