An Investigation Into The Effects of Flip Teaching On Student Learning

By

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Abstract

The purpose of this research study was to investigate the effectiveness of flip teaching on student learning. A sample of Ontario high school teachers were interviewed about their experience with, and perspectives on, flip teaching. Conceptualization of student learning is based on student motivation, student content knowledge, and student self-regulation of their own learning (metacognition). Findings suggest flip teaching increases student motivation, student knowledge of curriculum content, and student self-regulation.

Keywords: flip teaching, flip classroom, learning with technology, technology pedagogy, student motivation
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Introduction to the Research Study

The presence of instantaneous, multi-tasking devices like smartphones, iPads, laptops and computers has an impact on knowledge generation and education for adults, teenagers and children alike. The ubiquity of these devices is illustrative of the drastic changes that have occurred in the way people communicate in the 21st century; from traditional, direct, human-to-human forms to more visual and online forms. Generations Y (born approximately from 1980s – early 2000s), and Z (born approximately from mid 2000s – present day) are groups who have become most comfortable with technology, and arguably, reliant on it, in the context of their daily lives. James McNutt, author of *Flipping the Classroom* (2013), argues that this prevalence of technology has an impact not only on the ways that people relate to one another, but also on the ways that students learn. McNutt (2013) argues that “since teenagers spend an increasing amount of time interfacing with audio, visual and textual information on a daily basis, through the technologies of television, video games and computers, it is prudent of educators to employ such communication tools to benefit their students” (p.1). As a response to the above reality, many North American teachers have started to “flip” their classrooms.

To “flip a classroom” is to reverse the traditional, teacher-directed structure of learning, and to allow for a more student-centered model (Sams and Bergmann, 2012). A flip classroom requires that students watch a video at home for their lesson, and complete their homework in class the following day. Proponents of this model argue that this structure allows the teacher to better facilitate and support his/her students individually, as class time is freed by removing the lecture from the classroom. This flip method also
allows students to learn in a manner heavily integrated with technology, which may be more appealing and relevant to their lifestyles.

Unfortunately, a current problem is that some teachers are too eager to follow the flip hype, and are beginning to flip their classrooms without adequate knowledge or preparation (Sam and Bergman, 2012; Ash, 2012; Bergmann and Waddell, 2012; Fulton 2012a). Kathleen Fulton, author and Educational Technology Consultant, for example, believes:

Educators are notorious for jumping on passing fads and chasing the newest innovations, from the open classrooms of the 1970s, to the one-laptop-per-student initiatives of the past decade. It’s not surprising that when the next new thing – the flip classroom – hit the hallways of America’s schools, it was met with hesitation and skepticism from teachers, parents and educational critics (2012a, p.12).

Whether teachers’ motives to flip are to further technologize their teaching practice, better relate to students’ lifestyles, or to follow the latest trend in teaching, without adequate preparation or meaningful implementation, students’ learning may be in jeopardy. For this reason, it is important that research investigates how this instructional paradigm can be implemented in effective ways and to learn what areas of implementation teachers struggle with (Bull, Ferster & Kjellstrom, 2012). For instance, Linda M. Gojak (2012), President of the National Council of Teachers of Mathematics of Canada and the United States, argues, “the question is not whether to flip, but rather how to apply the elements of effective instruction to teach students both deep conceptual understanding and procedural fluency” (p.1). It is important that teachers who are
considering flipping their classrooms become informed not only about the positive impacts of the flip classroom, but also the potential negative impacts that flipping may have on student learning.

This problem is important to the research community because there is not enough information known about the potential benefits flip teaching can have on student learning, motivation, self-regulation of learning, or their understanding of curriculum content. The video-technology component necessary to flip a class, amidst the current drive to further integrate technology with education, has resulted in a very large interest amongst teachers across North America (Springen, 2013).

**Purpose of the Study**

In this context, my specific intention for this study was to examine the potential impacts of flip teaching on student learning. I was curious: to flip is to ask students to abandon a very familiar traditional structure of learning, but is this drastic change worthwhile? While research by Fulton (2012b) suggests that many students are attracted to the structure of a flip classroom, less is understood about the specific impacts the flip model has on student learning. The purpose of this research study was therefore to engage the experiences and perspectives of flip teachers, and to hear from them what impacts they have observed on student learning, with the goal toward informing teacher practice. I conceptualized student learning in this study as teachers’ perceptions of student engagement, student self-regulation of learning, and student understanding of curriculum content.
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Preview of Methodology

Because the majority of researches conducted to date on flip teaching have been American, it was important to me to contribute perspectives from Canadian teachers. For that reason, I sampled for teachers working in Ontario, Canada. I was also interested in learning about the possibilities of implementing flip teaching in a range of secondary subject areas. Participants thus include teachers of Marketing, Business, Chemistry, and History. Using semi-structured interviews, I spoke with teachers about their experiences and perspectives with flip teaching and about the impacts that they have observed on students’ learning experiences.

Research Questions

The central research question that guided this study was: “How do a sample of teachers committed to flip teaching implement this model and how do they perceive the effectiveness of flip teaching for student learning?”

Sub-questions included:

- How do participating teachers define flip teaching?
- How do these teachers implement flip teaching?
- What perceived impact, including benefits and challenges, do these teachers observe flip teaching having on student learning?
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Background of the Researcher

My research interest is largely inspired by my undergraduate experience studying Film and Media at Queen’s University. The most memorable drama course I took was a partial-flip course taught by Grahame Renyk. In this course, video was the only form for delivering curriculum content, and students were expected to learn the content outside of class hours. Throughout this course, I remember feeling extremely motivated and engaged as a flip classroom student because I was able to control the pace of my own learning by pausing and rewinding watching the video lectures. Additionally, I felt the classes were far more enjoyable because instead of absorbing information, we were engaged in meaningful collaborative activities, rich discussions and interesting demonstrations. This positive learning experience stood as a contributing factor in my decision to pursue a Master of Teaching as the Ontario Institute of Studies in Education (OISE), and an even larger influence on my research of the effect of flip classrooms on student learning.

My first practice teaching experience in a Toronto middle-school had me question what a best teaching practice was. I noticed the majority of students’ educational resources were textbooks, and for many students, these were intimidating and not engaging. This teaching experience also made me aware of how difficult it was for a teacher to get one-on-one time with their students; this lack of opportunity distracts teachers from getting to know every student’s areas of strength and need. This lack of attention may cause students to fall behind in class, and become discouraged and unmotivated. When I spoke with teachers about flip teaching, it seemed most had heard of it, but were generally uninformed and unsure of the positive effects on student
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learning. These experiences combined, motivated me to dig deeper, and embark on a study of flip classroom teachers’ experiences, to see if it is a worthwhile teaching practice.

My research on flip teaching is also motivated by my curiosity as to whether this is a model of teaching that I will apply and be committed to in my own work as a classroom teacher. I want to learn about the range of challenges my future students and I may face, along with the benefits my students and I may gain. I am also interested in sharing my findings and their implications with my network of teacher colleagues. It is important to me that I am able to share what I learned through the study with the school boards, schools, and colleagues, so that we can work together to meaningfully integrate technology into 21st century teaching and learning. Finally, I hope to create opportunities for future generations of students to experience the confidence and level of engagement that I experienced as a learner in a flip classroom.

Overview

This paper contains 5 chapters. In Chapter 2 I review the relevant literature on flip teaching. I organized my literature review by looking at areas of variance of flip teaching, advantages of flip teaching, disadvantages of flipped teaching, and flip teaching against the SAMR model. In Chapter 3 I elaborate on the methodology and procedures that I used in this study, and I include information about the participants and the data collection instruments. In Chapter 4 I report the research findings, including how teachers structure their flip teaching, as well as what impacts they have observed on student learning. In Chapter 5 I provide an overview of the study and discuss the
implications of the data for the education community. I also make recommendations and suggest resources for teachers who are new to the flip teaching model.

I am hopeful that the findings from this research will inform and support new and experienced teachers who are unfamiliar or intimidated by the realm of technology in their classroom. I want curious teachers to be inspired to flip and explore the benefits of this teaching model, with a well-informed background. I hope the education community may recognize the potential of flip teaching for student learning, and be more open-minded to reconsidering traditional teaching practice.
Chapter 2: LITERATURE REVIEW

**Introduction: What is flip teaching?**

The practice of flip teaching is currently receiving a considerable amount of attention within the education field, despite it’s short history, only having been established in Colorado, United States in 2007. To “flip” or “reverse” the traditional lecture-based classroom model is to have students learn subject content outside class hours, and come to class prepared to work on their “homework” during the class period. Proponents of the model assert that it allows teachers to maximize their face-to-face time with individual students, and to offer more one-on-one assistance while students complete their schoolwork (cite those people). While efforts to challenge the traditional “lecture-homework” approach to teaching have been more predominant since the 1970’s, the modern flip classroom is unique in its emphasis on using video as the primary source of content delivery (Springen, 2013). Because the flip teaching method is relatively new, a fairly limited body of research has been conducted to date. Although there exists a fair amount of opinion-based literature and some quantitative research conducted by Kathleen Fulton (2012a; 2012b) and the Flipped Learning Network (2013), little research has been conducted that investigates teachers’ experiences of, and perspectives on, flip teaching.

In order to provide a broad context for my investigation of flip teaching, I have examined an array of available literature. Certainly, the literature suggests that the flip teaching method, which manifests itself in a flip classroom, offers a unique set of advantages to teachers, students and parents. Such advantages include: students’ ability
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to move at their own pace, 24/7 access to customized curriculum, opportunity to watch multiple flip teachers’ videos for thorough understanding, classroom time more effectively used, parents able to learn alongside students, and teachers able to get a stronger insight into students’ learning styles (Fulton, 2012b). Alongside these benefits, a study also suggest that teachers are confronted by an array of challenges, generally relating to matters of equity (Hamdan et al., 2013). The primary question that directed my review of the literature was: what has existing research found related to the effectiveness of the flip teaching model for student learning?

Taken as a whole, this literature review examines four major themes that run through the current literature on flip teaching: 1) the history of flip teaching, 2) advantages of flip teaching for student learning, 3) disadvantages of flip teaching for student learning, and 4) situating the flip teaching model with the technology integration reference tool SAMR (substitution, augmentation, modification, and redefinition).

**History Of Flip Teaching**

Flip teaching is a method that was created in 2007 by Aaron Sams and Jonathon Bergmann, two teachers from Colorado. They were Chemistry Teachers and Department Heads at Woodland Park High School, located in the small-town of Woodland Park, Colorado. Sams and Bergmann created the method of flip teaching as a response to the large amount of student absences that resulted from the far distances their students had to travel for school-related sports and activities (Sams & Bergmann, 2012, p. 3). Here, they articulate their initial objective for recording their lectures:
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In all honesty, we recorded our lessons out of selfishness. We were spending inordinate amounts of time re-teaching lessons to students who missed class, and the recorded lectures became our first line of defense (Sams and Bergmann, 2012; p.3).

At that time, Sams happened to stumble upon an article discussing new software that recorded PowerPoint slide shows (Sams & Bergmann, 2012). The pair decided to try it out and began recording and posting their chemistry lectures online. Shortly after, Sams and Bergmann began receiving a positive online response from students and teachers around the world (Sams & Bergmann, 2012). More educators were quick to realize the multitude of benefits that could come from flip teaching. In particular, these included opportunities for personalized instruction and student self-directed learning (Sams & Bergmann, 2012). In the span of a year, Sams and Bergmann were hosting flip teaching conferences across Canada, the United States and Europe, whilst training educators about flip teaching in colleges and school districts (Sams & Bergmann, 2012). In particular, through their experiences they have noticed a particularly high level of interest from North American high school teachers.

**The Variance of Flip Teaching: How Flip Classrooms are Defined**

Within the literature on flip teaching, there is a broad range of definitions and interpretations with regard to what constitutes a flip classroom. Various definitions of a flip classroom include a “traditional” flip, “partial” flip, “Khan Academy” flip, and “mastery-based” flip (Ash, 2012; Hamden at Al., 2013; Sams and Bergmann, 2012; Springen, 2013). In Aaron Sams and Jonathan Bergmann’s book, *Flip Your Classroom* (2012), they argue:
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There is no single way to flip your classroom…flipping the classroom is more about a mindset: redirecting attention away from the teacher and putting attention on the learner and the learning. Every teacher who has chosen to flip does so differently (p.11).

One teacher in a study conducted by Hamdan et al. (2013) explained that flip teaching “is not a defined model but is, instead, the result of teachers using different tools to meet individual students’ needs” (as cited in Hamdan et al., 2013, pg. 15). Ash (2012) makes a similar point when she explains; “some teachers assign a video for homework, while others allow students to watch those video in a class. Still, others make videos for the lesson, but do not require students to watch them at all…” (p.1). Others, like Bull, Ferster, and Kjellstrom (2012), disagree with the legitimacy of the “multitude of ways” approach and argue that although teachers implement flip teaching in a variety of ways, some ways are more effective than others, depending on the classroom context.

The “Traditional” Flip Classroom

Sams and Bergmann (2012) describe the concept of the flip classroom this way: “that which is traditionally done in class is now done at home, and that which is traditionally done as homework is now completed in class” (p.13). In a traditional flip classroom, they explain, students arrive to class having watched an assigned video lecture the evening prior (Sams & Bergmann, 2012). Class begins with a short question-and-answer session to allow students to seek clarification on any confusion from the video (Sams & Bergmann, 2012). Following this, students typically engage in a hands-on inquiry-based activity for the remainder of the class period while the teacher surveys the classroom and offers one-on-one support to students (Sams & Bergmann, 2012). This
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class structure then continues daily, the daily lesson is always delivered through video format, outside of school hours, and never through teacher-directed lessons (Sams & Bergmann, 2012). As an example, students in a science course who would be assigned a lab experiment would be expected to complete the experiment and all lab-related work during class hours, never for homework (Sams & Bergmann, 2012). Sams and Bergmann (2012) believe that this restructured teaching method allows for stronger class discussions and the opportunity to better assist struggling students because “the class is centered around the students and not the teacher...The teacher is simply there to provide expert feedback” (p.16).

The “Partial” Flip Classroom

The “partial flip” classroom structure is essentially a less strict version of the traditional flip model. Gwyneth Jones, Teacher Librarian at Murray Hill Middle School in Howard Country, Maryland, is an excellent example of a teacher who structures teaching and learning through the partial flip. (Springen, 2013). Jones encourages her students to watch videos outside of class hours as enrichment activities and she thus considered her classroom as “flip” (Springen, 2013). She does not require nor penalize students who do not watch the videos, however, because she is considerate that not all students have access to video streaming devices (Springen, 2013). While Jones herself characterizes her classroom as flip, Springen (2013) characterizes it as only a “partial-flip” because it represents only partial implementation of Sam and Bergmann’s traditional practice.
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The “Khan Academy” Flip Classroom

The Khan Academy is an online library database of free tutoring videos, which cover a variety of subjects. This resource is commonly used to flip math classes. What makes this approach to flip teaching different from the traditional model is that in the Khan Academy program, the creator or narrator of the videos is not the classroom teacher. In the popular TedEd video, Let’s Use Video To Reinvent Education, Salman Khan, creator of Khan Academy, explains the major advantage of using video–recorded lessons to learn: “it allows students to have control over their learning, which provides opportunity for mastery as viewers can pause, rewind or replay videos for further clarification, allowing for a personalized learning pace” (TED Conference, 2011). Sam and Bergmann’s traditional flip model thus differs significantly from the Khan Academy flip model, in that the Khan Academy model is, in Sam and Bergmann’s words: much more about a self-paced customized learning experience (as cited in Springen, 2013, p.4). The Khan Academy model also differs from the other models, in that students are encouraged to move ahead of the class if they have a strong understanding of the content, rather than learning at a pre-determined class pace from a teacher’s self-made video.

The “Mastery-Based” Flip Classroom

When it occurred to Sams and Bergmann that their traditional model of the flip classroom could be improved in 2008, they introduced the Mastery-Based Flip Classroom model. Here, they explain their reasoning:

On further reflection, we determined that despite our best efforts to meet the needs of all students, we were still pushing our kids through our curriculum whether they were ready to move on or not. We began to wonder if we could set
up a flip classroom that also had elements of a master-learning environment (where students learn a series of objectives at their own pace) (p. 9).

In a mastery-based flip classroom, it is not mandatory for students to watch videos every evening prior to class; rather, students are given an outline of all the units, along with objectives, assignments and a variety of resources (videos, texts, worksheets) (Sams & Bergmann, 2012). In this model, students are expected to complete units at their own learning pace, along with teacher support; this may include finishing labs, quizzes and exams at their personal discretion (Ash 2012).

Katie Ash, frequent contributor to the popular educational magazine, *Education Week*, has conducted research on teachers’ experiences implementing a mastery-based flip classroom model. Ash (2012) relays the experience of Ms. Deb Wolf, a high school Chemistry Teacher at Roosevelt High School in South Dakota, who employed the mastery flip technique shortly after experimenting with the original, traditional flip classroom model:

> We were dragging [such learners] along. They may have been in class, but they weren’t engaged. I know that we weren’t meeting all of their needs in the traditional classroom, and I’m not sure that we were meeting their needs in the flip classrooms either (p.3).

From this teacher’s perspective, the mastery-based flip classroom is a “true” flip classroom because it allows for more differentiated teaching than the traditional flip classroom model (as cited in Ash, 2012). She also observed that with the mastery-based flip classroom model, students who were previously unchallenged were better able to
soar through the unit, while struggling students had the opportunity to move at a slower, more comfortable pace (Ash, 2012).

Advantages

Making the Most of Class Time

A large appeal of flipping a classroom is the extra time teachers have with their students during class hours. Due to the fact that teachers are providing a video-lecture outside of class hours, more time is freed up to support student learning (Springen, 2013; Semple, 2013; Fulton, 2012). Springen (2013), for example, reported the experience of one teacher in her study who emphasized this advantage. Here, the teacher underscores the impact of flip teaching on classroom teaching time: “I was able to take a 40-minute lecture in class, reduce it to 10 minutes at home, 5 minutes in class…I probably built in an extra five, six days of block scheduled 100-minute classes through doing the classes at home through the flip” (p.4). Fulton (2012a) considers the time saved as a way of “flipping forward” one’s learning: “With class time freed up from lectures, teachers are developing open-ended, cross-curricular projects that actively engage students and bring real-life relevance” (p. 17). For Semple (2013), this availability of time means that teachers are better able to provide individual and personalized support to students.

Room for Personalized Education

A number of scholars have noted the benefits of flip teaching on teachers’ capacity to differentiate instruction (Ash, 2012; Springen, 2013). For Bergmann and Sams (2012) the flip classroom creates an ideal merger of online and face-to-face instruction, or what has become known as a “blended” classroom. Springen (2013) states
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that in the flip classroom all students are able to come to class and have meaningful one-on-one discussions with teachers, which is something previously inconceivable with the traditional model of teaching. The flip teaching model thus challenges the notion of teachers as the “disseminators of knowledge” and instead positions teachers in a mentorship and coaching role (Bergmann & Wadell, 2012; Ash, 2012).

**Student Mastery of Learning**

In the context of student learning, Bergmann and Sams (2012) believe flipping a classroom is like “giving students control of the remote” in their learning (p.24). A range of scholars has investigated the topic of student mastery of learning in flip classrooms (Ash, 2012; Horn, 2013; Semple, 2013; Fulton, 2012b). Horn (2013), underscores the sense of control a flip classroom structure gives students over their learning. In his words, “moving the delivery of basic content instruction online gives students the opportunity to hit rewind and view again a section they don’t understand or fast-forward through material they have already mastered. Students decide what to watch and when, which, theoretically at least, gives them greater ownership over their learning” (p. 1). Relatedly, Fulton (2012b) observed the opportunity created for students to watch other teachers’ videos, which can allow them to further grasp, and even master, a challenging concept. These findings have implications for a broad range of students: those who are often absent from class, those who struggle with attention and focus (perhaps due to a range of social or emotional issues), English Language Learning students, and/or students with learning disabilities.
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**More Interactive Learning Environments**

The activities facilitated during class time can drastically affect students’ learning experiences. Michael Horn (2013), Aaron Sams and Jonathon Bergmann (2012) have all found that flip classrooms can have an affect on students grades, which they believe is related to maximized hands-on learning activities (Sams & Bergmann, 2012; Horn, 2013). Horn (2013), for example, states:

> Viewing lectures online may not seem to differ much from the traditional homework reading assignment, but there is at least one critical difference: classroom time is no longer spent taking in raw content, a largely passive process. Instead, while at school, students do practice problems, discuss issues to work on specific projects. The classroom becomes an interactive environment that engages students more directly in their education (p.1).

Horn (2013) and Bergmann and Sams (2012) believe interactive learning environments can fuel student curiosity and with proper support from the teacher, this can increase student motivation, and potentially increase student learning.

**Stronger Feedback Cycle**

While existing literature on flip teaching shows a positive effect on the redesign and delivery of curriculum content and the student work environment, it also describes the effects of flip teaching on assessment and feedback practices (McNutt, 2013; Horn, 2013; Bull, Ferster, and Kjellstrom, 2012). McNutt (2013) notes that with more class time available, teachers are better able to increase and vary formative assessment. Similarly, Horn (2013) argues that the flip teaching model creates more space to answer student questions and support stronger feedback cycles, which he notes has the potential
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to have an impact on student learning. Bull, Ferster, and Kjellstrom (2012), underscore how the use of video, in particular, also creates unique opportunity for teachers to embed questions throughout materials to determine when and where students struggle, thereby creating more space for formative assessment. It is important to note that none of these sources refer specifically to research findings to support these claims.

Disadvantages

Lack of Differentiation

While some argue that the flip classroom creates more opportunity for teachers to differentiate their instruction (Bergmann and Sams, 2012), others argue that the flip classroom is limited in its narrow instructional model (Fulton, 2012a; Springen, 2013). Springen (2013) and Fulton (2012a) caution that the flip classroom model can promote a “one-size-fits-all” approach to teaching, which can have negative effects on students whose learning styles differ from those privileged in this model. Springen (2013), for example, is concerned that the flip model limits student discovery and inquiry-based learning. This is a valid concern that is important for teachers to consider when using the flip classroom model.

Same Lecture Style of Teaching

Although flip teaching has been regarded as offering an alternative model to traditional teacher centered models, some point out the ways that it nevertheless continues to privilege lecture-based didactic teaching (Springen, 2013; Fulton, 2012a). Springen (2013), for example, like many before him, argues that students learn best when
they are doing, rather than watching. Ash (2012), similarly, has described flip teaching as “a high-tech version of an antiquated instructional method” (p.1).

**Digital Equity: The Divide**

The largest critique of flip teaching surrounds concern for the “digital divide” the flip method can perpetuate (Springen, 2013; Horn, 2013; Hamdan et. Al, 2013; Waddell, 2012). It is not reasonable to expect all students have the same access to technology outside of class hours. Springen (2013) fears that students from a specific part of a country or city may not be as technologically integrated as another part of the same geographic area. This may cause certain students to be left out of the shift toward flip education. As a result, this may exacerbate the difference in the quality of education students receive. Hamden et al. (2013) also address the issue of digital equity, referencing concern for the divide this may create among ethno-cultural identities and races. According to an American survey conducted by *Child Trends* (2010), more than 90% of White and Asian/Pacific Islander children have computers at home, compared to the three-quarters of African American and Hispanic students; furthermore, about two-thirds of White and Asian/Pacific Islander children have home internet access, compared to the under half of Hispanic and African-American children (Hamdan et. al, 2013).

Horn (2013) concedes that the flip model may only be feasible in upper-income suburban schools. In his words: “if students can’t benefit from online instruction at home, then they need to receive instruction in the classroom or risk falling behind” (p.2). Bergmann and Sams (2012), however, do not believe that the lack to equitable access to technology is an insurmountable obstacle. They argue that it can be overcome with
creativity and resourcefulness like burning lecture videos onto a CD or DVD for students to watch on a device at home. They also urge more teachers to apply for grants to help alleviate the digital divide. Others, like Waddell (2012), insist that the requirement of technology use outside class hours will serve to increase an academic achievement gap between low and high-income students.

Interestingly, a case study by Fulton (2012a) discusses a low-income Minnesota school that decided to flip because of a lack of funding for textbooks. This resulted in the school’s elimination of textbooks and turn to flip teaching through videos (Fulton, 2012a). Although strong debates about the digital divide are very present in flip literature, it is clear that there are alternatives being implemented in an effort to foster digital equity.

**Time-Consuming Nature of Teacher Directed Videos**

One drawback of flip teaching, which Pat Semple (2013) and Bergmann and Sams (2012) address in their work, is the time-consuming nature of teacher created videos. To make a short lecture video, teachers need to self-produce, edit, and post online. There is a tendency for teachers to use their prep time creating videos, rather than creating rich, in-class activities. Bergmann and Sams (2012) believe this disadvantages students’ learning experiences, as the reality in many schools is that attention is moving away from engaging class activities, and more toward professional videos. This technology trap can result in teachers focusing their attention more video production than on their students.
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Concern for Student Participation

There also exists some controversy surrounding student participation in the flip teaching method (Ash, 2012, Springen, 2013, Horn, 2013). The reality of flip teaching is that students have a large amount of ownership over their learning and as Ash (2012) simply states, “for some, self-paced becomes no pace” (p.2). Ash also points out that just because a teacher flips their classroom does not mean students will be more inclined to learn. Springen (2013) acknowledges that flip teaching may cause a lack of student participation, but he considers it temporary. Horn (2013) cites comments made by Lode McCammon, Project Director of the Institute for Educational Innovation at North Carolina State University, who admits, “the same kids who don’t currently do their homework will not watch the lecture...But as you start making you class more engaging, kids who don’t usually do their homework will start doing it because they want to participate in class” (p. 3). Horn (2013) argues that that flip classes can be a way to increase student participation because they give students greater ownership over their learning by allowing them to decide how much to watch when they want.

Flip Teaching and the SAMR Model

The SAMR Model, developed by Dr. Ruben Puentesdura, is a popular reference tool within education, which categorizes the value of a technology tools in teaching. Any educational technological tool can be referenced against the SAMR model by rating the tool into one of the “SAMR” groups: “S” as a substitution, “A” as an augmentation, “M” as a modification, and “R” as a redefinition. Each SAMR level suggests how useful the technological tool is and how much it transforms students’ learning experiences to improve their learning. For example, if a majority group considers a technological
education tool as a “substitution”, this would imply it is not a worthwhile teaching practice, as it merely acts in the place of an original non-technological tool. On the other end of the spectrum, if a technological educational tool is considered by many as a “redefinition”, this suggests the technology tool is extremely worthwhile in the classroom as it allows for new tasks, which were previously inconceivable.

In the body of flip teaching literature, it is unclear where the general consensus stands in regards to flip teaching and the SAMR Model. Researchers Bull, Ferster and Kjellstrom (2012) praise flip teaching, and consider the technological tool of flip videos to be fantastic teaching tools; they highly regard the interactivity, appealing visualizations, and innovative instructional strategies of the videos. Based on this stance, I am inclined to assume they view the videos in flip teaching as a “redefinition” of regular lectures. This means it has revolutionized the traditional teacher-controlled delivery of lectures because students are now able to pause and rewind the teacher’s delivery of information. On the other hand, the negative attention Ash (2012) gives to the lack of customization in the traditional flip model implies flip teaching scores low on the SAMR model -- perhaps as a mere “substitution”. I believe Waddell’s (2012) stance aligns with Ash’s (2012), as he also disregards any innovativeness of the flip classroom entirely, “the flip classroom and similar concepts will continue to move education along the same track instead of helping it hump the track altogether” (p. 2). This perspective suggests flip teaching is a simple replacement for the traditional lecture style, and therefore, not a worthwhile practice. Overall, based on the literature, it seems the flip method is considered both valuable and invaluable based on a number of perspectives including Ash (2012), Bull et Al. (2012), and Waddell (2012). Perhaps views are
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inconsistent due to the wide and unclear definition of flip teaching. This suggests more research should be conducted on where flip videos rate in reference to the SAMR Model, so as teachers can better determine whether or not the technologized flip practice is a worthwhile practice for improving student learning.

Areas For Further Research

The widespread debates on the advantages and disadvantages of the flip teaching/classroom model propose the need for further educational research. For example, Hamdan et al. (2013) argue that more research is needed that focuses on “who benefits, in what ways and in what contexts” (p.17). Gojak (2012) argues there is a need for more studies to help educators understand how the flip model can heighten students’ conceptual and procedural understanding (as cited in Hamdan et. Al, 2013, pg. 17).

Similarly, Bull, Ferster and Kjellstrom (2012) point to the need for further research on how to best guide flip teaching practices. Finally, I cannot help notice that most current research is focused within the United States, whereas Canadian flip teaching studies to be sparse. Research on how this model is being used in Canada is also an important next step.
Chapter 3: METHODOLOGY

Procedure

I designed this study as a qualitative research study conducted through in-depth literature analyses and face-to-face interviews with practicing flip teachers from three Ontario public high schools. Interviews were digitally recorded and transcribed. Additional notes were hand-recorded during the interview.

Instruments of Data Collection

The main instrument of data collection was an interview protocol designed for one-on-one semi-structured interviews with three teachers (see Appendix A). I remained cautious to maintain consistency in the way my research questions were approached, though I was flexible in the wording of the interview questions (depending on the experience of the flip teacher).

I provided the interviewees with a copy of the interview questions one week beforehand to prevent communication barriers. This allowed for the flip teachers to have extra time to fully reflect on the entirety of their flip teaching experience. I believe this made my data stronger by creating space and time for teachers to thoughtfully reflect on how effective the flip teaching method can be for student learning. However, a limitation to this method is teachers had time to script their responses prior to the interview. A full list of interview questions can be found in the Appendix A.
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Participants

I interviewed three participants who were all active Ontario certified teachers using a flip teaching model. I was interested in interviewing teachers who had a diverse range of subject background and flip teaching experience. Initially, I planned to interview middle school teachers who use the flip teaching model, but I experienced difficulty finding teachers at this level. In the end I located a sample of Ontario high school teachers who were teachers of a diverse range of subject areas, including Grade 11 American History, Grade 12 Business/Grade 11 Marketing, and Grade 12 Chemistry. This variety enabled me to learn how flip teaching can be implemented across subject matter areas and to learn about the challenges and effectiveness of this model for students learning across a variety of curriculum content areas.

Data Collection and Analysis

After transcribing my interviews, I began my data analysis by creating an analysis memo, as recommended by Falk and Blumenreich (2005) in Making Sense of Your Learnings: Analyzing Data. During the creation of this memo, I looked carefully over each interview transcript and took general notes of themes, responses or gaps that I noticed. The second stage of my analysis process was coding. My coding procedure and data analysis drew from a “grounded theory” of analysis and representation, which involves three phases of coding: open, axial, and selective. In my first cycle of “open coding” I categorized information and gathered this data into possible codes. Then, I considered the categories and their relationships across the three transcripts. Following this, I “axial coded” by interconnecting the codes across the three interviews,
reconfiguring my broad array of codes into a more condensed pool of interconnected codes. In the “selective coding” phase, I connected my categories of codes, selecting the final, prevalent codes from all the interviews. After determining the final set of codes, I once again reflected on the relations and similarities as a whole. Based on relations, I proceeded to group these codes into suitable groups titled, “categories”. These categories were then divided into more narrow, “themes”, which spoke to my research questions.

My analysis process was also guided by Wellington (2000) and his three stages to data analysis. I completed the data reduction stage when I condensed my data into codes though the three phases of coding (open, axial, and selective). I completed the data display stage when I displayed my reductions of codes in the visual form of a graphic organizer. I drew conclusions when I compared the various codes across the data of three interviews to ultimately finalize the themes.

**Ethical Review Procedures**

This research study follows the ethical review approval procedures for the Master of Teaching program at the Ontario Institute for Studies in Education. Prior to commencing the interviews, I provided each interviewee with a consent form (see Appendix B). The letter of consent was reviewed carefully and individually with each interviewee. They were all made aware of the nature and purpose of the research study and the content of the interview questions. They were notified of their right to refrain from answering any questions, their option to withdraw from the study, and the confidential nature of participation. I informed them that I would keep their identities
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anonymous at all times, and that the transcribed interview would be safely stored on a locked, password-protected computer.

I followed the procedure, as outlined in the consent form. I asked participants to sign two copies of the letter of consent, one of which I kept for my records, and the original, for the participant’s personal records. I encouraged the participants to ask questions prior, during and after the interviews so I could make every effort possible to ensure their comfort.

Interviews were conducted either in person, at the participants’ place of work, or through a videoconference via Google Hangout. Following the interviews, I offered the participants the opportunity to access a copy of their completed transcripts for them to request to omit any data they felt did not fairly represent themselves as professional educators. I reminded participants that I would destroy the audio recording after the paper had been presented and published, and explained this may mean a period of up to five years after the data was collected. Finally, I told the participants that I would inform them when the research project was complete, and that I would send them the electronic link so that they could access the final research paper online.

**Limitations**

As with most research, this study has its limitations. Firstly, the research design had time constraints and lack of available participants. The sample size was limited, both because of the parameters of the research program and because of the difficulty I experienced finding teachers who are committed to using a flip teaching model. Similarly, the small geographical scale of this study, having surveyed public school flip teachers from Toronto and close surrounding community schools, limits this research to
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the specific southern area of Ontario. The schools discussed were primarily from demographics of middle to upper-middle class backgrounds. I would have preferred to research a greater pool of schools including, public and private. This could strengthen the study to the extent that I would collect data from a wider array of educators and a broader range of subject disciplines. Findings from previous research on flip teaching conducted in lower socio-economic areas, as mentioned in the literature review (chapter 2) often show a variety of positive and negative learning results, and a new set of advantages and challenges. Furthermore, consideration of the effectiveness of flip teaching across a broad range of grades and divisions is also important.

Another limitation of this research project is that I was not able to access student perspectives on the effectiveness of flip teaching on their learning. It would be interesting to expand the study and analyze student-learning results across different ages and genders of students. Overall, interviewing students could allow for a more thorough understanding of the advantages and/or disadvantages flip teaching has on student learning, from their unique perspectives.
Chapter 4: FINDINGS

Upon reviewing the data, I identified three main categories of data, which helped respond to my question concerning how these teachers perceive the effectiveness of flip teaching on student learning. These three categories are: Flip Structures, Disadvantages on Student Learning from Flip Teaching, and Advantages for Student Learning from Flip Teaching. In this chapter, I report these categories one at a time, and support them with quotes from the interviews. The chapter concludes with an overview of the findings.

Introduction to the Participants

All three participants in this study were Ontario Certified Teachers, and all taught senior grades at publically funded Ontario high schools.

Janice

At the time of our interview, Janice was a grade 12 Chemistry Teacher in Toronto, Ontario. While she had been teaching for 5 and half years, she considered herself new to flip teaching because she had only been implementing this model for half a year. She chose to flip individual classes within a course, rather than the entire course. She became involved in flip teaching through a Professional Development Day, when she had her first opportunity to observe the positive student engagement in a flip class. Janice observed that her flip classes had a positive effect on student learning.
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David

At the time of our interview, David was working as both a Teacher Librarian and a History Teacher. He was flipping his Grade 11 American History class in Guelph, Ontario. He had been a teacher for 24 years, and had been implementing the flip teaching model for 3 years. David got involved in flip teaching when he started looking into how technology could be used in the classroom. He believed that the flip model was an important way for students to take ownership over their learning.

John

At the time of our interview, John was a high school Marketing and Business Teacher within the Peel region of Ontario. He was implementing the flip teaching model in both his Grade 11 Marketing and Grade 12 Business class. He had been teaching for 8 years and flip teaching for the last 3 years. He became involved in flip teaching after learning about Khan Academy through Salman Khan’s TED Talk. John noticed a drastic improvement in student engagement from flip teaching, and was a strong advocate for flip teaching for 21st century learners.

Categories of Data

I grouped the research findings into three overarching categories of data. Within each, I observed a range of central themes:

Category 1: Flip Structures

Theme: The Impact of Teachers Motivation to Flip

- Moving away from direct instruction
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- Technology integration

Theme: Teachers’ use of video varied
- Physical presence of teacher in videos
- Teachers assigned post-video follow up as activities more as formative, rather than summative, assessment

Theme: Teachers structured their use of class time in unique ways
- Inquiry-based and collaborative learning
- Independent work and personalized conferencing

Category 2: Disadvantages of Flip Teaching for Student Learning

Theme: Concern over decreased student motivation and engagement

Category 3: Advantages of Flip Teaching for Student Learning

Theme: Increased student motivation
Theme: Increased student self-regulation
Theme: Increased curriculum content knowledge
Theme: Engaging all learners

Flip Structures

Various scholars who have written and researched the flip teaching method have argued that certain ways of structuring flip teaching are more effective than others for student learning (Ash, 2012; Bull, Ferster, and Kjellstrom, 2012; Sam and Bergmann, 2012; Springen, 2013). When I asked interviewees to describe how and why they
structured flip teaching the way they did they tended to refer to three factors: motivation to flip teach, structure of class time and structure of videos.

**Teacher Motivation: Moving Away from Direct Instruction**

Janice and John both expressed their main motivation to flip derived from their goal to remove direct instruction from the classroom. They believed that altering the traditional teaching method would allow them more one-on-one time with their students, which is when they believed learning happened. Janice, for example, shared: “It’s not about the videos. It’s about getting the direct instruction out of the classroom, and helping the students understand the material in the classroom…its so that you can interact with them more in the classroom.”

**Teacher Motivation: Technology Integration**

David was not motivated by more one-on-one time with students; he was motivated by his interest in integrating technology in his classes. In his words: “I started looking into how technology can be used in pedagogy and so on and that brought me down the path to the flip classroom.” David stressed the importance of making students comfortable with technology, as it allows them to develop more ownership over their learning. He states, “We see ourselves [teachers] as the people with the information and that we will give that to the students but the information is all out there. That [realization] is what led me down the path of the flip classroom.” David’s motivation to further integrate technology in the classroom through flip teaching shows his focus on appealing to 21st century learners.
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Structure of Videos: The physical presence of teachers in videos varied

Janice, David and John all made their own videos and used their voices to narrate them. Janice and David made themselves visible in their videos but John did not, for matters he did not share. Janice believed making herself visible created a personal tone, which made students feel more connected to her and ultimately, the video lectures. She stated, “The facial expressions are very important, the gestures are very important, even when you turn from the board to face the cameras, it’s all really important.”

A typical video created by Janice featured her talking to the camera and referring to a whiteboard, whereas a typical video created by David or John focused on visuals, accompanied by their voice-over narration. David made himself visible in a small box at the top corner of the video frame while he discussed the footage being shown. John created a PowerPoint lesson and screen captured the presentation, and then recorded his voice-narration to explain content. David’s videos were primarily content-heavy, composed of pictures and videos he collected online. In his words, “What I did was drastically reduce the lessons in which I was delivering content so you were not getting content from reading the textbook...my idea was you would have an overview of US history so we wouldn’t necessarily have to cover it in class.” He used videos as a direct substitute for the traditional history textbook.

Structure of Videos: Teachers assigned post-video follow up activities more as formative, rather than summative, assessment

Students’ responsibilities after watching videos varied across all three teachers. David followed-up by assigning a quiz which he created on Google Drive. His students were expected to complete the quiz after watching or re-watching the video lectures. He
did not count the marks of these quizzes for grades; rather, “it was just to see who was
getting a good grasp of the material, for when we were in class.” Similarly, Janice
required her students to fill out a worksheet of notes and further questions. On the other
end of the spectrum, John’s students had little responsibility other than to watch the video
and take some short personal notes. He relied on student feedback the following day to
interpret students understanding of the content and then used this to help direct the
grouping strategies that he would employ for in-class work.

**Structured Use of Class Time: Inquiry-Based and Collaborative Learning**

David and John reserved their class time for inquiry-based problems. John
reserved the beginning of class to hear student responses from the previous evening’s
videos. In John’s flip classroom routine, students come into class and sort themselves
into ‘know’, ‘wonder’, and ‘learn’ groups. ‘Know’ groups are for the students who
watched the video and understood it well, ‘wonder’ groups are for the students who
watched the video and did not understand it, and ‘learn’ groups are for the students who
did not watch the video. The objective during John’s class time was for student groups to
communicate and collaborate in an attempt to answer a daily critical question. John
focused more attention on the ‘wonder’ groups, and gave them one-on-one support, while
the ‘learn’ groups were expected to learn the video content and then sort themselves into
the appropriate groups afterwards. John explained how he sets up his class time, from the
beginning of the course:

I give them [students] a video at the beginning of the course that structures them
in terms of how to watch lecture videos, and what to take down in terms of
information from these videos. Then, they [students] come prepared to class.

Because of this, I rarely use videos during class anymore because if I’m asking them to watch videos at home, I don’t really want to use the class time to watch more videos – only if I’m using it for application for some sort of lesson.

In a perfect class, the majority of John’s class time would be spent with him offering one-on-one support to students as other students collaborate and communicate while working on an inquiry activity.

David’s class time was focused on constructivist activities and solving inquiry-based problems with his students, similar to John’s structure. Since David substituted content-driven videos in place of textbooks, he encouraged students to re-watch videos during class time, as many times as necessary. David’s main goal during his class time was to see which students had a good grasp of the material and which did not. Similar to John, he used the bulk of his class time to discuss solutions and answer-critical questions and problems through constructivist activities.

Structured Use of Class Time: Independent Work and Personalized Conferencing

Janice reserved her class time for supervised, independent work. Janice’s use of class time was quite different from that of David and John’s, as she chose to focus much more on personally supporting students during independent work sessions. In her words: “my idea is they [students] get their lecture-type delivery at home and then come to school and work on questions that are based [on the lesson].” She also required a “WSQ” form to be submitted by students at the beginning of class; ‘W’ stands for students’ ‘written notes’ on the video clip, ‘S’ for a summary of the main idea of the video, and ‘Q’
for a question. At times she would have students exchange their WSQ forms with one another and try to answer each other’s questions. Overall, Janice stressed the importance of using her class time for direct teacher-to-student support: “I’m hoping that because of the increased interaction between the teacher and the student, the students are starting to realize that when they use this different approach they’re understanding it better.”

**Disadvantages on Student Learning**

Although the disadvantages that teachers observed from the flip teaching model were few, some concerns were mentioned. Such concerns included worries of decreased student motivation and engagement.

**Concern over Decreased Student Motivation and Engagement**

As a teacher who was new to the flip model, Janice was uncertain about the potential impact it would have on student motivation. She foresaw some students taking advantage of the flip teaching model by not coming to class in light of the availability of lectures online. She was worried that students may only show for class on days of tests or quizzes, yet still manage to receive a high course mark. She planned to be proactive in this regard by making her students more accountable. For example, she considered incorporating more interesting activities during class time, marking students’ attendance heavily, or marking hand-submitted video notes. She believed these solutions could increase student (extrinsic) motivation by raising the stakes of participation.

All three teachers were aware that not every student responds positively to the flip model. Janice admitted that some of her students still had yet to watch her videos:
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“You’re going to get kids who don’t do their homework – that’s nothing new. What’s new is that they’re now taking that approach but with something that is the instruction for the course, rather than the practice for the course… and that is a concern.” Janice believed that with flip teaching, it was important to have student buy in. Still, she remained optimistic about the effectiveness of the flip method; she believed students would eventually adjust to regulating their learning through video. In her words, “I’m hoping that because of the increased interaction between the teacher and the student, the students are starting to realize that when they do use the different approach, they’re actually understanding it. That makes me think I should continue with it.” She added, “hopefully, as we interact more -- they see my face talking to them over their computers, and we see each other more often in class – they’ll feel a little bit more positive about it.”

Janice also claimed that the students who did not do homework are going to be the same students who do not watch the videos; however, she clarified, “that’s going to come up in any approach.” On the “flip” side, she did notice that the flip teaching model made it easier for her to assess who did and did not watch the videos: “there’s no hiding because there’s this interaction sense. If I see someone who’s not able to participate, that tells me that they weren’t able to get through the video the previous day.”

David and John both referred to issues they had with typically high achieving students who were not receptive to the flip teaching model. These students preferred the traditional lecture style model and initially did not response well to flip teaching. In David’s words: “The 90%+ students just wanted to know what they needed to know. It didn’t hinder them necessarily, but they found [learning through flip] a pain…they were more comfortable with the traditional model and preferred it.” Similarly, John explained
that some of his students “just want to be given the information. They don’t want to go and find it on their own, and in some ways, they’ve been programmed that way.”

**Advantages for Student Learning**

**Increased Student Motivation**

All three teachers observed an increase in students’ motivation to learn, evidenced through student enthusiasm for integrating with technology. Videos were to be a very powerful motivating force for delivering content material to teenage students. She noticed much interest surrounding technology and learning, and hypothesized this was because students had previously not used technology in a productive and educational way. Therefore, when her students were presented with the option to pair video technology and learning, students embraced this learning process. David shared the same experience as Janice; he claimed his students demonstrated far more excitement when they were given the opportunity to use technology while learning. He stated, “Students are online all the time and they love it…and from this, there exists a lot of opportunity to more fully engage students.” John also spoke about a shift in 21st century learners’ familiarity and enjoyment with technology and being online. He observed:

This is their learning now; they go to YouTube for everything. They look to learn about all sorts of things via YouTube. So by putting all my lessons on there…their own learning style is being given to them so they’re definitely more motivated and engaged in the lessons.
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John believed students like using technology so much because they are given the power of playing a more active role in their education, rather than the traditional passive role where they sit and listen to the teacher lecture.

Furthermore, David and John attributed their students’ increased engagement to the inquiry-based activities that flip teaching created time for. John shared how the time he gained in his flip class, allowed him more opportunity to execute meaningful, inquiry-based activities. He reported his students were consequently demonstrating a far greater excitement to learn: “They’re definitely more engaged in the lessons in the classroom because we have more time to do a lot of hands-on kinds of things.” David also believed that opportunities to plan effective inquiry-based activities and apply constructivist model to learning had a positive effect on students’ engagement.

John was unique in linking an increase in student motivation to students’ increased ownership over their learning. He often emphasized to his students the importance of taking ownership over one’s learning, and believed the flip classroom structure truly allowed young adults to understand this concept. He also argued that video was a powerful model to show students that they can learn about almost anything through other online videos; “They [students] have more control and ownership over their own learning…and they reflect on what they do more often than not.”

**Increased Student Self-Regulation**

John stressed that the video component in flip classrooms created an increase in student self-regulation of their learning. He believed the ability to manipulate the speed
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of the delivery of the video lecture allowed for far better self-regulation of one’s learning and understanding. He also believed that since students can watch video lectures at their own pace, “they understand how they learn best, and at what pace they learn.” He shared that some of his students watch the videos lectures three or four times, while others watch it once, and stop it frequently throughout. Janice also noticed that flip classrooms helped student self-regulation of their learning because of the flexibility that video allows for. In her words, “Not only are you able to get it whenever you need, but you’re always able to repeat it and review it as much as possible for your understanding.” Additionally, both teacher participants noted an increase in student discussions of their understanding and learning, which further suggested to them that flip teaching was having an impact on students’ awareness and self-regulation of their learning.

*Increase in Curriculum Content Knowledge*

According to John and Janice, flip teaching offers the great advantage of more one-on-one time with students which helps them build relationships with students and become more aware of their unique learning needs and strengths. In their view, this has an effect on students’ curriculum content knowledge. In John’s words, “you are better able to connect one to one with the students and provide them with the support that they need and the guidance they need -- you can sit down with individuals and get to know them better.”

When Janice was asked what one of the greatest advantages of flip teaching was, she answered, “…being able to connect with every student every day.” She offered the following example:
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When you come to class, it’s not just that you come to see this teacher that is some person up at the board. [Instead,] students say, ‘Hey, she talked to me last night about climate change and now she’s going to come around again, and she’s going to ask me what’s going on in my life.’

Janice believed her extra support in the classroom allowed students to better clarify concepts, and therefore, better understand and learn. She stated, “I like having the flip so I can see as students are going through the calculations if they need any help with it, if they need any extra support with it.”

Janice and John also believed that flip teaching afforded the opportunity for students to self-pace their learning by manipulating speeds of videos. John claimed to see a drastic improvement in students’ notes and understanding. He shared: “My students are able to use terms and concepts in their discussion and conversations…as a result, they truly understand the curriculum way more.” John claimed his students scored extremely well on unit tests because they were now able to review the lecture videos prior to tests, which reinforced their understanding of content.

**Engaging all Learners**

David and John observed that the flip model worked particularly well with students who were previously unengaged. John elaborated:

I think the flip model works better for those applied kids or lower academic kids. School in a lot of faces is not really for them. They don’t really like the lecture model; their focus is limited. The flip model, however – if you’re doing a lot more
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hands-on work in the classroom – is what I think they’re looking for. And that is something easily achieved in the flip model.

David noted something similar, and he considered this to be a response to the restructure of classroom time, which traditionally was about receiving information. He believed student learning could now be improved by flipping a classroom as the focus is shifted to understanding through student exploration, meaningful constructivist activities and one-on-one teacher support.
Chapter 5: DISCUSSION

In this chapter I provide an overview of the research findings and discuss their implications. I also review the limitations of this research study, and suggest areas for further research. Finally, I articulate some recommendations for teachers new to the flip teaching model and I share some resources to support them in this work.

Study Overview

In my Chapter 4 I identified three common categories from participates responses’ and these categories elucidate teachers’ perspectives on the effectiveness of flip teaching for student learning. Categories included: flip structures, the disadvantages of flip teaching on student learning, and advantages of flip teaching for student learning, which included increased student motivation, increase student self-regulation, increased curriculum content knowledge, and increased engagement for all learners.

Participating teachers observed a range of potential advantages of flip teaching on student learning. These include a perceived increase in student motivation, which participating teachers attributed to a range of factors including the integration of technology in students’ learning, support from strong inquiry-based class activities, and students’ ownership over their learning. The second advantage perceived by teachers was an increase in students’ curriculum content knowledge. Teacher participants attributed this to the one-on-one time with students that the flip teaching model affords. The third advantage perceived by teachers was the escalation of students’ self-regulation while learning, which teachers interpreted from the control students had over how they
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engaged with the video lectures. Teachers believed that the required use of video in flip classrooms gave students the ability to manipulate the speed at which they learned. This allowed students the opportunity to control, regulate and review the material, and thus, allows consistent opportunities for personalized learning. Lastly, the fourth major perceived advantage of flip teaching was being able to engage previously unengaged students. These teachers observed that the shift from teacher-directed instruction to a more student-centered teaching model with hands-on learning seemed to have the effect of reaching students who were otherwise disengaged. The most significant disadvantage that teachers observed from their experience implementing a flip teaching model was their acknowledgement that the model was not ideal for all types of learner; in particular, students who prefer to be lectured to by their teachers in person.

In order to teach effectively in the 21st century, it is important to implement dynamic teaching practices that meaningfully integrate technology, collaborative learning, self-guided learning and critical thinking. What I learned from the three teachers who participated in this study is that flip teaching is one potential avenue toward that end. According to these teachers, flip teaching has the potential to motivate and personalize students’ learning experiences, which in turn can affect academic success. Given the prevalence of mixed ability level classrooms, flip teaching can offer a creative and relevant response for meeting the needs of individual students.

To summarize, the main strengths of the flip teaching model that participating teachers identified include:

- Ownership over one’s learning
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- Engagement with technology
- Personalization of students’ learning
- Many opportunities for one-on-one teacher support
- Focus on strong inquiry-based activities

From Theory to Practice

The research findings align closely with themes privileged in the existing literature. While participating teachers observed an increase in student motivation, self-regulation and understanding of curriculum content, they also alluded to concerns with the time consuming nature of creating videos and concerns regarding student participation and accountability (Ash, 2012; Horn, 2013; Springen, 2013; Waddell, 2012). At the same time, some of the concerns underscored in the literature, including digital equity, the continued prevalence of didactic teaching and concerns about the lack of differentiation, were not concerns identified by these three participating teachers.

List of Recommendations for Teachers Who Are New to the Flip Teaching Model

All research participants in this study admitted that starting a flip classroom can be quite overwhelming at first. As with all classroom structures and teaching practices, it takes a while for teachers to find their favorite resources and learn effective strategies. Through my engagement with the literature and the insights shared by participating teachers, I created a list of recommendations and resources for teachers who are new to the flip teaching model:
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**Recommendations**

- Before you flip your classroom, become informed about the range of strategies, considerations, challenges, and supports identified in the educational research literature
- Consider how the flip teaching models aligns with your philosophy of education
- Don’t flip the whole course; start small (for example, with one unit) and overtime build up
- Apply patience. It will take students a while to get into the routine of watching the videos every night and to become accustomed to being given responsibility for their own learning
- Communicate with parents and ensure that all students have access to technology to foster digital equity. If all students do not have access, research public libraries close to their homes
- Take the time to become familiar with a range of software programs and develop confidence in using them
- Create consistent opportunities for student feedback on the flip teaching method
- Focus less on video production and more on planning and executing engaging lessons and activities in the classroom

**Areas for Further Study**

There are many areas of flip teaching that have not been yet explored, which could be very beneficial for the education community. Firstly, more research could be conducted on the opinions of where flip teaching fits in the SAMR Model; this research
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could act as a great guide for teachers considering flip teaching. Another valuable area of study would be to investigate the relationship between flip teaching and the impacts on male versus female students. Furthermore, as I mentioned in chapter 4, the interview participants observed high achieving students seemed to experience some difficulty adjusting to the flip teaching method; therefore, it may be a worthwhile study to consider the effects flip teaching has on high-ranking academic students compared to lower-ranking students. Lastly, another area for further study is an investigation into the possibility of contrasting effectiveness of flip teaching on student learning in science-based and arts-based subjects. Most of the interview participants of this study taught calculation heavy courses. Discovering the effectiveness of the flip teaching method in language arts, social sciences and humanities courses is an area worth researching.

Summary

Through this study I learned that flip teaching can be a very beneficial teaching model for students by making learning more active, personal and engaging. The findings have allowed me to understand that effective teaching occurs when individual students’ strengths and weaknesses are understood and attended to. A fantastic way to ensure this is to have time for one-on-one teacher-student conversations, and to allow students the opportunity to control the pace of their learning by distributing lectures on videos. With the extra class time gained by putting lecture materials on videos and removing it from the classroom, teachers can implement very rich and engaging inquiry-based activities and projects during class time. Overall, these three teachers’ perspectives on the effectiveness of the flip teaching method suggest that students are more responsive to learning when they are able to self-regulate their learning and they are more motivated to
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participate in class activities when they have a good grasp of the curriculum content. In future teaching roles, I intend to use the flip teaching practice so I can best attend to my students’ individual learning needs, and create a motivated learning culture in my classroom.
REFERENCES


Horn, M. (2013). The transformational potential of flip classrooms: different strokes for
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different folks. *Education Next*, 13 (3).


Semple, P. (2013). It's never too late to flip. *Internet@Schools*.


**Resources for Flip Teaching**

- Flip Learning Network, authored by Aaron Sams, Jon Bergmann, Kristin Daniels, Brian Bennett, Helaine W. Marshall: [http://flippedlearning.org](http://flippedlearning.org)
- Flipping with Kirch, authored by Crystal Kirch:
  [http://flippingwithkirch.blogspot.ca/](http://flippingwithkirch.blogspot.ca/)
- Flip Learning Resources, authored by Dan Spencer:
  [https://docs.google.com/document/d/1IOI5-tXZvOEVCFhoN5hlscenRa-8_77nx3GDdB6C-tE/edit](https://docs.google.com/document/d/1IOI5-tXZvOEVCFhoN5hlscenRa-8_77nx3GDdB6C-tE/edit)
- Flip Resources, Library Collection, authored by Dan Spencer:
  [https://www.diigo.com/user/runfardvs/flip_classroom?type=all](https://www.diigo.com/user/runfardvs/flip_classroom?type=all)
- Flip Learning: Turning Learning On It’s Head, authored by Aaron Sams:
- Khan Academy, authored by Khan Academy Team:
  [https://www.khanacademy.org](https://www.khanacademy.org)
- Cycles of Learning, authored by Ramsey Musallam:
Appendix A: Interview Questions

Brief Introduction:

Hello! It’s a pleasure to be here interviewing you today. Have you read the letter of consent? Any problems? Thank you for agreeing to let me interview you for my Master of Teaching Research Project. We are going to be discussing the topic of flip classrooms and how this affects student learning. I have 14 questions to ask you, which should take around 30 minutes to answer. Before I begin, do you have any questions, comments or concerns you would like to address?

Background Questions:

1. A). How long have you been teaching?
   B). What grades/subjects do you teach?
   C). What is a typical day like in your classroom?

Definitions/Views of Flipping the Classroom:

2. How do you define a flip approach to teaching?

3. A). Why did you get involved in teaching through video?
   B). How did this process happen?

4. Would you recommend the use of flip model for all teachers? Why or why not?

5. How accessible are resources for flip teachers? (eg: what resources do you tend to use to support your flip model?)
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Description of Responsibilities and Tools Used:

6. A). How do you use video in your class(es)?
   B). How long have you been doing this?

7. What have you done to flip your classroom? (May be repetitive)

8. A). What specific tools and resources do you use in your flip classroom?
   B). Where do you get these tools and resources?

Benefits/Drawbacks:

9. What indicators do you look for to measure your students’ learning?

(The 3 areas I will ask about to best evaluate student learning is students’ motivation/engagement, students’ self-regulation, students’ understanding of curriculum content.)

10. To what extent do you think the flip classroom model helps or hinders:
   A). Student Motivation/Engagement?
   B). Student Self-Regulation/Self-Reflection?
   C). Student content regulation/understanding of the curriculum

11. Do you find the flip model tends to work particularly well with a specific type/group of student? Contrastingly, do you think it is hindering for a specific type/group of student?

12. What are the largest challenges of implementing a flip classroom?

13. What are the greatest advantages of implementing a flip classroom?

Closing Questions:

14 A). Where do you see the future of flip teaching going? Why?
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B). Where would you like to see it go? Why?

15. What advice would you offer to a teacher who is new to flipping their classroom?
Appendix B: Letter of Consent for Interview

Date: ________________

Dear ________________,

I am a graduate student at OISE, University of Toronto, and I am currently enrolled as a Master of Teaching Candidate. I am studying the effects of flip teaching on student learning for the purposes of investigating an educational topic as a major assignment for my program. I think that your knowledge and experience will provide insights into this topic.

I am writing a report on this study as a requirement of the Master of Teaching Program. My course instructor who is providing support for the process this year is Dr. Kim MacKinnon. My research supervisors are Dr. Kim MacKinnon and Dr. Angela MacDonald. The purpose of this requirement is to allow us to become familiar with a variety of ways to do research. My data collection consists of a 40-minute interview that will be tape-recorded. I would be grateful if you would allow me to interview you at a place and time convenient to you. I can conduct the interview at your office or workplace, in a public place, or anywhere else that you might prefer.

The contents of this interview will be used for my assignment, which will include a final paper, as well as informal presentations to my classmates and/or potentially at a conference or publication. I will not use your name or anything else that might identify you in my written work, oral presentations, or publications. This information remains confidential. The only people who will have access to my assignment work will be my research supervisor and my course instructor. You are free to change your mind at any time, and to withdraw even after you have consented to participate. You may decline to answer any specific questions. I will destroy the tape recording after the paper has been presented and/or published which may take up to five years after the data has been collected. There are no known risks or benefits to you for assisting in the project, and I will share with you a copy of my notes to ensure accuracy.

Please sign the attached form, if you agree to be interviewed. The second copy is for your records. Thank you very much for your help.

Yours sincerely,

Amy Bajurny

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Consent Form

__________________________________________________________________________________

I acknowledge that the topic of this interview has been explained to me and that any questions that I have asked have been answered to my satisfaction. I understand that I can withdraw at any time without penalty.

I have read the letter provided to me by _______________________(name of researcher) and agree to participate in an interview for the purposes described.

Signature: ______________________________________________________

Name (printed): __________________________________________________________________

Date: ____________________________